U.S. Department of Transportation

Federal Highway Administration

Program Review

Program Management Improvement Team

Compliance Assessment Program Results for Performance Year 2016

National Report

November 15, 2016

Table of Contents

Table of Figures

Executive Summary

This report summarizes the PY2016 Compliance Assessment Program (CAP) review results. CAP is one component of FHWA's Risk-Based Stewardship and Oversight approach to delivering the Federal-aid highway program. Its purpose is to provide an assessment of how well recipients comply with key Federal requirements for highway construction projects. This year we focused on projects administered by Local Public Agencies.

FHWA Division office reviewers in the 43 states with local program assessed compliance with 28 Federal requirements, including core questions, contract administration, and financial management. They reviewed a sample of 1,333 projects drawn to represent all 4,192 locally administered Federal-aid highway projects authorized for construction from April 1, 2014 to March 31, 2015.

Based on the CAP review results, **we project with 90% confidence that national compliance is at least 90% to 99% for 25 of the 28 key Federal requirements we assessed.** "At least" is a conservative estimate and represents the lower range of the confidence interval. These results are generally consistent with State administered projects. The results affirm the inclusion of LPA recipient risk with the recipient responsibility corporate risk, rather than as a separate risk.

Sixteen of 28 requirements had **compliance levels above 95%**. These included nine areas with compliance levels of at least 98%. These were major change approval, percentage of work by prime contractor, stockpiled material, category of funds, expense allocation to program codes, indirect costs, STIP, responsible charge, and engineers estimate. The seven areas with compliance levels at least 95% were implementation of environmental commitments, force account justification, Federal-aid share of costs, NEPA action, Transportation Management Plans, DBE subcontractor approval, and charges after authorization. These 16 represent the highest areas of compliance for LPA projects.

Three requirements had **compliance levels below 90%; railroad/utility/right of way clearance** statements (62%), **subcontract approva**l (85%), and **erosion/sediment control (89%)**. Of the 28 areas reviewed, these were the lowest areas of compliance for LPA projects. The railroad statement issue has already been addressed. For the subcontract approval and erosion sediment control issues we recommend that no national action be taken, but Divisions should continue to work to improve States' compliance, and that we bring these questions into the core for PY18. We also recommend that Divisions offices consider the where States' compliance is below the national range. If non-compliance is assessed as a top risk, they should work to improve it.

We found some offices did not review project major change approvals because approval authority had been assumed by the State and the projects were not Project of Division Interest. While this may relate to the wording of the question, it may also indicate inconsistent interpretation or understanding of how CAP provides oversight of the approvals and related activities assumed by the State DOT under the S&O Agreements. We recommend that the Stewardship and Oversight team take action to clarify and communicate this issue and this question be included in future core questions.

We identified successful practices and found that including specific comments to support "Yes" (compliance) responses greatly enhanced the reliability of the assessments. Although not all offices implemented it, comments are required for every question. We recommend that reviewers continue to provide supporting comments for all responses.

PY16 Locally Administered Projects - National CAP Results

		compliance is*		
		at least	mean	as high as
CQ1	Project in STIP before authorization	99.1%	99.4%	99.6%
CQ2	NEPA approved before authorization	96.9%	97.8%	98.8%
CQ3	R/W, Utility, RR Statements	61.7%	62.6%	63.6%
CQ4	FHWA 1273 incorporated	89.8%	91.2%	92.6%
CQ5	TMP in plans	96.9%	97.7%	98.5%
CQ6	Bid evaluation	90.2%	91.5%	92.9%
CQ7	Responsible charge	98.4%	98.8%	99.1%
CQ8	DBE	95.0%	95.9%	96.8%
CQ9	Cost estimate	97.6%	98.1%	98.5%
CQ10	Change order cost documentation	93.0%	94.2%	95.3%
CA1	Environmental commitments	95.7%	96.6%	97.4%
CA2	Time extension justification	94.0%	95.2%	96.4%
CA3	Major change approval	99.0%	99.3%	99.5%
CA4	Force account	96.6%	97.5%	98.5%
CA5	Buy America	93.0%	94.1%	95.3%
CA6	Prime contractor minimum work	97.7%	98.4%	99.1%
CA7	Work quantities documentation	91.0%	92.3%	93.6%
CA8	Stockpiled materials	97.9%	98.4%	98.9%
CA9	Subcontract authorization	84.8%	86.3%	87.8%
CA10	Erosion and sediment control	89.1%	90.8%	92.4%
CA11	Patented and proprietary items	94.2%	95.3%	96.5%
FI1	Charges incurred after authorization	97.3%	98.0%	98.7%
FI2	Federal share unchanged	96.4%	97.2%	98.1%
FI3	Funding category unchanged	98.8%	99.2%	99.7%
FI4	Charges billed to correct program co	99.1%	99.4%	99.7%
FI5	Indirect cost rate	97.8%	98.5%	99.2%
FI6	Payroll, fleet, equip. charges	93.3%	94.6%	95.9%
FI7	Project end date in FMIS	93.6%	94.3%	95.1%

*based on 90% confidence level

Figure 1 National Compliance at the 90% Confidence Level

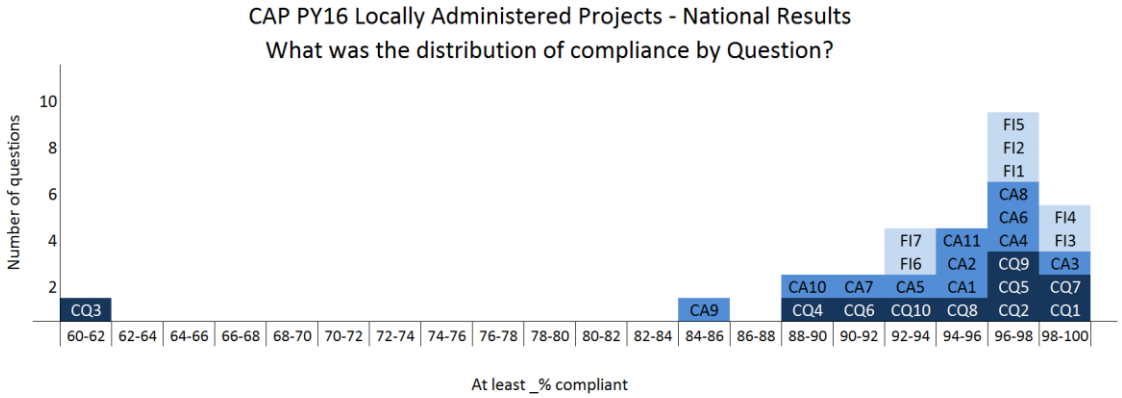


Figure 2 Distribution of Compliance by Question

Summary of Recommendations

Background

The Compliance Assessment Program provides reasonable assurance that recipients of federal highway funds are in compliance with key laws and regulations. It was developed as an element of the FHWA Risk-Based Stewardship and Oversight (RBSO) approach to delivering the Federal-aid highway program. RBSO is FHWA's framework for integrating risk management into our program performance management process to identify Stewardship and Oversight (S&O) initiatives at the national, unit (Division), program, and project levels. The approach was implemented after MAP-21 gave FHWA increased flexibility in carrying out its S&O responsibilities. We recognized that to continue to effectively deliver a large and increasingly complex Federal-aid highway program would require us to use our limited resources more efficiently and effectively. Evaluations of our prior stewardship and oversight approach identified ways to improve that were incorporated into RBSO. It is a better way to deliver the program. The RBSO framework is illustrated in *Figure 3 FHWA Risk Based Stewardship and Oversight Framework*

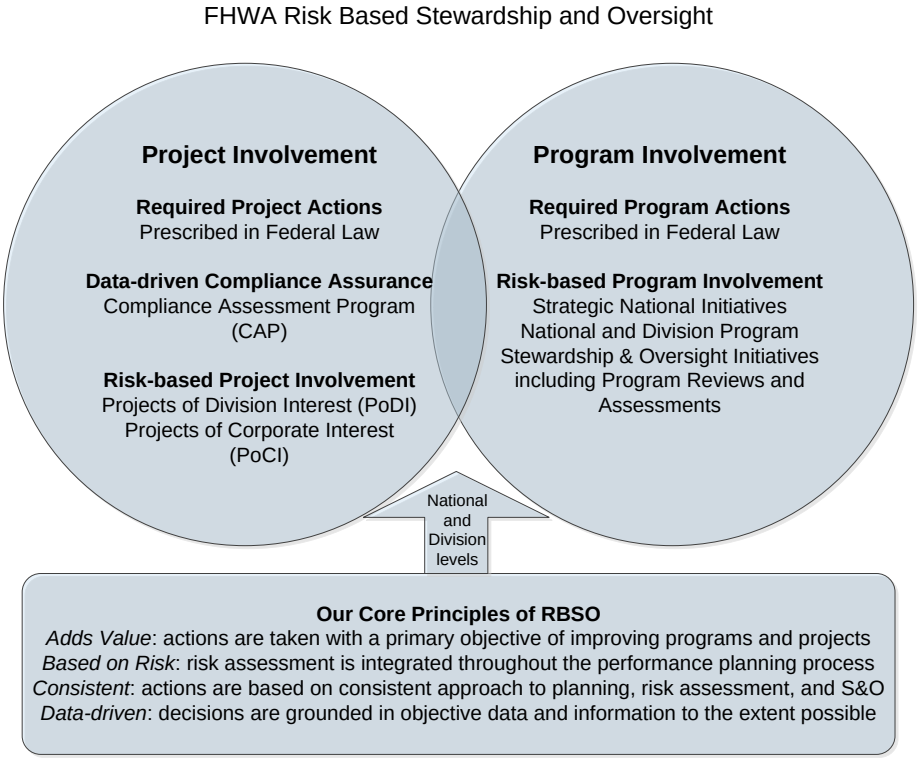


Figure 3 FHWA Risk Based Stewardship and Oversight Framework

The Compliance Assessment Program is one of three project involvement elements of RBSO and reflects the four core principles. It supports risk management by reducing uncertainty in key compliance areas. The structured sampling and reporting approach is data-driven. CAP's identical review guides, quality assurance site visits, and national discussions enhance the consistency of the review process and provide consistent understanding of how some key requirements should be applied. It adds value by providing Division office reviewers with the opportunity to offer technical assistance and other quality improvements at the project level. At the program, State, and national levels, CAP adds value by providing information about our compliance levels that can lead to better decisions on where and how to focus our stewardship and oversight efforts.

The CAP approach is objective, statistically defensible, and informs the development of Corporate and Unit risk assessments with valid information and data. The CAP was piloted during performance year 2014. This year, PY2016, was the second of a 3-year cycle that includes both national-level and Division-level assessments.

Purpose and Objective

The purpose of the CAP is to help provide reasonable assurance that Federal-aid highway projects comply with key Federal requirements. The CAP helps provide this assurance by assessing a statistically valid sample of projects to inform the FHWA, with an acceptable level of certainty, of the degree of compliance.

This year CAP was tailored to assess compliance for projects administered by Local Public Agencies. We developed and used an LPA Corporate Review Guide consisting of the 28 questions from CAP Core, Finance, and Contract Administration Technical Question Guides. The results indicate levels of compliance with key requirements for financial integrity and project delivery.

This report provides national results of the levels of compliance and analysis on areas of compliance and non-compliance for projects administered by Local Public Agencies. It also summarizes successful practices in CAP implementation.

Team Members

The program was implemented by the 257 individual reviewers and 61 supervisors in each of the 43 FHWA Division offices where the State had an LPA program. The PY2016 Compliance Assessment Program was overseen by Daniel Fodera, Lead Management Analyst, Program Management Improvement Team. His team included Gerius Patterson, who designed and developed the statistical methodology; Liz Cramer, who conducted the qualitative analysis and quality assurance, Joshua Guterman, who developed processes and tools for data validation and quality assurance, and Sharon Gordon and intern Kieran Jordon who conducted quality assurance site visits and reviews. Division Office, Resource Center, and Headquarters leaders and technical experts also made key contributions including Jerry Yakowenko, Jeff Lewis, and Danial Parker.

Scope and Methodology

The Compliance Assessment Program provides reasonable assurance that recipients of federal highway funds are in compliance with key laws and regulations by assessing a random sample of projects recently advanced to construction and making statistical estimates about overall levels of national and State compliance. For performance year 2016, the program was tailored to assess projects administered by Local Public Agencies. Compliance estimates are expressed as lower, mean, and upper limit ranges.

The project population was 4,192 locally administered Federal-aid highway projects authorized for construction or advance construction from April 1, 2014 to March 31, 2015 in 43 States. Each State project population was randomized and 1,361 projects were selected according to the minimum sample size required for 90% confidence level with 10% margin of error. For the 17 States that authorized fewer than 30 projects, all of their projects were included in the assessment, a census rather than a sample. After replacements, the final sample size was 1,333 projects in 43 States. See *Figure 4 PY16 LPA Project Population and Sample Size*

CAP reviews began on June 1, 2015 with the beginning of Performance Year 2016. Two hundred fifty seven individual reviewers and 61 supervisors in 43 Divisions conducted the reviews by asking each of 28 questions for each of the projects in the sample. (See the appendices for the questions guide, methodology, and response map.) The possible compliance responses were:

1. *Yes*, meaning that the reviewer verified that the requirement was met;
2. *Not Applicable*, meaning that the requirement did not apply to that project;
3. *No*, meaning that the reviewer assessed that the requirement had not been met; and
4. *Don't Know*, meaning that the reviewer could not verify that the requirement had been met.

