

VA Office of Inspector General

OFFICE OF AUDITS AND EVALUATIONS



Department of Veterans Affairs

*Audit of
the Seismic Safety of
VA's Facilities*

November 12, 2015
14-04756-32

ACRONYMS

CFM	Office of Construction and Facilities Management
COOP	Continuity of Operations Plans
EUL	Enhanced Use Lease
FCA	Facility Condition Assessment
FCD	Federal Continuity Directive
FUA	Facility Use Agreement
FY	Fiscal Year
GSA	General Services Administration
OALC	Office of Acquisition, Logistics, and Construction
OIG	Office of Inspector General
SFVAHCS	San Francisco VA Health Care System
VA	Department of Veterans Affairs
VAMC	Veterans Affairs Medical Center
VARO	Veterans Affairs Regional Office
VBA	Veterans Benefits Administration
VHA	Veterans Health Administration

To Report Suspected Wrongdoing in VA Programs and Operations:

Telephone: 1-800-488-8244

Email: vaoighotline@va.gov

(Hotline Information: www.va.gov/oig/hotline)



Report Highlights: Audit of the Seismic Safety of VA's Facilities

Why We Did This Audit

We conducted this audit to assess VA's earthquake preparedness based on a request received from Senator Dianne Feinstein in August 2014.

What We Found

VA did not effectively identify seismic risks for 15 of 97 critical and essential buildings located in high and very high seismic zones. This occurred because Facility Condition Assessments (FCAs) did not identify structural deficiencies that would be uncovered by more in-depth seismic studies and VA guidance did not require FCA contractors to review design documents resulting in sometimes reporting building conditions improperly. VA has also not mitigated 28 structural and 65 nonstructural seismic deficiencies discovered in these 97 buildings. This occurred because limited funding has slowed progress and medical facilities did not always submit construction project applications to correct the nonstructural deficiencies.

In addition, contracting officers did not confirm the seismic safety of 23 of 46 leased buildings by obtaining seismic certificates or plans to mitigate seismic risks. VA also did not have a process for ensuring two enhanced use lease buildings remain seismically safe over the terms of their leases. Lastly, VA has not adequately developed and tested Continuity of Operations Plans (COOPs) for the 18 health care systems and medical centers we evaluated. As a result, VA will be more susceptible to the risk of injury and loss of

life to veterans and employees who might find themselves in seismically deficient buildings.

What We Recommended

We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction (OALC), the Under Secretary for Health, and the Acting Assistant Secretary for Management implement procedures to improve seismic risks in VA's buildings and the Under Secretary for Health establish procedures to improve COOP development and testing.

Agency Comments

The Principal Executive Director, OALC; the Under Secretary for Health; and the Acting Assistant Secretary for Management and Chief Financial Officer concurred with our recommendations with one exception but provided acceptable planned corrective actions for all findings and recommendations. The Principal Executive Director, OALC, also provided additional comments, which we took into consideration as part of this final report.

A handwritten signature in blue ink that reads "Linda A. Halliday".

LINDA A. HALLIDAY
Deputy Inspector General

TABLE OF CONTENTS

Introduction.....	1
Results and Recommendations	2
Question 1 Has VA Effectively Identified and Mitigated the Seismic Risks of Its Owned Facilities?.....	2
Recommendations.....	9
Question 2 Has VA Effectively Identified and Mitigated the Seismic Risks of Its Leased Facilities?.....	12
Recommendations.....	15
Question 3 Did VA Ensure Its Major Construction Projects Were Structurally Designed to Comply With Seismic Design Requirements?	17
Question 4 Has VA Developed and Tested Plans to Mitigate Risks and Ensure Essential Facilities Remain Operational After a Seismic Event?	19
Recommendation.....	22
Appendix A Background.....	23
Appendix B Scope and Methodology	26
Appendix C Principal Executive Director for Acquisition, Logistics, and Construction Comments.....	28
Appendix D Under Secretary for Health Comments.....	32
Appendix E Assistant Secretary for Management Comments.....	35
Appendix F Office of Inspector General Contact and Staff Acknowledgments	36
Appendix G Report Distribution	37

INTRODUCTION

Objective

In August 2014, we received a request from Senator Dianne Feinstein to evaluate VA's preparedness for a major earthquake in California. The United States Geological Survey's 2014 Seismic Hazard Map indicates there are 16 states at high risk of facing a damaging earthquake. These states are located along the west coast, the intermountain west, and the central and eastern regions of the United States. As such, we addressed the following questions from the request as part of a more comprehensive national audit:

1. Has VA effectively identified and mitigated the seismic risks of its owned facilities?
2. Has VA effectively identified and mitigated the seismic risks of its leased facilities?
3. Did VA ensure its major construction projects were structurally designed to comply with seismic design requirements?
4. Has VA developed and tested plans to mitigate the risks to veterans and staff and ensure essential facilities remain operational after a seismic event?