All responses required explanatory comments.

As Division offices completed CAP reviews they loaded the results from each review to a central SharePoint site. After the end of the performance year, May 31, 2016, we conducted a quality assurance review by checking data fields were completed and comparing comments to responses. We resolved ambiguities by asking Division review supervisors to validate or clarify their initial assessments or comments.

To determine levels of compliance, *Yes* and *Not Applicable* responses are counted as "in compliance," while *No* and *Don't Know* responses are counted as "not in compliance" for the national and State statistical inference of the compliance rate.

We computed inferential statistics for each CAP question at the national and State levels. Therefore, for each question we can infer, with 90% confidence, the compliance proportion (i.e., average or mean), and that compliance is at least the lower range level, and is as high as the upper range level. To be conservative in our observations, we use the lower range to describe compliance. For the census States, since the margin of error is zero, the lower, mean, and upper range values are identical.

PY 2016 FHWA Compliance Assessment Program					
Division Office	Total Number of FMIS LPA Projects [1]	Number of of LPA Construction/AC Phase Projects [1]	Number of Projects Authorized for LPA Construction/AC Phase in Last 12 Months [1]	Sample Size CL=90%,MOE=10%, Response=50% [2]	Final Sample Size [3]
ALABAMA	78	32	28	21	**28**
ALASKA	0	0	0	0	0
ARIZONA	160	59	12	11	**12**
ARKANSAS	146	97	19	16	**19**
CALIFORNIA	3083	1660	595	61	61
COLORADO	428	320	41	26	30
CONNECTICUT	150	86	26	19	**26**
DELAWARE	2	0	0	0	0
DC	0	0	0	0	0
FLORIDA	455	320	92	40	40
GEORGIA	332	267	47	28	30
HAWAII	73	46	10	9	**10**
IDAHO	1	0	0	0	0
ILLINOIS	539	436	291	56	56
INDIANA	1141	724	169	49	49
IOWA	581	518	252	54	54
KANSAS	50	33	14	12	**14**
KENTUCKY	191	96	38	25	30
LOUISIANA	132	98	32	22	30
MAINE	26	26	11	10	**11**
MARYLAND	338	258	23	18	**23**
MASSACHUSETTS	5	2	0	0	0
MICHIGAN	1651	1427	644	62	62
MINNESOTA	465	344	160	48	48
MISSISSIPPI	411	327	96	40	40
MISSOURI	711	444	234	53	53
MONTANA	147	63	44	27	30
NEBRASKA	169	113	34	23	30
NEVADA	98	44	22	17	**22**
NEW HAMPSHIRE	91	45	12	11	**12**
NEW JERSEY	95	86	48	29	30
NEW MEXICO	36	11	1	1	**1**
NEW YORK	980	854	178	50	50
NORTH CAROLINA	298	153	43	27	30
NORTH DAKOTA	337	264	44	27	30
OHIO	915	815	232	53	53
OKLAHOMA	0	0	0	0	0
OREGON	411	164	53	30	30
PENNSYLVANIA	506	460	136	46	46
PUERTO RICO	0	0	0	0	0
RHODE ISLAND	6	3	0	0	0
SOUTH CAROLINA	38	26	6	6	**6**
SOUTH DAKOTA	94	69	28	21	**28**
TENNESSEE	380	212	83	38	38
TEXAS	348	240	55	31	31
UTAH	5	4	0	0	0
VERMONT	265	89	21	17	**21**
VIRGINIA	541	304	83	38	38
WASHINGTON	823	424	176	50	50
WEST VIRGINIA	66	30	18	15	**18**
WISCONSIN	135	79	21	17	**21**
WYOMING	98	43	20	16	**20**
Totals	18031	12215	4192	1270	1361

[1]Data Source: Fiscal Management Information System(FMIS4) as of April 1, 2015

[2]Sample Size Calculation: http://www.raosoft.com/samplesize.html

[3]Adjusted to minimum sample size of 30 for normal distribution to allow inference over population

[#] **Bold** indicates Census review of all projects

Figure 4 PY16 LPA Project Population and Sample Size

National Levels of Compliance

What are the projections for LPA compliance at the national level?

Based on the CAP review results, we project with 90% confidence that national compliance is at least 90% to 99% for 25 of the 28 key Federal requirements we assessed. The "at least" is a conservative estimate and represents the lower range of the confidence interval. We consider these to be generally high levels of compliance. These results affirm our 2016 decision to assess LPA recipient risk as inherent to the recipient responsibility corporate risk, rather than as an entirely separate corporate risk.

Sixteen of 28 requirements had **compliance levels above 95%**. These included nine areas that showed compliance levels of at least 98%. These areas were major change approval, percentage of work by prime contractor, stockpiled material, category of funds, expense allocation to program codes, indirect costs, STIP, responsible charge, and engineers estimate. The seven areas with compliance levels at least 95% include implementation of environmental commitments, force account justification, Federal-aid share of costs, NEPA action, Transportation Management Plans, DBE subcontractor approval, and charges after authorization. Of the 28 areas reviewed, these 16 represent the highest areas of compliance for LPA projects.

Nine requirements had compliance levels below 95% but above 90%. These were patented and proprietary items, time extension justification, project end date in FMIS, payroll/fleet/equipment charges, change order cost documentation, Buy America, work quantities documentation, bid evaluation, FHWA-1273 incorporated into contract.

Three requirements had **compliance levels below 90%**. These were **railroad/utility/right of way clearance** statements, **subcontract approva**l, and **erosion/sediment control**. The requirement for a statement that right-of-way, utilities, and railroad coordination occurred prior to authorization for construction had a compliance rate of least a 62%. The requirement to authorize subcontracts or that contractors certify that that each subcontract contained all pertinent provisions of the prime contract had a compliance rate of at least 85%. The requirement that erosion and sediment control measures were being monitored and maintained had a compliance rate of at least 89% (and as high as 92%). Of the 28 areas reviewed, these 3 represent the lowest areas of compliance for LPA projects.

See *Figure 5 PY16 LPA Compliance National Results Sorted High to Low* for the results of each question with lower, mean, and upper interval estimates of compliance

The RR statement issue is known and has already been addressed. For the subcontract approval and erosion sediment control issues we recommend that no national action be taken, but Divisions should continue to work to improve the States' compliance, and that we bring these questions into the core for PY18.

Recommendation: Division offices should work with their states to address programmatic compliance issues in the areas of subcontract approvals and erosion and sediment control. Consider assessing these issues as core questions for PY18. (Divisions)

PY16 LPA Projects - National CAP Results - Sorted High to Low

		compliance is*		
		at least	**mean**	**as high as**
FI4	Charges billed to correct program	99.1%	99.4%	99.7%
CQ1	Project in STIP before authorization	99.1%	99.4%	99.6%
CA3	Major change approval	99.0%	99.3%	99.5%
FI3	Funding category unchanged	98.8%	99.2%	99.7%
CQ7	Responsible charge	98.4%	98.8%	99.1%
CA8	Stockpiled materials	97.9%	98.4%	98.9%
FI5	Indirect cost rate	97.8%	98.5%	99.2%
CA6	Prime contractor minimum work	97.7%	98.4%	99.1%
CQ9	Cost estimate	97.6%	98.1%	98.5%
FI1	Charges incurred after authorization	97.3%	98.0%	98.7%
CQ5	TMP in plans	96.9%	97.7%	98.5%
CQ2	NEPA approved before authorization	96.9%	97.8%	98.8%
CA4	Force account	96.6%	97.5%	98.5%
FI2	Federal share unchanged	96.4%	97.2%	98.1%
CA1	Environmental commitments	95.7%	96.6%	97.4%
CQ8	DBE	95.0%	95.9%	96.8%
CA11	Patented and proprietary items	94.2%	95.3%	96.5%
CA2	Time extension justification	94.0%	95.2%	96.4%
FI7	Project end date in FMIS	93.6%	94.3%	95.1%
FI6	Payroll, fleet, equip. charges	93.3%	94.6%	95.9%
CQ10	Change order cost documentation	93.0%	94.2%	95.3%
CA5	Buy America	93.0%	94.1%	95.3%
CA7	Work Quantities documentation	91.0%	92.3%	93.6%
CQ6	Bid evaluation	90.2%	91.5%	92.9%
CQ4	FHWA 1273 incorporated	89.8%	91.2%	92.6%
CA10	Erosion and sediment control	89.1%	90.8%	92.4%
CA9	Subcontract authorization	84.8%	86.3%	87.8%
CQ3	R/W, Utility, RR Statements	61.7%	62.6%	63.6%

*based on 90% confidence level

Figure 5 PY16 LPA Compliance National Results Sorted High to Low

Were there differences between LPA compliance and overall States compliance from last year?

Yes, it was both higher and lower in some areas. We found that the LPA compliance was **higher in the areas of STIP and responsible charge**. LPA compliance was **lower in the areas of railroad/utility/right of way clearance statements and inclusion of the FHWA Form 1273** in contracts. As illustrated in *Figure 6*, we compared the PY2016 LPA compliance levels to the PY2015 State compliance levels for the ten core questions and found the compliance levels for those four areas did not overlap. For example, if the LPA upper range level of compliance was less than the PY15 national lower level, then the LPA was categorized as "below the PY15 national range". No comparisons could be made with the Contract Administration and Finance questions because they were not part of the national assessment last year.

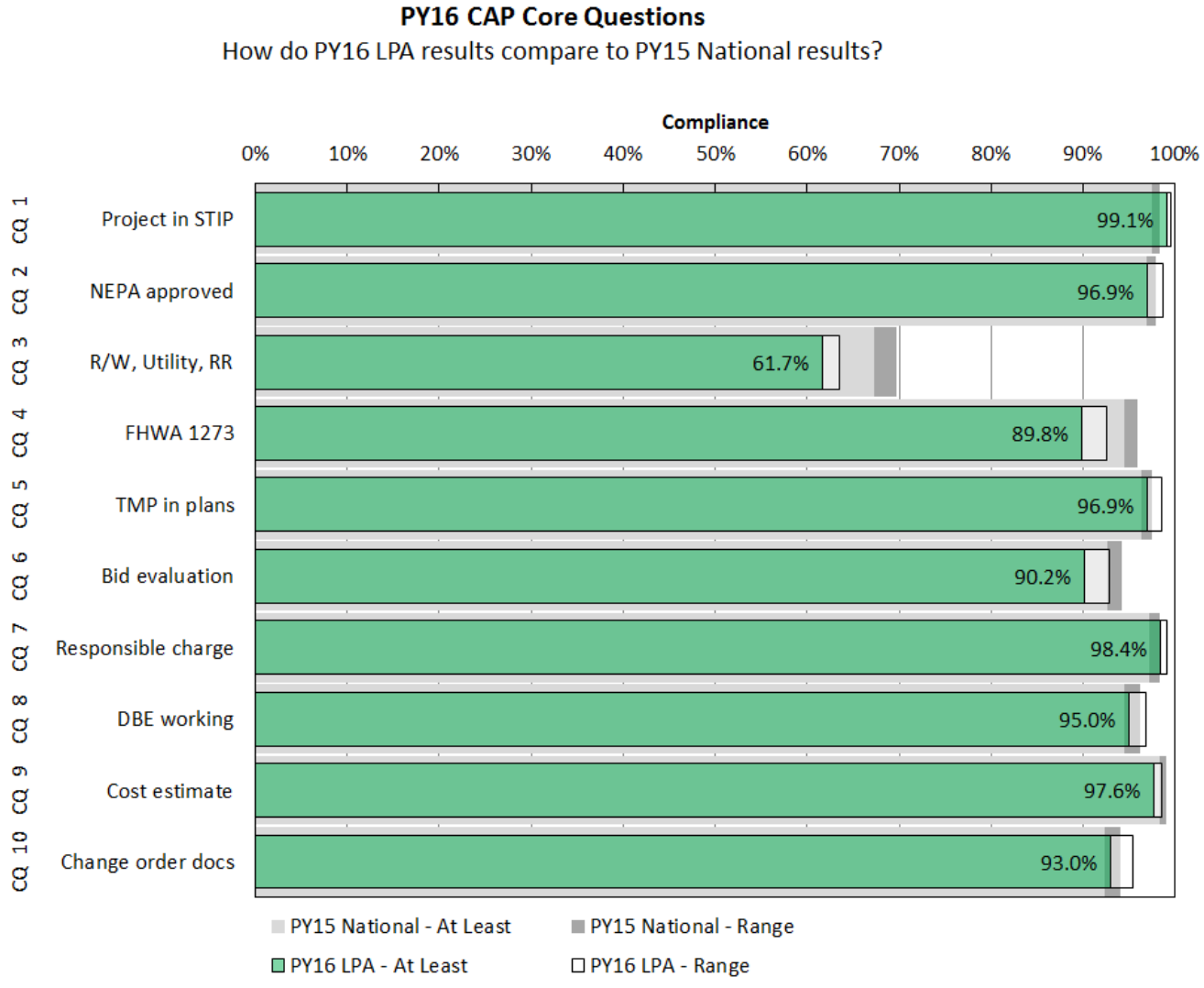


Figure 6 How do PY16 and PY15 Core Question Results Compare?

Was there variation in the compliance levels by State?

Yes, some states were below the national range of variation for all LPA projects. The largest numbers of states were below the range in areas where compliance was generally lower for all states. We assessed this by comparing individual State projections to the national projections. The CAP methodology provides a range of values where we project with 90% confidence that the compliance is "at least" the lower range level, and "as high as" the upper range level. Thus, where CAP results did not find 100% compliance and the State's upper range level of compliance was greater than or equal to the national lower level, the State was categorized as "Within the National Range." If a State's upper range level of compliance was less than the national lower level, then the State was categorized as "Below National Range of Compliance". We used this approach because it identified a normal range that has resulted from the common systems or controls put into place nationally. All States would be expected to fall within this range of variation. States below the national range of compliance represent the most opportunity for improvement.

Question	Requirement	Compliance is at Least	States below the national range of compliance	State not 100% but within national range	States in 100% Compliance
CQ1	Project in STIP	99.1%	2	4	37
CQ2	NEPA approved	96.9%	1	8	34
CQ3	R/W, Utility, RR	61.7%	19	10	14
CQ4	FHWA 1273	89.8%	7	15	21
CQ5	TMP in plans	96.9%	10	8	25
CQ6	Bid evaluation	90.2%	11	12	20
CQ7	Responsible charge	98.4%	4	2	37
CQ8	DBE working	95.0%	8	12	23
CQ9	Cost estimate	97.6%	8	6	29
CQ10	Change order docs	93.0%	7	16	20
CA1	Environmental commitments	95.7%	8	8	27
CA2	Time extension justification	94.0%	7	17	19
CA3	Major change approval	99.0%	8	2	33
CA4	Force account	96.6%	3	5	35
CA5	Buy America	93.0%	10	18	15
CA6	Prime contractor minimum work	97.7%	8	5	30
CA7	Work Quantities docs	91.0%	12	12	19
CA8	Stockpiled materials	97.9%	5	10	28
CA10	Erosion and sediment control	89.1%	8	14	21
CA11	Patented and proprietary items	94.2%	12	9	22

Question	Requirement	Compliance is at Least	States below the national range of compliance	State not 100% but within national range	States in 100% Compliance
FI1	Charges incurred after authorization	97.3%	6	5	32
FI2	Federal share unchanged	96.4%	4	8	31
FI3	Funding category unchanged	98.8%	3	3	37
FI4	Charges billed to correct program code	99.1%	4	2	37
FI5	Indirect cost rate	97.8%	3	5	35
FI6	Payroll, fleet, equip. charges	93.3%	7	8	28
FI7	Project end date in FMIS	93.6%	9	9	25

Figure 7 National Compliance Rates and Counts of States

Recommendation: Division offices should consider the impacts of non-compliance where States' compliance with a specific requirement is below the national range. Where the non-compliance risk is assessed as a needing a response, Division Offices should work with their States to identify specific weaknesses and develop plans of corrective action. (Divisions)

Observations and Recommendations:

CAP Core Questions

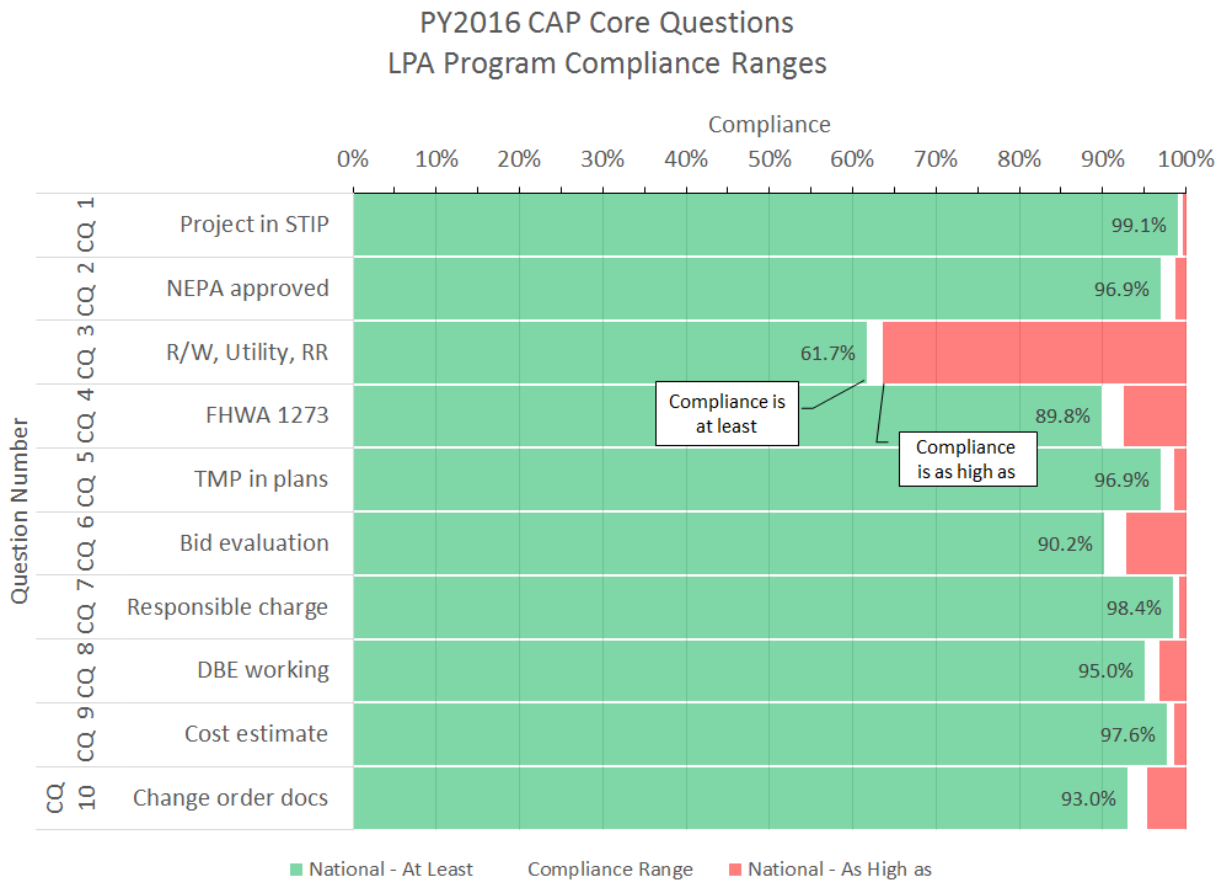


Figure 8 PY16 LPA Core Question Compliance Ranges

CQ1. Was the project included in the FHWA/FTA approved Statewide Transportation Improvement Program prior to the date of authorization in FMIS?

At least 99% of LPA projects are in compliance with the requirement for inclusion in the FHWA/FTA approved STIP prior to the construction authorization date.[1] **Thirty-seven States were assessed as 100% compliant.** This is slightly above the upper national compliance level of 98% that we found in PY2015. Divisions verified this question by finding the project in the approved STIP, then comparing the date of the approved STIP to the FMIS construction authorization date. Highway projects included in a fiscally constrained and approved STIP are part of a program of transportation projects based on the local TIP or state's long-range transportation plan and designed to serve the state's and local goals, using spending, regulating, operating, management, and financial tools. Authorized emergency relief projects are typically not included in the

[1] 23 CFR 450.220 (a) and 23 CFR 450.220(b)

approved STIP so Division reviewers would assess them as in compliance, sometimes using the review as an opportunity to assess the Detailed Damage Inspection Report. This question applied to 1,260 projects in the sample of 1,333. The few instances of non-compliance were usually attributed to errors in the amendment process.

CQ2. Was the appropriate National Environmental Policy Act (NEPA) action completed prior to the date of authorization in FMIS, i.e. Record of Decision, Finding of No Significant Impact, or Categorical Exclusion determination?

At least 97% of LPA projects are in compliance with the requirement that appropriate NEPA action be taken prior to the construction authorization date.[2] Thirty-four States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015. Divisions verified this by locating the signed environmental document in project files, then comparing the date of the NEPA action to the FMIS construction authorization date.

The NEPA document was usually a Categorical Exclusion (CE or Cat Ex) form, Programmatic Categorical Exclusion, or CE batch reports. This documentation is an essential component of the NEPA project development process. The NEPA action constitutes a key project development decision point culminating an appropriate level of evaluation, public involvement, and interagency coordination that allows others an opportunity to provide input and comment on proposals, alternatives, and environmental impacts; and provides the appropriate information for the decision-maker to make a reasoned choice among alternatives.

This area exhibits high levels of compliance and was generally easy for reviewers to verify, with projects clearly identified on the appropriate environmental documents which included signatures and dates certifying the completed NEPA action. This question applied to 1,311 projects in the sample of 1,333. Reviewers usually assessed this question as not applicable to Emergency Repair projects. The most common reasons for non-compliance included no documentation of a CE determination, choosing the wrong NEPA approval process for Emergency Relief permanent repairs, not completing a required reevaluation, the State did not document approval after local requested it, and incorrect approval authorities.

CQ3. Did the State provide a statement regarding the status of all right-of-way, utility, and railroad work prior to the date of authorization in FMIS?

At least 62% of LPA projects were in compliance with the requirement that right of way, utility, and railroad work status statements were made prior to the construction authorization date.[3] Fourteen States had 100% compliance.

The railroad statement provides assurance to FHWA that coordination has or will take place. Proper coordination with railroads and utilities can help avoid unnecessary delay or cost during construction. In the case of railroad crossings, we can avoid opening a

[2] 23 CFR 635.309(j)
[3] 23 CFR 635.309

road to traffic without the proper warnings or controls. Federal regulations[4] require that "…the (RR) crossing shall not be opened for unrestricted use by traffic or the project accepted by FHWA until adequate warning devices for the crossing are installed and functioning properly." FHWA's role in determining the adequacy of RR safety devices is relevant to tort liability claims.[5]

The LPA compliance level is below the national level of compliance we found in PY2015, but four more State were assessed as 100% compliant. This question applied to 1,253 projects in the sample of 1,333.Divisions verified this by locating statements that all right-of-way clearance, utility, and railroad work has been completed or that all necessary arrangements have been made for it to be undertaken and completed as required for proper coordination with the physical construction schedules for each project. In some States, these statements are separate while in other States the statements are grouped. Although utility certification documents were missing on many projects (191 of 488), the vast majority of non-compliant projects (470 of 488) were missing railroad coordination documentation. 27 states indicated that 2 or more of their non-compliant projects had no documentation of railroad coordination. For 13 of those states, comments also indicated that the Divisions have worked with the state to make program-wide changes to the process of documenting railroad coordination, either as a result of last year's CAP findings, or this year's, and that the non-compliant projects were through design before the changes had been implemented.

As a result of these reviews, Division offices have worked with their States to ensure that positive statements regarding railroad status are made prior to authorization and the Office of Infrastructure issued a final guidance memorandum on July 31, 2015. The Office of Infrastructure is also developing a program assessment to assist in identifying improvements utilities coordination.

Recommendation: The Compliance Assessment Program should continue to assess compliance with the RR, utility, and ROW statement requirement. Division Offices should continue to work with states to implement plans of corrective action to improve compliance in accordance with the recently issued guidance. (HIF/PMIT/Divisions)

CQ4. Are all required Form FHWA-1273 contract provisions physically incorporated into the construction contract?

At least 90% of LPA projects complied with the Form FHWA-1273 requirements. Form FHWA-1273 contract provisions must be physically incorporated into the construction contract.[6] Twenty-one States had 100% compliance. The compliance level is below the national level of compliance we found in PY2015. Divisions evaluated electronic proposals or signed project contracts to verify the presence of Form FHWA-1273. This question applied to 1,189 projects in the sample of 1,333.

[4] 23 CFR 646.214(b)
[5] Norfolk Southern R. Co. v. Shanklin.
[6] 23 CFR 633.102 and 23 CFR 633.103

Over 37 percent of the instances of non-compliance were because the form was simply missing from the contract. Other top reasons for non-compliance were recipients unaware that the requirement applied to the project type, the contract included an outdated or retyped version of the form language, or the form was included by reference or special provisions. Including the FHWA Form 1273 in the contract by reference or special provisions is not permitted. The form clearly states "*Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract*)."

Form FHWA-1273 was developed to outline the requirements of various Federal agencies in order to safeguard the investment of Federal dollars on projects. Incorporating Form FHWA-1273 intact, into all contracts and subcontracts for Federal-aid projects ensures that contractors have written notice that they must comply with those Federal requirements. Division offices that found issues here have worked with their States and local public agencies to ensure that the form is incorporated as required.