We were also asked to evaluate whether the Department of Veterans Affairs had sufficiently prioritized projects to bring its existing buildings up to modern earthquake safety standards for its Fort Miley campus in San Francisco and to conduct a more comprehensive review of the buildings at the VA West Los Angeles Medical Center.

Seismic Safety Overview

VA began a full seismic safety program following the 1971 San Fernando earthquake in Southern California. The program focuses on ensuring new construction projects are built in compliance with seismic design requirements; and identifying and mitigating seismic risks in existing facilities. VA contracts for Facility Condition Assessments (FCAs) to obtain independent evaluations of buildings at VA medical facilities, VA Regional Offices (VAROs), and national cemeteries. Contractors perform FCAs at each facility once every 3 years. Building systems, including electrical, mechanical, and structural, receive grades of A through F based on their conditions. Systems in poor or critical condition receive grades of D or F. FCA contractors must estimate how much it will cost to correct the deficiencies graded D or F. VA uses this information to plan, justify, and fund projects to correct seismic deficiencies as it develops its budget.

Other Information

- Appendix A provides pertinent background information.
- Appendix B provides details on our scope and methodology.

RESULTS AND RECOMMENDATIONS

Question 1 **Has VA Effectively Identified and Mitigated the Seismic Risks of Its Owned Facilities?**

VA did not effectively identify seismic risks for 15 of 97 critical and essential buildings located at 23 Veterans Health Administration (VHA) facilities in areas that have a high or very high probability of experiencing a damaging earthquake.¹ Specifically, FCA contractors did not identify significant structural seismic deficiencies during their assessments. In addition, VA's Office of Construction and Facilities Management (CFM) guidance could potentially result in VA neglecting structural seismic deficiencies. These conditions occurred because:

- FCAs did not identify structural seismic deficiencies that potentially would be uncovered by contractors performing more in-depth seismic studies.
- CFM guidance did not require FCA contractors to review structural design documents for completed projects as part of their building assessments.
- CFM provided guidance that caused FCA contractors to report building conditions improperly.

VA also has not mitigated structural seismic deficiencies discovered in 28 of the 97 critical and essential buildings. Similarly, VA has not mitigated nonstructural seismic deficiencies such as bracing ceilings and mechanical equipment in 65 of the 97 critical and essential buildings.² In general, limited funding has slowed VA's progress. However, these conditions also occurred in part because medical facilities did not always submit applications for construction projects needed to mitigate seismic risks.

As a result, VA did not have a complete and accurate inventory of seismic deficiencies in its buildings. Moreover, according to VA's fiscal year (FY) 2016 Strategic Capital Investment Plan, VA estimated that it needed approximately \$8.6 billion to correct seismic deficiencies in its buildings.³ Of that total amount, approximately \$1.7 billion has been funded through FY 2016. Consequently, there is an increased risk of injury and loss of life

¹According to VA's Seismic Design Requirements dated August 2013, critical facilities such as hospitals and medical research facilities and essential facilities such as psychiatric and long-term care facilities are required to remain operational following an earthquake.

²Twenty-seven of the 28 buildings with structural seismic deficiencies also had nonstructural seismic deficiencies.

³This is a conservative estimate as project information for nonrecurring maintenance and minor construction programs was not available for prior years or future years past three and five years, respectively.

to the veterans and employees who might find themselves in seismically deficient buildings during an earthquake, until VA can complete the projects needed to correct the seismic deficiencies.

**Undiscovered
Seismic
Deficiencies**

FCA contractors did not always discover significant structural seismic deficiencies during assessments of critical and essential buildings located in high and very high seismic zones. VA relies on FCA contractors for independent assessments of buildings and building systems that include cost estimates to correct significant seismic deficiencies identified during the assessments. Without adequate FCAs, VA cannot accurately plan and prioritize construction projects to correct the seismic deficiencies. The following examples provide details of ineffective contractor FCAs.