CQ5. Do the approved project plans and specifications include a Transportation Management Plan or provisions for the contractor to develop a plan?

At least 97% of LPA projects complied with the requirement to have a Transportation Management Plan (TMP) or provisions for development. Twenty-five States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015. Divisions verified TMP numerous ways including evaluating project plans and contracts to identify traffic control, signage, maintenance of traffic, or special provisions.

Approved project plans, specifications, and estimates must include a TMP or provisions for the contractor to develop one at the appropriate project phase.[7] For TMP purposes, all construction projects are either "significant" or not significant. All Interstate system projects within the boundaries of a designated Transportation Management Area that occupy a location for more than three days with lane closures must be considered as significant projects. The State's work zone policy provisions, the project's characteristics, and the magnitude and extent of the anticipated work zone impacts should be considered in making this determination. A TMP for significant projects consists of a temporary traffic control plan and must address both transportation operations and public information components. For projects that are not significant, the TMP may consist of only the temporary traffic control plan.[8] This question applied to 1,110 projects in the sample of 1,333.

The TMP ensures that traffic control is addressed as part of a highway construction project. Traffic control plays a vital role in providing continuity of reasonably safe and

[7] 23 CFR 630.1012(b) and 23 CFR 630.1012(c)
[8] 23 CFR 630.1012(b) and 23 CFR 630.1012(c)

efficient road user flow and highway worker safety when a work zone, incident, or other event temporarily disrupts normal road user flow.

CQ6. Following opening of bids, did the State examine the unit bid prices of the apparent low bid for reasonable conformance with the engineer's estimated prices, including obvious unbalancing of unit prices in accordance with State procedures?

At least 90%of projects were in compliance with the requirement to examine the low bid for reasonable conformance with the engineer's estimate and unbalancing of unit prices.[9] Twenty States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015.

In general, Federal-aid highway construction projects must be awarded on the basis of the lowest responsive, responsible bidder unless the State DOT is able to demonstrate that some other method is more cost effective or that an emergency exists. This question applied to 1,147 projects in the sample of 1,333.

Half of the instances of non-compliance were due to the State being unable to provide documentation that the required examination had been conducted. In a many cases reviewers found bid tabs, but no evidence of analysis. The next most frequent cause of non-compliance, (27%) was where the reviewer assessed that no analysis had been done prior to award. Another type of non-compliance was where the local agency had documented their analysis, but failed to receive concurrence from the State in accordance with award procedures. One Division found at least two cases where the State's analysis had found unbalancing, but the contracts appear to have been awarded without mentioning whether the removal of the bid items would change the order of bidders.

The States should have written procedures for justifying the award of a contract, or rejection of the bids, when the low bid appears excessive or rejection is being considered for other reasons. The analysis and award process for a project should be thorough even when the low bid is below or at a reasonable percentage above the engineer's estimate. It is reasonable, however, to expect that larger projects will receive a more thorough review than very small projects. Regarding unbalancing, the main concern of the State or local agency should be to assure itself that the bids have not been materially unbalanced in order to take advantage of errors in the plans or specifications.

CQ7. Is there a full time employed public employee in responsible charge for administering the project?

At least 98%of LPA projects were in compliance with the requirement for a full time employed public employee in responsible charge. Thirty seven States had 100% compliance. At 98.4%, the LPA compliance is slightly above the upper national compliance level of 98.3% that we found in PY2015.

[9] 23 CFR 635.114

A full time employed public employee must be in responsible charge for administering FHWA projects, as required by regulations and further defined for local public agencies by the FHWA Guidance Memorandum of August 4, 2011.[10] For locally administered projects, the person in "responsible charge" must be a full time employee of the LPA, but need not be an engineer. The requirements apply even when consultants are providing construction engineering services. This question applied to 1,274 projects in the sample of 1,333.

Reviewers provided comments to support their assessments by recording the name of the person in responsible charge. During the quality assurance site visits we found that reviewers often limited their assessment to identifying the named person in responsible charge. Most instances of non-compliance (13 of 21) were found in two States. One where the reviewers also assessed performance of the seven duties and functions contained the FHWA guidance memo on responsible charge and another where the local public officials did not appear on the State list of qualified individuals. Reviewers found that over 20% of the LPA projects had a full-time employed State engineer in responsible charge. This is also compliant.

The requirement for responsible charge is to follow good business practice by having the agencies close to the work safeguard the public's interests as they supervise completion of a project. Simply stated, an agency must provide necessary supervision and inspection to ensure contract satisfaction and that the public gets what it is paying for.

CQ8. Are the DBE firms originally identified by the prime contractor at the time of contract award the same firms that are approved to work on the project at the time of this review?

At least 95% of LPA projects were in compliance with the requirement that DBE firms originally identified by the prime contractor at the time of contract award were the same firms approved to work on the project. Twenty three States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015.

For projects with DBE goals, prime contractors must identify DBE firms at contract award.[11] State DOTs must ensure these same DBE firms are approved to work on the project. To assess this requirement, FHWA reviewers first considered State DOT policy to determine whether it applied. Some States do not set contract goals. They use race neutral means to meet their overall goal. These projects were assessed as fully compliant since the requirement does not apply. If contract goals had been set, the reviewers looked at project proposals or contracts to identify DBE firms, then examined contracts or management information systems to make their assessments. This question applied to 693 projects in the sample of 1,333.

The most frequent reasons for non-compliance were where Division reviewers found that DBE subcontractors were not used or had been substituted or added without prior

[10] 23 CFR 635.105 and FHWA Guidance Memo
[11] 49 CFR 26.53(b)(2)(i)

approval (19 of 66 projects), when there had been an improper approval of the DBE's (18 of 66) or where States were unable to provide satisfactory documentation that the listed DBE's were the firms working on the projects (9 of 66).

The recipients of Federal funds must maintain oversight of the prime contractor's activities to ensure that they not terminate a DBE subcontractor listed at contract award (or an approved substitute DBE firm) without prior written consent. The primes must not perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm without prior written consent. This oversight is critical to ensuring the integrity of the DBE program.

CQ9. Was the State's request for obligation of Federal funds supported by a documented cost estimate that is based on the best estimate of cost?

At least 98%of projects were in compliance with the requirement that the obligation of Federal funds was supported by a documented cost estimate. Twenty nine States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015.

The State's request that Federal funds be obligated must be supported by a documented cost estimate that is based on the State's best estimate of costs.[12] The engineer's estimate typically serves this purpose. Divisions reviewed project files for presence of the engineer's estimate or other estimate. If the estimate was found, reviewer compared it to the FMIS amount and other documented costs within project files. In some States the reviewers also considered construction engineering cost estimates or standard contingency amounts as part of the documented cost estimate. Reviewers compared the project cost estimates to the amount of funds obligated to assess whether they supported the obligated amount. This question applied to 1,281 projects in the sample of 1,333.

Over half the 48 projects assessed as non-compliant occurred where the State was unable to provide the documented estimate they had used to request the authorization for construction. Reviewers also found instances of non-compliance (12 of 48) where there was an estimate, but it differed significantly from the obligation amount, therefore did not support the obligation.

The engineer's estimate should reflect the amount that the contracting agency considers fair and reasonable and is willing to pay for performance of the contemplated work. Under-estimating causes project delay while additional funding has to be arranged to meet the contract cost increases. Over-estimating causes inefficient, over commitment of funds that could be used for other projects. The engineer's estimate serves as the benchmark for analyzing bids and is an essential element in the project approval process.[13]

[12] 23 CFR 630.106(a)(3)

[13] FHWA Guidelines on Preparing Engineer's Estimate, Bid Reviews and Evaluation, January 20, 2004

CQ10. Was a cost analysis performed and adequately documented for each negotiated change or extra work order.

At least 93% of projects were in compliance with the requirement for documented cost analysis for negotiated contract change or extra work orders. Twenty States had 100% compliance. These results are consistent with the national level of compliance we found in PY2015.

Cost analysis must be performed and adequately documented for each negotiated contract change or negotiated extra work.[14] A change order or extra work order is a document that modifies the construction contract. Many factors may result in the need to modify the contract's plans and/or specifications to fit field conditions and achieve the project goals. A change order may involve plan changes or revisions, specification changes, change in cost, or change in time. A contract change may result in a better product for no substantial increase in time or cost; or an equivalent product while saving cost and/or time. The contractor typically submits documentation of the proposed change then the State analyzes and documents the cost independent of the contractor's price proposal. The method and degree of the cost analysis is subject to the approval of the Division Administrator. This question applied to 528 projects in the sample of 1,333.

Divisions assessed compliance with this requirement based on a minimum review of one contract change order or extra work order. They requested and reviewed applicable project change order documents to determine if an acceptable cost analysis was conducted. We found some variation among the acceptable methods and degrees of analysis. Some States included simple summary statements describing the analysis, for example, "we compared the contractor's proposal to historical bid prices and found them reasonable." In other States, the documented analysis routinely included tables of items, prices, calculations, and comparisons regarding the proposed change.

FHWA reviewers found most of the instances of non-compliance (85 of 110) occurred where the States did not conduct or were unable to provide documentation of an independent estimate or analysis of costs to support the change orders.

An independent cost analysis is an important tool for ensuring that prices on negotiated change orders are fair and reasonable. Where appropriate, Divisions have communicated to State DOTs the requirement to conduct and document an independent cost analysis as part of the negotiated change order or extra work approval process.

[14] 23 CFR 635.120(e)

CAP Contract Administration Questions

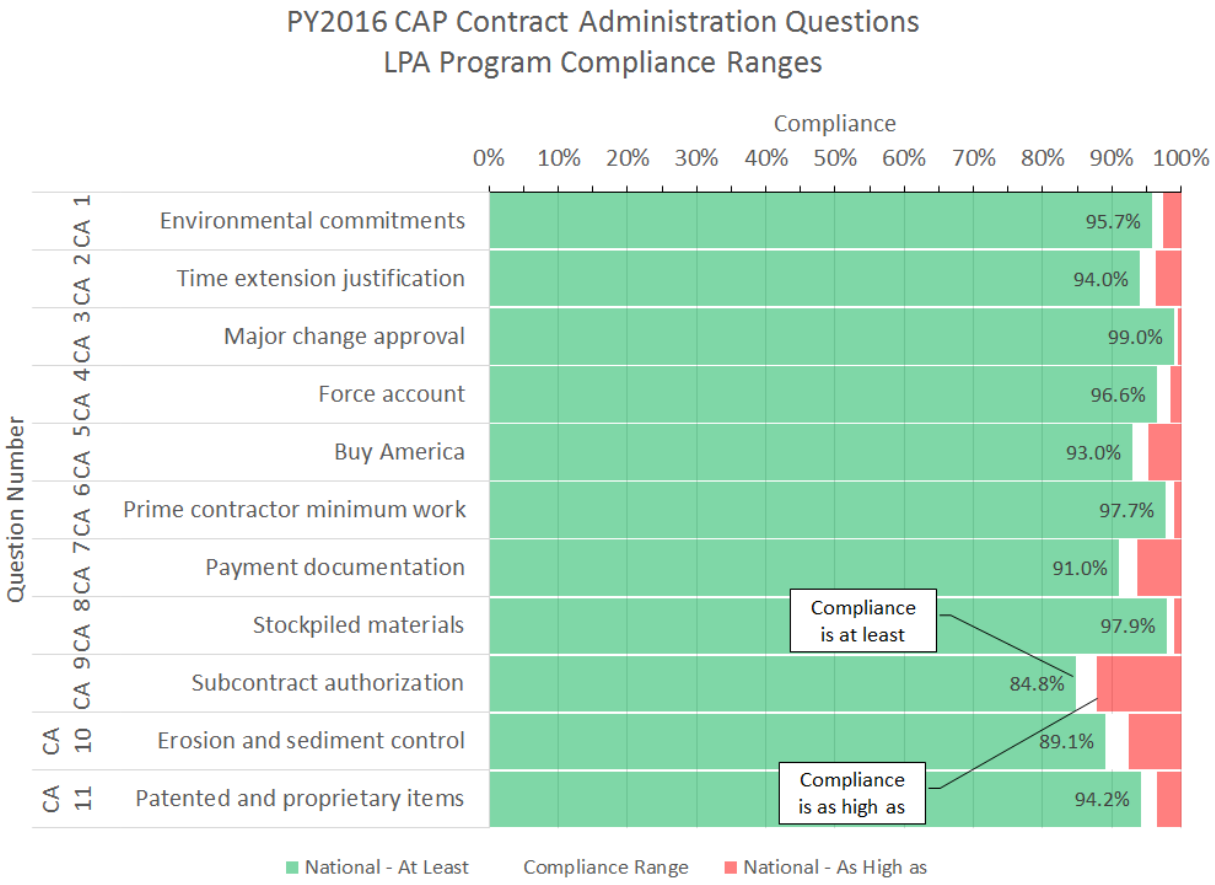


Figure 9 PY16 LPA Contract Administration Compliance Ranges

CA1. Are mitigation measures stated as commitments in the environmental document being implemented on the project?[15]

At least 96% of projects were in compliance with the requirement for mitigation measures stated as commitments in the environmental document to be implemented on the project. Twenty seven States had 100% compliance.

For a project where environmental mitigation measures have been included as commitments as part of the NEPA approval process, those commitments must be implemented on the project. Divisions verified compliance by reviewing the project environmental documents and noting commitments that needed to be implemented during construction. Based on this list, they determined if those same commitments were adequately implemented through construction contract provisions (special provisions in the construction contract). The Division Office staff determined if the contract language met the intent of the environmental commitments and was sufficiently clear for the purpose of bidding the work and constructing the project. This question applied to 507 projects in the sample of 1,333.

[15] 23 CFR 771.109(b)

Site visits to Divisions indicated that at this point there were two main approaches to assess compliance with this requirement. Some Divisions assessed compliance by assessing the contract documents. Other Divisions determined compliance by taking review one step further, checking if the commitments were implemented fully on the project, at times including field verification of physical items. In this case, the Division would then verify that these work items were actually performed by the contractor, inspected by the State DOT and met the intent of the contract provisions before payment by the State DOT.[16]

On about one third of non-compliant projects, environmental commitments were included in the project contract or other project document, but were not implemented on the project. This was caused by staff being unaware of commitments, or improper implementation in the field. Less frequently, the mitigation commitments were not carried into the project design or contract documents.

Non-compliance with this requirement indicates that the State DOT did not adequately draft contract provisions to implement the intent of the environmental commitment, or did not adequately administer the actual construction of the mitigation work. Non-compliance in this area could result in the involvement of State or Federal resource agencies such as: the US Army Corps of Engineers, the US Fish and Wildlife Service, the US Coast Guard, the Environmental Protection Agency, the Advisory Council of Historic Places and State Historic Preservation Office and could put future permitting at risk.

CA2. Based on a minimum review of one contract time extension request involving federal participation, was the contract time extension request fully justified and adequately documented?[17]

At least 94% of projects were in compliance with the requirement to fully justify and adequately document contract time extensions. Nineteen States had 100% compliance.

Divisions verified compliance by reviewing contract modifications, change orders or time extensions to determine if there was adequate justification for the scope of the work involved. They determined whether the time granted was appropriate based on the contract specific schedule requirements (bar charts, CPM scheduling requirements, etc.). They would also need to consider if the time extension was appropriate for the amount and type of work and if it was submitted concurrently with the change order request (rather than using a time extension at the end of the contract as a settlement technique for other disputed contract requirements). This question applied to 282 projects in the sample of 1,333.

[16] 23 CFR 771.109(d)

[17] 23 CFR 635.121(b)

There was inconsistency in how different States "fully justified and adequately documented" time extensions, so reviewers in different Divisions accepted different levels of documentation to assess compliance. Documentation included one or more of the following: correspondence between project engineer and contractor, documenting work as a controlling operation, critical path documentation, and the time impact analysis. Based on detailed comments, it's clear that some reviewers accepted no less than fully documented analysis of the time impact. Other reviewers accepted any documentation of the request for the time extension; including verbal assurance that analysis was done. This inconsistency may also apply to other CAP questions that require documented analysis.

On thirty of the 58 non-compliant projects, the support documentation was either assessed as inadequate to justify time extensions, or non-existent. In some of these cases, there may be correspondence or accounts of verbal agreements available, but no documented justification for the amount of time granted in the extension. In rare instances (less than 5 projects), reviewers discovered extensions that were unreasonable for the work described in the change order or ineligible for federal reimbursement.

If a State DOT inappropriately granted a time extension it could result in a finding of ineligibility regarding liquidated damages. If a State was using time extensions at the end of the contract rather than at the time of a change in contract work[18] it could indicate that the State DOT was improperly administering the contract and negotiating settlement terms rather than dealing with specific issues as they arose on the contract.

CA3. Did all major changes in the plans and contract provisions and all major extra work have formal approval by the Division Administrator in advance of their effective dates?[19]

At least 99% of projects were in compliance with the requirement for advance approval for major changes. Thirty three States had 100% compliance; however there were inconsistencies in how Divisions assessed this requirement on delegated projects.

Divisions identified applicable change orders based on the State's definition of a major change as approved by the Division office. Reviewers then reviewed the project files to determine if the State DOT took the appropriate actions to approve the major change in advance of the effective date. The Division Office would compare the approval dates to verify that work was not done before the effective date of the major change order. Where the approval authority for major change orders has been assumed by the State, most Divisions reviewed project files to determine that the State DOT acted effectively on behalf of FHWA in approving major changes in advance of their effective dates.

This question was reported to be applicable to 88 projects in the sample of 1,333, but **at least nine Divisions did not review project major change approvals because approval authority had been assumed by the State and the projects were not**

[18] 23 CFR 635.120(c)
[19] 23 CFR 635.120(a)

Projects of Division Interest. FHWA guidance[20] on program oversight states that "…oversight activities will include assessing whether the State DOT adequately carried out the approvals and related activities assumed by the State DOT under the S&O Agreement." CAP is an oversight activity, but on at least 110 projects reviewers assessed approval for major changes as Not Applicable because the responsibility for approving change orders had been assumed by the State. This interpretation is inconsistent with the purpose of CAP in providing oversight of the approvals and related activities assumed by the State. Although some offices stated they didn't assess because of the wording of the question "approval by the Division Administrator," this language is verbatim from the Code of Federal Regulations and is typical of many requirements written before assumption by the State became common. Where the State has assumed approvals and related activities, it is acting in place of "…the Division Administrator." The incorrect interpretation that we don't review this area may indicate a specific misunderstanding of CAP as an oversight activity or may indicate broader confusion about how regulatory language applies under widespread assumption of responsibilities and the oversight role of FHWA in this environment. If reviewers do not assess assumed responsibilities though CAP reviews, then they may not be using the oversight tools as prescribed and may miss important indicators of compliance or non-compliance.

Recommendation: The Stewardship and Oversight team should take action to clarify and communicate that CAP is an oversight activity to assess whether the State DOT adequately carried out the approvals and related activities assumed under the S&O Agreement. This question should be included in future core questions. Consider wording compliance questions to remove ambiguity in the case of approvals or activities that may be assumed by the States. (HIF/PMIT)

CA4. Was the reason, or reasons, for using force account procedures documented?[21]

At least 97% of projects were in compliance with the requirement to document the reason, or reasons, for using force account procedures. Thirty five States had 100% compliance.

When establishing the method of payment for contract changes or extra work orders, force account procedures shall only be used when strictly necessary, such as when agreement cannot be reached with the contractor on the price of a new work item, or when the extent of work is unknown or is of such character that a price cannot be determined to a reasonable degree of accuracy. The contracting agency should document the reasons for using force account (e.g. encountering differing site conditions where the amount of work or conditions could not be determined in advance of the work). Divisions verified compliance by reviewing change orders where the State DOT approved the use of contractor force account procedures (by regulatory definition: "Force account means a basis of payment for the direct performance of highway

[20] STEWARDSHIP AND OVERSIGHT AGREEMENT GUIDANCE: *DOCUMENTING STATE ASSUMPTION OF FEDERAL-AID PROJECT OVERSIGHT AND FHWA PROGRAM OVERSIGHT MEASURES,* March 2014,

[21] 23 CFR 635.120 (d)

construction work with payment based on the actual cost of labor, equipment, and materials furnished and consideration for overhead and profit."[22]).

This question applied to 126 projects in the sample of 1,333. The project must have force account used for this requirement to apply. For most of the 1,207 N/A projects (1,004), there was no force account on the project. Of the remaining N/A projects, 97 were exempt (ER, RR, Utility, RTP, TE, Non-Hwy, material procurement only) or completed entirely by local forces (25).

One Division indicated that the force account justification requirement was not applicable for 46 projects because "FHWA policy on Basis of Payment does not apply on delegated projects". This interpretation is incorrect and could be another indicator of the issue of oversight of assumed approvals and activities we discussed earlier.

The reviewers assessed projects as "yes, in compliance" where documentation ranged from citing a specification or standard procedure about force account procedures, to a project-specific public interest finding with supporting analysis. Compliant projects (107) accepted documentation most commonly in the form of Change Orders (25), or Public Interest Findings (18). Some reviewers made the distinction between correspondence and documented analysis, while others accepted less definitive documentation.

Non-compliant projects (19 total) were mostly due to lack of documentation (15 projects), including no documentation of cost analysis (4), no documentation of why force account was used (5), and other documentation deficiencies.

If a the State or local inappropriately used contract force account methods to accomplish change order work it could mean that the State DOT did not perform due diligence in using contract prices or negotiating reasonable prices for the work when conditions were known in advance of the work. Non-compliance could be the basis for non-participation or a more serious finding regarding lack of oversight by the State DOT.

CA5. Based on a minimum review of one applicable pay item paid in one progress payment, did the State ensure that all Buy America steel or iron material manufacturing processes, including application of coatings, for that pay item occurred in the United States[23]?

At least 93% of projects were in compliance with the requirement that steel or iron material manufacturing processes, including application of coatings, occurred in the United States. Fifteen States had 100% compliance.

Division Offices verified compliance by reviewing the payment documentation and source documents for Buy America materials to determine if the steel/iron materials in those products were manufactured domestically (from melting of the steel through final manufacturing). Contracting agencies should have adequate materials inspection and documentation requirements to assure compliance with federal requirements. Both AASHTO and FHWA have recommended the use of certifications to ensure that all manufacturing is domestic, however a 2015 court ruling required FHWA to rescind its

[22] 23 CFR 635.203(c)
[23] 23 CFR 635.410(b)

non-regulatory guidance on the issue. Most State agencies require manufacturers' certifications or statements of compliance on materials documentation, mill certs or other documentation provided by the contractor during the materials inspection process. This question applied to 808 projects in the sample of 1,333.

Reviewers varied in the number of items they reviewed, and the types of documentation accepted to support Buy America. Some reviewers selected one major steel item to review, and others selected more or all steel items on projects. Some reviewers visited the active project to assess this question, while others relied on project files alone.

Twenty-one states had two or more projects that were non-compliant. The most common reason for non-compliance was no documentation (52 of 93) or insufficient documentation (8). Other less common reasons included a lack of process for the State to verify that the LPA has met Buy America (6), providing documentation only after requested (6), not incorporating Buy America requirements into contract (3), or using Buy American language instead of Buy America (3).

Where a State DOT does not have adequate assurance of compliance it could indicate that there are weaknesses in:

- the contracting agencies process for tracking compliance with the minimal use provisions of 635.410(b)(4);
- the process for identifying domestic availability materials and the need for a waiver,
- interpreting industry certifications,
- the State DOTs understanding of the Buy America requirements,
- the contracting agencies process for tracking compliance with 23 CFR 637 – Construction Inspection and Approval - Subpart B - Quality Assurance Procedures for Construction
- the contracting agencies process for inspecting and paying for work.

Non-compliance may result in a determination that non-domestic material was permanently incorporated and a need for the Division Office to require the State DOT to document their oversight of an 'after-the-fact discovery of non-domestic material [24] or make the entire project non-participating.

Recommendation: Continue to monitor compliance with Buy America. This CFR requirement and FHWA guidance has been the subject of recent legal action. Do not increase emphasis until regulations or guidance have been reissued or finalized. (HIF/PMIT)

[24] Buy America Q&A #48

CA6. Does the contract specify that the percentage of work that must be performed by the prime contractor is greater than or equal to 30 percent of the total original contract price excluding identified specialty items?[25]

At least 98% of projects were in compliance with the requirement that work performed by the prime contractor be greater than or equal to 30 percent of the total original contract price. Thirty States had 100% compliance.

Divisions verified compliance by reviewing the contract to ensure that form FHWA-1273 was included in the prime contract because the form contains the 30 percent provision. Divisions reviewed the State DOT's documentation of the approval of subcontracts and final contract quantities to determine compliance with the 30% requirement, looking for specialty work items that would not be included.

The prime contractor is required to perform at least 30% of the work (less specialty work) with its own forces. The self-performance requirement is a long-standing federal requirement enacted for the purpose of preventing 'brokering' by prime contractors who might want to subcontract all of the work and simply manage the subcontracts. It is also intended to support the concept of having the prime contractor being fully responsible for the implementation and completion of the contract. Historically, the contracting associations have fully supported this requirement. In some cases, States may have their own self-performance requirements which exceed the federal minimum 30% self-performance requirements.

This question applied to 1,135 projects in the sample of 1,333. Over 60% (668 of 1,111) of compliant projects were supported by contract documents (reference to the 1273 (142), standard specifications or procedures (392), or specific contract language (134)).Other reviewers (at least 42 projects) verified that the percentage of work performed on the project by the prime met the percentage of work target.

Most non-compliant projects did not have required contract language, or were missing documentation. None of the reviewers concluded that the 30% threshold was violated. If the Division Office determines that the requirement was not met, they may have to make an eligibility determination in relation to all other contract compliance factors.

CA7. Based on a minimum review of one applicable contract pay item paid in one progress payment, did the State provide adequate assurance that completed work quantities were determined accurately, in accordance with the State's statewide uniform procedures? [26]

At least 91% of projects were in compliance with the requirement for the State to provide adequate assurance that completed work quantities were determined accurately. Nineteen States had 100% compliance.