Example 1

Contractor FCAs conducted in 2010 and 2012 at the VA Palo Alto Health Care System's Spinal Cord Injury Rehabilitation Center (Building 7) did not identify any structural seismic deficiencies. In September 2012, the Paralyzed Veterans of America requested that this facility complete a detailed seismic study of Building 7 to ensure the building complied with updated current seismic standards and was safe for its patients.

In contrast to the 2010 and 2012 FCAs, the seismic study contractor's draft report dated March 2014 identified several structural seismic deficiencies. The draft report described Building 7 as a single-story structure composed of eight wings that are functionally connected but seismically separated. Wings A, B, C, and D are reinforced concrete structures built in 1960 with seismic strengthening performed in 1988. Wings E and F are structural steel building additions constructed in 1988. Wings G and H were excluded from the seismic study because they were constructed more recently under current seismic design requirements. The contractor evaluated Building 7 using the immediate occupancy performance objective.⁴

The report concluded:

Without sufficient collectors, pier connections, shear walls and boundary elements in the concrete buildings (Wings A, B, C, and D), the capacities of the lateral forces resisting systems are limited. Even though seismic strengthening was performed on the buildings in 1988, the intended performance is reduced by the brittle dowel connections utilized.

In addition, for the steel buildings (Wings E and F) the seismic performance is limited by the moment frame beams, base plated anchorages and diaphragm connections. In addition to the structural deficiencies noted, there are many nonstructural deficiencies observed in the building.

⁴Immediate occupancy means that the building will remain safe to occupy following an earthquake.

The report also concluded that Building 7 was not currently on VA's list of exceptionally high-risk buildings.⁵ However, as a result of the findings of the contractor's evaluation, the building qualified as an exceptionally high-risk building.

The contractor included the following options for construction cost estimates to correct the identified deficiencies:

- Option 1: Phased seismic retrofit – approximately \$68.9 million.
- Option 2: Single-phase seismic retrofit with all occupants moved to a temporary facility – approximately \$87.3 million.
- Option 3: Demolition and construction of a new facility – approximately \$90.4 million.

This issue occurred because FCAs, by their very nature, do not always identify structural seismic deficiencies that would be uncovered by contractors performing more in-depth seismic studies. This example underscores the need to conduct detailed seismic studies—rather than more limited FCAs—for VA's critical and essential buildings most at risk of being damaged during a major earthquake.

Example 2

In 2014, an FCA identified a significant structural seismic deficiency at the Alaska VA Healthcare System's Domiciliary (Building 3001), that was missed when designing a seismic upgrade construction project that was completed in 2007. In addition, two subsequent FCAs performed in 2010 and 2012 also missed this same deficiency.

According to the 2014 FCA, Building 3001 is a domiciliary with 34,100 gross square feet; it was constructed in 1969. The 2003 *International Building Code Classification of Buildings and Other Structures for Importance Factors* required a seismic importance factor of 1.25 for healthcare facilities with occupant loads of 50 or more resident patients.

Project documentation for the construction project described Building 3001 as a 50-bed domiciliary. However, when the Alaska VA Healthcare System completed the minor construction project costing just over \$3.6 million to seismically upgrade Building 3001 in March 2007, it was upgraded to a 1.0 importance factor, instead of 1.25.⁶ Furthermore, the FCA contractors who performed the 2010 and 2012 assessments did not detect this flaw because they did not review structural design documents for the completed minor construction project.

⁵An exceptionally high-risk building is an essential facility larger than 10,000 square feet located in a high seismic zone that was designed prior to adoption of current seismic standards and is at high risk of major damage or collapse in the event of an earthquake.

⁶A higher importance factor improves the safety of the structure, which helps protect its occupants.

This error was discovered by the 2014 FCA contractor during a review of the structural design documents as part of its assessment of Building 3001. Accordingly, the FCA contractor stated that although Building 3001 had been seismically retrofitted, the structure did not meet VA seismic requirements and remained deficient because it was not designed using a seismic importance factor of 1.25. The contractor assigned the building a condition code of D and estimated it would cost almost \$1.3 million more to correct this deficiency.

This critical oversight occurred because CFM guidance did not require FCA contractors to review structural design documents as part of their seismic assessments. Revised CFM guidance will assist FCA contractors and medical facilities in identifying seismic deficiencies at the earliest possible opportunity, which will also result in more timely submissions of construction project applications to correct the seismic deficiencies.

**Seismic
Deficiencies
Reported
Inaccurately**

CFM guidance could potentially result in VA neglecting structural seismic deficiencies. FCA contractors improperly reported potential structural seismic deficiencies during their assessments of critical and essential buildings located in high and very high seismic zones based on guidance provided by CFM officials. Without complete and accurate information regarding the seismic safety of its buildings, VA cannot adequately plan, justify, and fund projects needed to correct seismic deficiencies.

Example 3

In 2014, an FCA contractor did not properly report potential structural seismic deficiencies for the VA Salt Lake City Health Care System's Main Hospital (Building 1). According to the 2014 FCA, Building 1 was built in 1949 and contains approximately 343,000 gross square feet of space. The *VA Facilities Occupancy Categories* classifies hospitals as critical facilities. In 2011, the FCA contractor reported Building 1 did not meet structural seismic requirements. The contractor rated the building's structural seismic condition as poor and assigned the deficiency a condition code of D. According to the Acting Capital Asset Manager, the VA Salt Lake City Health Care System had not completed any projects to correct this deficiency subsequent to the 2011 FCA. Nonetheless, the 2014 FCA contractor rated the building's structural seismic condition as good and assigned a condition code of B.

The 2014 FCA contractor's project manager told us that he changed the condition to a B in order to comply with guidance provided by CFM—*FCA 101: Updating Facility Condition Assessments*, dated December 2014. The guidance states:

Buildings designed and constructed or retrofitted in accordance with any pre-2002 editions of H-18-8 (or its predecessor, H-08-8, Earthquake Resistant Design

Requirements for VA Hospital Facilities) shall be assigned a code of "B."

The project manager explained that a seismic retrofit project occurred in 1977 and that it was designed to meet H-08-8. Although the FCA contractor changed the condition to a B, the contractor noted on the report that it was not clear if the building meets seismic requirements and that further study is necessary. When we brought this issue to the attention of CFM officials, they told us that when an FCA contractor concludes that a seismic study is needed the contractor should assign a condition code of D so that the building receives the appropriate priority. In contrast, the FCA contractor assigned a condition code of B because of the conflicting written guidance.

We found similar issues at the VA Salt Lake City Health Care System's Geriatric Research, Education, and Clinical Center (Building 2); and the Eagles' Nest Residential and Outpatient Substance Abuse Clinic (Building 3). Because the safety of veterans and VA staff is more at risk in high seismic zones, a more vigilant approach is needed. Given that seismic safety standards have been upgraded since 1977, when in doubt, FCA contractors should assign a condition code of D and recommend a more detailed seismic study be performed to evaluate the seismic safety of the building.

Considerable Work Remains To Mitigate Seismic Deficiencies

VA has not mitigated structural seismic risks for 28 of 97 critical and essential buildings located in high and very high seismic zones. Medical facilities have submitted construction project applications for all 28 of the seismically deficient buildings. However, funding was available for correcting the seismic deficiencies in only four of the buildings. All four of the buildings were in the construction phase. Similarly, VA has not mitigated nonstructural seismic deficiencies discovered in 65 of 97 critical and essential buildings located in high and very high seismic zones. Medical facilities have submitted construction project applications for only 42 of the 65 buildings. There were only four ongoing projects to correct nonstructural seismic deficiencies.

Funding Slowed Progress

In general, limited funding has slowed VA's progress. As of April 2015, there were 52 exceptionally high-risk and 68 high-risk buildings on VA's Seismic Inventory requiring corrective actions to make the buildings seismically safe. According to the *Seismic Deficiency Funding Requirements* provided to us by the Office of Asset Enterprise Management, which was based on VA's FY 2016 Strategic Capital Investment Planning process, VA estimated it needed approximately \$8.6 billion to fund 33 major construction, 52 minor construction, and 142 nonrecurring maintenance projects intended to correct seismic deficiencies. In contrast, VA has received approximately \$1.7 billion through FY 2016 to complete these 227 projects. Thus, in spite of the risks these seismic deficiencies pose,

facilities must wait for funding as various high-priority projects compete for available resources.