Divisions verified compliance by reviewing the payment and source documentation for one pay item to determine compliance with the state's procedures. The reviewers would need to be aware of the specific material testing, inspection and documentation

[25] 23 CFR 635.116(a)
[26] 23 CFR 635.123

requirements associated with that pay item to determine that procedures were followed. This question applied to 1,040 projects in the sample of 1,333.

Some reviewers selected one major item to review, and others selected one full progress payment and verified documentation for all items paid as part of that progress payment. One Division explicitly stated that they used field reviews to answer this question. For the "yes" answers, supporting documentation reviewed included materials tickets, certifications, and quantity sheets, often verified against the inspector daily diaries or field books.

Although above 90%, this area is at the low end of our range of compliance with 108 non-compliant projects. Most often, non-compliant projects had no documentation or inadequate verification of work quantities (49 projects). Many of the remaining projects had some documentation that was deficient (missing details, missing supporting calculations, not matching field conditions, not matching what was paid). Eleven reviews indicated that there was a deficiency in the process for verifying quantities. This included the local agency failing to verify quantities, the State failing to ensure that the quantities were being verified, or key project staff failing to review quantities.

A finding that the State DOT inappropriately paid for work or material without adequate documentation could highlight a weakness in the agency's procedures, oversight or staffing problems related to the work. When payment is made for any work, there must be proper documentation to support it by quantifying it (measuring the work) and qualifying it (meeting sampling/testing/quality specifications). If FHWA reimburses unauthorized costs, the result would be an improper payment.

Recommendation: Continue to monitor, and include work quantity verification in the CAP Core Questions in future review. Consider these results in unit risk assessments. (HIF/PMIT)

CA8. Based on a minimum review of one applicable contract pay item paid in one progress payment, did the State provide adequate assurance that stockpiled material conformed to the requirements of the plans and specifications?[27]

At least 98% of projects were in compliance with the requirement for the State to provide adequate assurance that stockpiled material conformed to the requirements of the plans and specifications. Twenty eight States had 100% compliance.

Divisions verified compliance by reviewing the State DOT's requirements for stockpiling material. They would need to be aware of the specific storage, material testing, inspection and documentation requirements associated with that pay item's applicable portion payment to determine that procedures were followed. Reviewers generally selected a stockpile item, identified the requirements listed in the applicable specification, and verified that the specification was met. Where specific comments were provided, review methodology appears fairly consistent from reviewer to reviewer.

[27] 23 CFR 635.122(a)

This question applied to only 172 projects in the sample of 1,333 since the project must include stockpiled items or have implemented the stockpile provision (per item) for this requirement to apply. For the 27 non-compliant projects, the most common reason for non-compliance was no documentation (33% of non-compliant projects).

A finding that the State DOT did not have documentation of material acceptance practices or inspections verifying compliance with stockpiling requirements may highlight a weakness in the agency's procedures, or oversight, or staffing problems related to the work. If FHWA reimburses unauthorized costs related to stockpiled materials, the result would be an improper payment.

CA9.Based on a minimum review of one subcontract, has the State authorized in writing the subcontract, or if FHWA has approved the State's process has the contractor certified that each subcontract has a written agreement containing all the requirements and pertinent provisions of the prime contract? [28]

At least 85% of projects were in compliance with the requirement for the State to authorize subcontracts or for contractor to certify that each subcontract contains all the requirements and pertinent provisions of the prime contract. Seventeen States had 100% compliance.

Divisions verified compliance by reviewing a subcontract agreement in the project files and determining if the state reviewed and approved this subcontract before the work occurred. If the Division Office has approved the State's process for allowing prime contractors to certify that each subcontract is in the form of a written agreement and includes the appropriate contract provisions, then the Division Office would review that certification. In some cases, instead of or in addition to only looking for written approval from the state or certification from the prime contractor, reviewers looked at individual subcontract documents to verify that the subcontract did contain the pertinent provisions. This question applied to 949 projects in the sample of 1,333.

The purpose of the requirement is to ensure that all prime contracts and subcontracts include the appropriate contract provisions and to assure that only qualified and responsible contractors perform the work (e.g. those meeting the State's prequalification criteria and the USDOT's eligibility criteria related to suspension/debarment).

There were two different "no" response options based on these difference. Reasons for non-compliance varied greatly from state to state depending on the practices within the state agency and the LPAs. For the general population of non-compliant projects, over 28% had a program-wide deficiency or no process in place to authorize or certify subcontracts. Several comments indicated a lack of awareness of this requirement. None of the comments indicated that there were suspended or debarred subcontractors discovered on projects.

Where the "contractor did not certify that each subcontract has a written agreement containing all the requirements and pertinent provisions of the prime contract", the most common issue was that there was no written certification of the subcontracts (17

[28] 23 CFR 635.116(b)

projects). Where the reviewer dug deeper than the prime contract certification to inspect the subcontract documents, 17 projects were missing key provisions. Seven of those 17 DID have certification of the subcontracts, but were found missing provisions anyway.

If a State did not approve a subcontractor, it could be a significant compliance issue if the subcontractor was suspended or debarred. Where there was no certification from the prime contractor assuring written subcontracts containing all pertinent provisions, a reviewer could conclude that the state lacks effective internal controls for ensuring compliance with this requirement and may indicate other weaknesses in the State's procedures.

Recommendation: Divisions should consider the sub-contract approval risk and compliance issues at the program level within their state. (Divisions)

CA10. Are erosion and sediment control measures and practices being monitored and maintained or revised to insure that they are fulfilling their intended function during the construction of the project?[29]

At least 89% of projects were in compliance with the requirement to monitor and maintain or revise erosion and sediment control measures and practices to insure that they are fulfilling their intended function during the construction of the project. Twenty one States had 100% compliance.

Divisions verified compliance by reviewing the contract documents to determine what erosion and sediment controls needed to be in place during construction and that these items met current guidance. The Division Office verified that these work items were actually constructed and maintained by the contractor, received adequate inspection by the State DOT and met the intent of the contract provisions before payment was made by the State DOT. This question applied to 852 projects in the sample of 1,333.

For reviewers that assessed this based on documentation alone, some accepted an erosion control plan and storm water plan as compliant. Others went further to review the field inspection forms to ensure that erosion control items were being inspected and maintained at the required interval in accordance with those plans. Further, some reviewers (in at least 9 states) included site visits to active projects to verify that erosion control measures were installed and implemented correctly in the field.

Over half (58%) of non-compliant projects had insufficient or no documentation of monitoring and maintenance of erosion control measures (48%) or insufficient monitoring of erosion control measures (10%). Other infrequent issues included no documentation of any kind of erosion control, improper or insufficient installation, and inability to assess compliance when no erosion control measures were installed in the field at the time of review.

If the State DOT did not adequately oversee or inspect the erosion and sediment control devices, it could lead to compliance issues associated with the environmental requirements of other State or Federal resource agencies such as the US Army Corps

[29] 23 CFR 650.209(c)

of Engineers, the Environmental Protection Agency and the US Coast Guard. In conjunction with the courts, Federal agencies or non-governmental organizations could take significant actions (such as a consent decree) to ensure that corrective measures are taken, possibly jeopardizing the state's construction program.

CA11. If a specific patented or proprietary material or product is included in the approved PS&E, did the State certify either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists?[30]

At least 94% of projects were in compliance with the requirement the State to certify that patented or proprietary items were essential for synchronization with existing highway facilities, or that no equally suitable alternate exists. Twenty two States had 100% compliance.

Divisions verified compliance by reviewing the contract documents to see if a patented or proprietary product was required by the contract documents. This question applied to 199 projects in the sample of 1,333. For these projects, reviewers would see if the following documentation was provided:

- If competitive bidding was obtained by listing other suitable products (23 CFR 635.411(a)(1);
- A certification (23 CFR 635.411(a)(2)) that the specified proprietary product is either: necessary for synchronization with existing facilities or a unique product for which there is no equally suitable alternative;
- The product is approved for evaluation on an experimental basis (23 CFR 635.411(a)(3));
- A public interest finding is appropriate if there are other equally acceptable materials and the State DOT elects to specify a particular product (23 CFR 635.411(c));
- The State DOT makes the proprietary product non-participating (23 CFR 635.411(c).

The Division Office reviewed the reasonableness of the documentation and, where appropriate, asked the State why other products were not considered or selected. Review comments indicate that reviewers assessed this item fairly consistently.

The two most common issues were lack of certification or public interest finding, or no reasonable number of suitable alternatives specified. Approximately 66% of non-compliant projects had patented or proprietary products specified, but no approved certification or PIF in the file. Another 25% of the non-compliant projects had specified a product "or equal", but over half of those only listed one product "or equal". In addition, several review comments on non-compliant projects indicated that items would have met typical criteria for certification, such as synchronization with an existing system, but the certification process was never completed or documented. The data about how

[30] 23 CFR 635.411(a)(2); FHWA's Contract Administration Core Curriculum Manual and Reference Guide

these issues were resolved are limited, but some actions included retroactive approvals, updates to LPA manuals, and training on the certification process.

If the State DOT specified a proprietary product without justification, it could have various consequence related to a Division Offices decision to participate in a particular element of the contract. Incomplete or inadequate documentation that that patented or proprietary items were essential for synchronization or that no equally suitable alternate exists could be related to subpar documentation justification statements by the State DOT or could be related to broader compliance issues such as the State's preference for certain products or manufacturers. If the Division Office believed that the proprietary specification was based on preferences for in-state firms or manufacturers, the Division Office would have justification for limiting or removing participation.

CAP Finance Questions

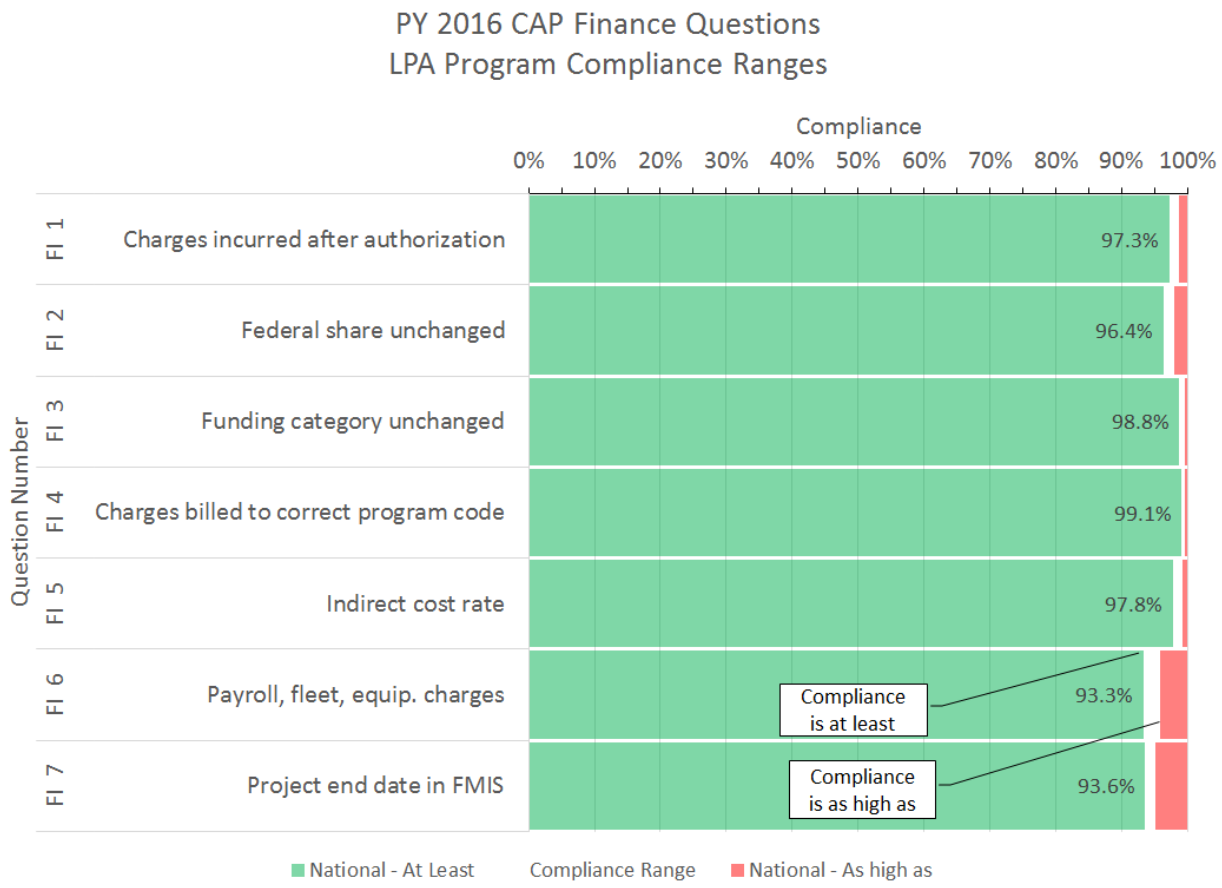


Figure 10 PY16 LPA Finance Compliance Ranges

FI1 Are all eligible charges incurred after the date of construction authorization in FMIS?