**Medical
Facilities Less
Likely
To Mitigate
Nonstructural
Deficiencies**

FCA contractors identified nonstructural deficiencies in 65 of the 97 critical and essential buildings located in high and very high seismic zones. However, medical facilities have taken insufficient actions to correct these deficiencies, which included items such as inadequate bracing of ceiling systems, light fixtures, and mechanical and electrical equipment.

Generally, medical facilities were correcting nonstructural deficiencies in construction projects associated with buildings that had both structural and nonstructural deficiencies. Medical facility officials told us that they did not necessarily submit construction project applications to correct nonstructural deficiencies because of competing priorities coupled with limited funding, inadequate FCA descriptions of the deficiencies, and inadequate planning. As a result, a substantial amount of nonstructural seismic deficiencies remains without any plans for mitigation.

Example 4

The Outpatient Addition (Building 18) at the VA Caribbean Health Care System, built in 1999 with 176,000 gross square feet of space, had 13 types of critical nonstructural seismic deficiencies, according to a 2015 FCA. The FCA contractor estimated it would cost approximately \$2.9 million to correct the deficiencies. Eleven of the deficiencies were also identified on the previous FCA completed in 2010. The deficiencies included items, such as fire suppression piping not being adequately anchored and braced and equipment weighing over 100 pounds not being properly anchored to the structure. The medical facility has not submitted project applications to mitigate these critical nonstructural seismic deficiencies.

**San Francisco
VA Health
Care System**

The San Francisco VA Health Care System (SFVAHCS) has not mitigated an estimated \$59.5 million in structural seismic risks for 13 of 22 critical and essential buildings on its Fort Miley campus. SFVAHCS has submitted construction project applications for 12 of 13 buildings and has ongoing construction projects to correct structural seismic deficiencies in 7 of the 13 buildings. However, it has not received funding to correct the structural deficiencies in the other six buildings. Similarly, SFVAHCS has not mitigated an FCA-estimated \$19 million in nonstructural seismic deficiencies identified in 11 of 22 critical and essential buildings. SFVAHCS has submitted construction project applications for only 4 of the 11 buildings and it does not have any construction projects in progress to correct nonstructural seismic deficiencies.

Example 5

FCA contractors identified approximately \$19 million in estimated costs to correct nonstructural deficiencies in 11 SFVAHCS buildings. Moreover, SFVAHCS has not submitted construction project applications for 7 of the 11 buildings. According to the SFVAHCS Director and the Acting Chief Engineer, this occurred because of SFVAHCS' lack of adequate planning

and failure to take action. They added that the FCA descriptions of nonstructural seismic deficiencies are vague and insufficient. For example, the 2012 FCA contractor reported that ducts and pipes were missing seismic bracing in the Inpatient Hospital (Building 203) on the SFVAHCS campus. This description failed to pinpoint which ducts and pipes needed seismic bracing and where they were located in the building.

**VA West
Los Angeles
Medical Center**

VA West Los Angeles Medical Center has not mitigated an estimated \$135.8 million in structural seismic risks for 10 of 18 critical and essential buildings. The VA Medical Center (VAMC), located in West Los Angeles, has submitted construction project applications for 8 of the 10 buildings and has an ongoing construction project to correct the seismic deficiencies in 1 of the 8 buildings. Similarly, the West Los Angeles VAMC has not mitigated a FCA estimated \$19.3 million in nonstructural seismic deficiencies discovered in 15 of 18 critical and essential buildings. The West Los Angeles VAMC has submitted construction project applications for 10 of the 15 buildings. Only 1 of the 10 buildings' nonstructural seismic risks was in the process of being mitigated.

Example 6

West Los Angeles VAMC had not submitted a construction project application to correct structural seismic deficiencies identified in one of their buildings (Building 210), even though seismic strengthening was first recommended in 1985. Building 210 is an approximately 39,700 square foot building constructed in 1945. It is used for outpatient services and research, which makes it a critical facility. According to West Los Angeles VAMC officials, the 2014 FCA contractor's seismic grade for this building was an F, which means the building is failing or in critical condition with serious code violations. We were told by West Los Angeles VAMC officials that they do not have a justifiable reason for failing to submit a construction project application in a timely manner. In April 2015, the West Los Angeles VAMC submitted a minor construction project application with a total estimated cost of approximately \$9.6 million to correct the seismic deficiencies in Building 210 along with three other buildings with seismic deficiencies.