At least 97% of projects were in compliance with the requirement that charges be incurred only after the date of construction authorization. Thirty two States had 100% compliance.

Divisions verified this by comparing the date the first cost was incurred to the date of the construction authorization in FMIS.

FHWA divisions are required to authorize all federally funded projects, including those using advance construction (AC) provisions, before work is started or advertised for construction. Federal funds cannot reimburse any cost incurred prior to the authorization to proceed with the project or phase of work unless specifically authorized in statute or approved under procedures set forth in 23 CFR 1.9(b)[31]. This question applied to 1,012 projects in the sample of 1,333.

[31] 23 CFR 630.106(b)

The question wording “date of construction authorization in FMIS” led some reviewers to mistakenly assess emergency repair projects as non-compliant because work took place before construction authorization in FMIS. On at least 30 projects out of the sample, other reviewers assessed this questions as “Not Applicable” (in compliance), and some reviewers chose to assess this question based on the date of Declaration of Emergency as the applicable authorization date.

Any costs incurred prior to authorization unless authorized in statute makes the costs ineligible for reimbursement[32].If FHWA reimburses unauthorized costs, the result is an improper payment. Project authorization is FHWA’s internal control mechanism to ensure Federal and State laws, regulations, policies and procedures have been met before costs are incurred.

Recommendation: HIF and HCF should clarify how to assess construction authorization date against the date charges are incurred. Consider this question for inclusion in the core questions. (HIF/HCF)

FI2. Has the Federal-aid share of eligible project costs in the project agreement or in subsequent amendments to the agreement remained unchanged?

At least 96% of projects were in compliance with the requirement that the Federal-aid share of project costs remained unchanged. Thirty one States had 100% compliance.

Divisions verified this by evaluating the obligation history of each project to determine if the Federal share changed.

The Federal share of eligible project costs is established at project authorization,[33] or the initial AC conversion, using either a pro-rata share or lump sum agreement. In accordance with 23 CFR 630.106(f) the pro-rata or lump sum share may be adjusted before or shortly after contract award to reflect any substantive change in the bids received as compared to the estimated cost of the project at the time of authorization, provided that Federal funds are available. This permissible change caused confusion on for one Division that assessed some projects as non-compliant because the review question does not allow for that variation. This question applied to 1,299 projects in the sample of 1,333.

Within the non-compliant projects, over 25% of the adjustments were made to correct an error, or to make adjustments due to a change that occurred after the agreement. At least 13 non-compliant projects showed changes to the Federal share without justification.

The project agreement and the Federal share is a binding agreement between both FHWA and the State establishing Federal and non-Federal share. Adjustments to the Federal share when not authorized results in an improper payment subject to the provisions of IPERIA.

[32] 23 CFR 1.9(a)

[33] 23 CFR 630.106(f)(1)

FI3. Has the project maintained the same category of Federal funds as originally obligated, except for the addition of Federal fund categories to cover an increase of eligible project costs?

At least 99% of projects were in compliance with the requirement for the project to maintain the same category of Federal funds as originally obligated. Thirty seven States had 100% compliance.

Divisions verified this by evaluating the obligation history of each project to determine if the category or categories of Federal funds changed. They also reviewed credit transactions to determine if the purpose was to expend a different fund source.

FHWA project agreements should not be modified to replace one Federal fund category with another unless specifically authorized by statute.[34] A proper and unliquidated obligation should not be deobligated unless there is some valid reason for doing so. Absent a valid reason, deobligating funds from a recorded obligation solely to free them up, replace them with other funds, or use advance construction (commonly referred to as "reverse AC") is not allowed unless authorized by statute. Once costs are incurred and billed to a specific Federal fund source, a credit should not be executed to credit the expenditure and bill the costs to another Federal funding source unless authorized in statute or to correct an administrative error. This question applied to 1,293 projects in the sample of 1,333.

The CAP results differ from what FHWA has found under FIRE testing. The differences may be due to the differences in the project population and methodology. For example, CAP looks at the project level compliance, while FIRE does transaction level testing, i.e. the CAP project population includes all projects authorized for construction while FIRE assesses project billing transactions. CAP projects which have not been billed are treated as "in compliance" because no billing has occurred.

Charging costs to an incorrect Federal funding source is an improper payment under IPERIA. Compliance with proper payment requirements is critical because reimbursement data is recorded in FHWA's financial systems and used to generate agency and Department level financial reports and could result in Anti-Deficiency Act violations if accounts are over or under obligated and expended in the wrong categories.

Recommendation: Clarify and communicate the causes and implications of differences between CAP finance results and other assessments (HCF/PMIT).

FI4. Based on a review of one Federal-aid billing, were expenditures allocated to the appropriate Federal program fund category (program code) on multi-funded projects?

At least 99% of projects were in compliance with the requirement for expenditures to be allocated to the appropriate Federal program fund category. Thirty seven States had 100% compliance.

[34] 23 CFR 630.110(a)

Divisions verified this by evaluating a billing transaction to ensure it was billed correctly to the appropriate Federal program fund category. This question applied to 566 projects in the sample of 1,333.

The Federal cost principles require the billing of costs to a project based on the relative benefits to the Federal award. Title 23 U.S.C. establishes the eligibility requirements for each program and associated funds obligated on a Federal-aid agreement. Grant recipients are required to allocate projects costs to the appropriate Federal program based on the eligibility requirements and as authorized in the project agreement.

Use of the "bucket method" in which costs are arbitrarily billed to one program code until fully expended and then billed to remaining program funds is not permitted. Billing at an average Federal share across all authorized programs is also not permitted, unless all program codes are eligible for all activities which are authorized at the same Federal share. Billing costs to an incorrect Federal funding source results in an improper payment subject to the requirements of IPERIA.

FI5. Were indirect charges billed under an approved indirect cost rate?

At least 98% of projects were in compliance with the requirement for indirect charges to be billed under an approved indirect cost rate. Thirty five States had 100% compliance.

Divisions verified this by determining if indirect costs were billed to the project in accordance with an approved indirect cost allocation plan and if the indirect cost billing rate was correct.

State Transportation Agencies can only claim indirect costs on a Federal-aid project in accordance with an indirect cost allocation or narrative cost allocation plan which has been reviewed and approved by FHWA. The Uniform Guidance under 2 CFR 200 provides the regulatory requirements for claiming indirect costs. All costs billed to a Federal-aid project must be in accordance with the Federal cost principles and FHWA policy and guidance.

This question applied to 141 projects in the sample of 1,333. Of those, reviewers found one instance where charges where not billed at the approved rate. The reviewers assessed another 14 projects as non-compliant with the response "Don't Know, could not be verified at time of review." Unauthorized billing of indirect costs on a Federal-aid projects results in an improper payment.

FI6. Based on review of one Federal-aid billing, were payroll, fleet, and equipment charges allocated properly to the project?

At least 93% of projects were in compliance with the requirement for payroll, fleet, and equipment charges to be allocated properly. Twenty eight States had 100% compliance.

Divisions verified this by determining if payroll, fleet and equipment charges were billed to the project in accordance the cost principle under the Uniform Guidance and FHWA approved rates.

FHWA must ensure payroll, fleet, and equipment charges are correctly developed and allocated to a project based on the Federal cost principles under 2 CFR 200 Part E. FHWA Division offices are required to approve these allocation rates on an annual basis.

This question applied to 412 projects in the sample of 1,333. Within 54 the non-compliant projects, incorrect payroll charges were the most common cause of non-compliance (about 1/3 of non-compliant projects). This was caused most often by applying incorrect wage rates to determine these charges.

Payroll, fleet and equipment costs which are incorrectly billed to a Federal-aid project results in an improper payment subject to the requirements of IPERIA.

FI7. Does the project agreement in FMIS include a project end date?

At least 94% of projects were in compliance with the requirement for project agreement to include a project end date. Twenty five States had 100% compliance.

Divisions verified this by reviewing the FMIS project agreement to ensure the project agreement end date was included.

The Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) which was implemented by FHWA on December 26, 2014. The Uniform Guidance requires a period of performance (including start and end dates) be included in all Federal award agreements. The project agreement end date is determined by the recipient and is estimated based on the anticipated completion of the project. States must enter information regarding the project agreement end date in the State Remarks field until FMIS includes a designated mandatory field.

This question applied to 552 projects in the sample of 1,333. Eighty-nine sample projects were non-compliant. One fourth of non-compliance was caused by a lag implementing the December 2014 guidance. In these cases, Divisions found a lag window between when the guidance was issued and when the state developed an implementation strategy. The non-compliant projects were authorized during this lag window. In another fourth of non-compliant projects, projects were initially authorized before the requirement, but had subsequent actions after the requirement went into effect where the end date could have been added but was not.

The CAP compliance results differ from what FHWA has found under A-123 testing. The differences may be due to the differences in the project population and methodology. Because the authorization dates of tested populations were different, the requirement did not apply for three quarters of the year that the CAP sample population was drawn from. Any project authorized in that window would be assesses as “in compliance” because the requirement did not apply.

We should continue to evaluate this important requirement. Costs incurred after the project agreement end date has past are ineligible for reimbursement. Omitting a project agreement end date results in violation of Federal award regulations and can result in

projects not being closed timely and Federal funds billed for unauthorized or unallowable costs resulting in improper payments.

Recommendation: Consider adding the project end date requirement to the core questions for PY18. Once dedicated fields are available in FMIS, establish an approach to monitor compliance with this requirement. (HCF)

Successful Practices

Since 2013, the PMI team has visited 34 States to conduct Quality Assurance reviews of the Divisions implementation of CAP and reviewed the assessments for 88,154 questions on 6,416 projects. In the course of these reviews we identified successful practices that improve the reliability, effectiveness or usefulness of the program. The practices below are cumulative since the inception of CAP. Some have been modified as we have learned what works best.

Include comments that reference source documents or discuss applicability of a requirement to the project. When reviewers make detailed comments, especially in support of "Yes" compliance responses, it enhances the reliability of the assessment. These comments often included notes about the project, identifying the source document used to make the assessment, as well as its location and date. While CAP guidance initially only required comments for responses other than "Yes" (compliance), the practice became a requirement in PY2015, the second year of CAP. Identifying the specific documents used to respond to all questions helps supervisors assess the response reliability and improves consistency. It also facilitates identification of incorrect or mismatched responses for quality assurance. Comments also provide useful information for national and Division analysts at the end of the CAP review year. Conversely, canned or identical comments with each question do nothing to enhance reliability and should be not be used.

Develop guidelines for Division's review process for each CAP question. Consistency and reliability of results are enhanced when Divisions clearly decide what documentation is required to assess compliance for each question, in accordance with their States processes and assumed actions and activities. Divisions should ensure that reviewers understand where project actions and approvals should occur, what documentation should be there, and how to compare different events to determine if the State has effective controls in place. Documenting the process for reviewing each question helps ensure consistency on all projects reviewed, and enables efficient review by supervisors.

Visit and observe projects that are in active construction to assess compliance. Several Divisions used the CAP as an opportunity to visit projects in person they previously would not have visited. While CAP does not require project site visits, this allowed Division staff to build and strengthen the Federal relationship with State and local project personnel, laying the groundwork for improved communication and coordination. For example, the Illinois and North Dakota Divisions used the site visit as an opportunity to discuss the duties and functions of responsible charge with local officials. North Dakota used the LPA essentials video on the subject as part of the discussion. Illinois reviewers took photographs of the project, including traffic controls, as part of their assessment**.**

Supervisors review some source documentation to monitor reliability and consistency among reviewers. When supervisors review some source documents, rather than only checking review reports to ensure they are complete and have appropriate comments, it enhances the reliability of the assessment. CAP protocols require supervisors to review results and sign off on each project review. At a minimum,

they should ensure that all questions have been answered and that useful comments have been entered. When supervisors also examine some of the source documents used by the reviewers they can identify and correct inconsistencies among several reviewers. This doesn't mean monitoring all documentation from all reviewers. It should be just enough to get a picture of how each reviewer is approaching the task. The Minnesota and Nebraska Divisions made supervisor review more efficient by clearly organizing source documentation, and highlighting applicable information in the documents to make it easy to find.

Use electronic systems to monitor review completion, manage documents, report results, and coordinate with other oversight activities. Some Divisions use electronic systems, including document management systems and Access databases to manage key source documentation effectively and reduce the need to print documents or rely on the State to provide them.

- Louisiana Division uses an Access database with catalogued shared-drive folders and some area engineers electronically highlight pertinent information on source documentation.
- Oklahoma Division used an excel document to track review status and to organize and coordinate other reviews on specific projects.
- Colorado Division uses an electronic system to store source documentation, retrieve, and track CAP review status on each project. They perform data analysis and generate management reports to inform Division leadership of emerging risks and help conduct oversight activities more efficiently by combining trips and sharing resources.
- Massachusetts and Tennessee Divisions developed metrics to track the status of the reviews. The tracking metrics are shared in the Division. This enables everyone in the office to know where they stand on the review progress and make adjustments in their workloads for timely completion of the CAP reviews.
- Arizona Division has used an internal database system called PODS to store and track all projects. PODS was modified to allow CAP guides and source documents to be archived.

Take advantage of technology pilot programs like iPad or similar devices for use in the field. In one Division, the Area Engineers found that iPads were very useful when visiting project sites to scan documents, take pictures, and enter project notes at the time of review. Regular use of iPads allows their engineers to easily organize and reference any and all documentation related to a project on-site.

Use the statistically reliable results of CAP reviews to assess compliance levels. The Louisiana Division uses a different, but reliable approach to assessing program compliance level. While most Divisions use the mean level of compliance (98%), the CAP methodology also provides an interval estimate or a range of compliance levels (93% to 99%) for each key requirement. At the national level, we report the lower value of this range as "compliance is at least…" In Louisiana, if the interval estimate (range) includes 100%, then the Division reasonably assesses that requirement as fully compliant**.**

Document and transmit results and recommendations to the State, and monitor recommendation status using the review response tracker. Some Divisions documented the results and recommendations from their core and technical CAP reviews in a report that was transmitted to the State. For example, Arizona Division used the FHWA program review report template to document detailed information about what they found during their CAP reviews. The report included background about the CAP program, project level findings, program level observations, and made recommendations to the State for corrective actions. Texas and Arizona both used their INPUT review response tracker to monitor the findings and recommendations to their State

Actively Report CAP results to State DOTs. In Michigan the CAP Manager sent bi-weekly CAP summary reports to update MDOT on projects that have been reviewed. This practice provided MDOT the opportunity to identify areas that are working well, areas of weakness and make immediate corrective actions early in the process, instead of waiting until all projects were completed. For example, during CAP reviews of LPA projects, the Division identified concerns with the railroad safety program. The Michigan Division staff member worked with MDOT's Office of Rail Staff to develop a new comprehensive MDOT Railroad Pre-authorization Checklist and Certification for Section 130 RR Safety Projects, which outlines requirement for MDOT to follow when administering these types of projects.

Establish a single point of contact that manages or coordinates CAP implementation. In several Divisions, there was a single Division supervisor or specialist who acted as a CAP coordinator. The coordinator monitored the Division progress in completing each review and was collecting, reviewing, and retaining the supporting documentation for each review. This helped to ensure the consistency and reliability of the review results.

Cross-train employees on different CAP technical areas to maintain corporate capacity. By first developing clear procedures for consistent review of each question, one Division was able to have staff complete CAP reviews outside of their typical duties. This provided staff with an opportunity to learn from others in the office and expand their knowledge of unfamiliar programs.

Retain electronic or paper copies of the documents used to answer each core question and create a separate electronic or paper folder for each CAP project. CAP guidance requires that supporting documentation be readily accessible, but does not specify further. Having readily accessible copies of the review supporting documentation allows supervisors or QA reviewers to quickly verify reviewers' responses to each question. An effective approach was to retain only the specific page that demonstrates compliance, rather than the entire document. Examples are retaining just the first plan sheet showing traffic controls rather than retaining the entire plan set, or the signature page for an approved environmental document rather than a collection of all permits and approvals. Retaining an organized collection of source documents supporting each review improves the overall reliability of the CAP results. Arizona Division has used an internal database system called PODS to store and track all projects. PODS was modified to allow CAP guides and source documents to be archived.

Conclusion

Based on the CAP review results, we project with 90% confidence that **national compliance is at least 90% to 99% for 25 of the 28 key Federal requirements we assessed.** "At least" is a conservative estimate and represents the lower range of the confidence interval. We consider these to be generally high levels of compliance and generally consistent with State administered projects. The results affirm the inclusion of LPA recipient risk with the recipient responsibility corporate risk, rather than a separate risk.

Sixteen of 28 requirements had compliance levels above 95%. These included nine areas with compliance levels of at least 98% and seven areas with compliance levels at least 95%.

Three requirements had compliance levels below 90%; railroad/utility/right of way clearance statements (62%), subcontract approval (85%), and erosion/sediment control (89%). Of the 28 areas that were reviewed, these were the lowest areas of compliance for LPA projects. The RR statement issue has already been addressed. For the subcontract approval and erosion sediment control issues we recommend that no national action be taken, but Divisions should continue to work to bring the States into compliance, and that we bring these questions into the core for PY18.

With the exception of the ongoing railroad statement issue, these results met our expectation for high levels of compliance. States have processes and controls in place to meet these key Federal requirements. High compliance gives FHWA reasonable assurance that risk is low in these areas.

Appendix A. Methodology and Statistical criteria for National Compliance Assessment Program

The Compliance Assessment Program is designed to make a projection about overall levels of national and State compliance with key Federal requirements by assessing a statistically valid sample of projects recently advanced to construction.

To ensure consistency, the PMI Team extracted all Division's locally administered projects from the FHWA Financial Management Information System (FMIS) using a Business Objects query on April 1, 2015. This extraction produced the project population representing 43 States. The project population consists of 4,192 locally administered Federal-aid highway projects authorized for construction or advance construction during the preceding 12 months, from April 1, 2014 to March 31, 2015.

After obtaining the FMIS project population, it was imported into SAS 9.2 software to compute the sample size and to derive sample projects for each State[35]. Each State's project population was randomized by SAS[36] and 1,361 sample projects were selected[37] according to the minimum sample size required for 90% confidence level with 10% margin of error. These statistical criteria fall within acceptable ranges for government program assessment, industry, and academia. Because FMIS is not a project management system, some projects identified in the population might not meet the inclusion criteria for review (recently advanced to construction), CAP policy gave Divisions the option to request project sample substitutes. Each randomized State population was archived for potential future substitution requests.

After deriving State sample projects (i.e., the CAP sample of 1,361), they were exported into individual MS Excel files and provided to each Division in Mid-April 2015. After removing 28 projects from the initial population and substitutions given, the final sample size was 1,333. Typical reasons for substitution were projects cancelled, projects still in design and authorized to construction in error, acquisition projects or other non-construction activity, or projects withdrawn from Federal funding.

CAP reviews began on June 1, 2015 with the beginning of Performance Year 2016. Over the next year Division offices completed project reviews using a pre-established set of questions and responses. CAP reviews consist of two parts: core questions and technical review guides. The Core Question Guide includes compliance questions for ten key Federal regulatory requirements and was required to be used by each Division on its randomly sampled projects.

In the 43 Divisions, 257 reviewers and 86 supervisors conducted the reviews by asking each question for each of the projects in the sample. The possible responses were:

- *Yes*, meaning that the reviewer verified that the requirement was met;
- *Not Applicable*, meaning that the requirement did not apply to that project;

[35] Consistent with raosoft.com/samplesize.html algorithm
[36] Using uniform distribution
[37] Using Floyd's ordered hash table algorithm for simple random sampling without replacement

- *No*, meaning that the reviewer assessed that the requirement had not been met; and
- *Don't Know*, meaning that the reviewer could not verify that the requirement had been met.

Reviewers consistently provided explanatory comments for No, Don't Know, and Not Applicable responses, but some have not yet implemented the requirement for all responses to have supporting comments.

As Division offices completed CAP reviews, they loaded the results from each review to a central SharePoint site. They were required to complete all CAP reviews by the end of the performance year, May 31, 2016.

Reviewers collected information about the project highway system (Interstate, National Highway System, non-National Highway System), whether the project was State or Locally Administered, as well as who conducted the review, when, what supervisor checked it, and which technical guide was used if any. The PMIT Team conducted continuous quality assurance to assess and ensure the reliability of CAP responses. We developed data validation protocols to alert users when "completed" reviews had missing or incorrect entries. After the end of the performance year, we read all responses and compared them to supporting comments.

The PMI Team extracted CAP core review responses from the RBSO SharePoint site on September 26, 2016 for analysis.

To determine levels of compliance, we treat a *Yes* response as an assessment, based on evidence, that the project is "in compliance" with that specific requirement. A *Not Applicable* response is an assessment that project is not in violation with that specific requirement and is therefore "in compliance." A *No* response is an assessment that the project is "not in compliance." A *Don't Know* response, when a reviewer cannot positively confirm that the project is in compliance with the specific requirement, is classified as "not in compliance." So, *Yes* and *Not Applicable* responses are counted as "in compliance," while *No* and *Don't Know* responses are counted as "not in compliance" for the national and State statistical inference of the compliance rate.

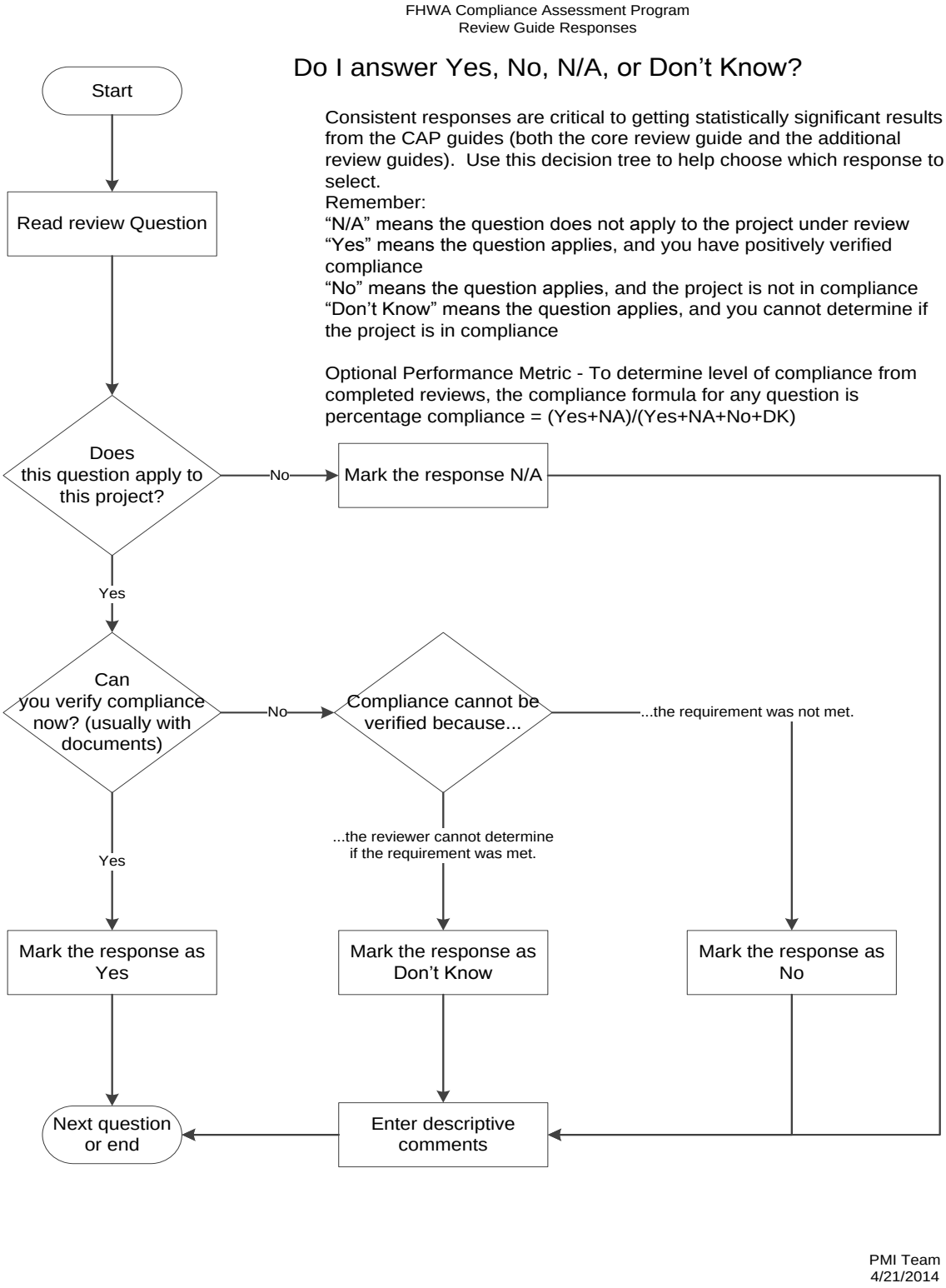
We computed the minimum sample size and derived the sample projects for each State to achieve a 90% confidence level with 10% margin of error. These criteria fall within acceptable ranges for government program assessment, industry, and academia.

Academic sources suggest confidence level between 80-99% with varying margin of error should be used when conducting evaluations. Confidence levels and corresponding margin of errors are based on the researcher's discretion and available resources[38,39].

[38] Royse, D., Thyer, B., Padgett, D. (2010) Sampling. Program Evaluation: An Introduction 5th edition (pp 202-204). Belmont: Wadsworth.

[39] Wholey, J.S., Hatry, H.P., Newcomer, K.E. (2004). Using Statistics in Evaluation. Handbook of Practical Program Evaluation (pg. 444). San Francisco: Wiley.

Appendix B. Review Guide Response Map



Appendix C. CAP Corporate Review Guide for PY2016

http://our.dot.gov/office/fhwa.dfs/cap/docs/Final%20LPA%20Corporate%20Review%20Guide%20%203-30-15.docx