Conclusion

As of April 2015, there were 52 exceptionally high-risk and 68 high-risk buildings on the *VA Seismic Inventory* requiring corrective actions to make the buildings seismically safe. FCA contractors did not discover significant structural seismic deficiencies during their assessments and accurately report the conditions of structural seismic deficiencies. These issues occurred because:

- FCAs did not identify structural seismic deficiencies that would be uncovered by contractors performing more in-depth seismic studies.
- CFM guidance did not require FCA contractors to review structural design documents for completed projects as part of their building assessments.

- CFM provided guidance that caused FCA contractors to report building conditions improperly.

VA has not mitigated a significant number of structural and nonstructural seismic deficiencies in critical and essential buildings located in high and very high seismic zones. In general, limited funding has slowed VA's progress. According to VA's FY 2016 Strategic Capital Investment Plan, VA estimated that it needed approximately \$8.6 billion to correct seismic deficiencies in its buildings. Of that amount, approximately \$1.7 billion had been funded through FY 2016. However, these conditions also occurred in part because medical facilities did not always submit applications for construction projects. Until VA takes actions to improve procedures used to identify and mitigate the seismic safety of its buildings, there will be an increased risk of injury and loss of life to veterans and staff located in seismically deficient buildings during an earthquake.

Recommendations

1. We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction establish policy requiring medical facilities to conduct detailed seismic studies for all critical and essential buildings located in high and very high seismic zones that have not already undergone detailed seismic studies.
2. We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction revise its Facility Condition Assessment guidance to require Facility Condition Assessment contractors to review structural design documents for buildings that have completed seismic retrofit projects.
3. We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction revise its Facility Condition Assessment guidance to ensure conditions of seismically unsafe buildings are properly reported on assessment reports.
4. We recommended the Under Secretary for Health ensure medical facilities submit construction project applications, in a timely manner, for all identified seismically unsafe structural and nonstructural deficiencies.
5. We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction ensure that Facility Condition Assessment contractors include specific and detailed descriptions of nonstructural seismic deficiencies in their assessments.

Management Comments and OIG Response

The Principal Executive Director, Office of Acquisition, Logistics, and Construction concurred with Recommendations 1 through 3. OALC will update VA Directive 7512, *Seismic Safety of VA Buildings*, requiring

seismic studies for all VA-owned critical and essential buildings in high and very high seismic zones that have not been studied and are not already on the Exceptionally High Risk/High Risk lists. OALC will revise its FCA guidance to require FCA consultants to perform targeted reviews of structural documents for key design information to document in the FCA database. OALC will also revise its FCA guidance to clarify that all new technical information and factual evidence shall be considered during the FCA process.

The Under Secretary for Health concurred with Recommendation 4 and will work with VA CFM to develop priorities for more detailed seismic analysis. They will also verify that seismic deficiencies are addressed in a timely manner in all future Strategic Capital Investment Planning cycles. Finally, VHA will verify that medical facilities submit construction project applications in SCIP process and follow-up with facilities if the applications have not been submitted within a reasonable timeframe.

The Principal Executive Director, Office of Acquisition, Logistics, and Construction concurred with our finding but not Recommendation 5. However, OALC provided an acceptable alternative action plan. OALC will improve the FCA guidance document to help ensure that consultants provide more descriptive language in their reports thus providing VA engineering staffs with a better understanding of the full scope of repairs needed for the facility.

The Principal Executive Director, Office of Acquisition, Logistics, and Construction and the Under Secretary for Health planned corrective actions are responsive. We will monitor progress and follow up on the implementation of our recommendations until all proposed actions are completed.

The Principal Executive Director, Office of Acquisition, Logistics, and Construction also provided the following additional comments, which were considered as part of this final report. The Principal Executive Director stated that the report compares the Strategic Capital Investment Planning seismic deficiency need of \$8.6 billion to a budget of \$1.7 billion through FY 2016 but that it does not clarify whether the amount is a cumulative figure, and if so, over what duration. The Office of Enterprise Asset Management provided these figures to us in a document labeled *Seismic Deficiency Funding Requirements*, which was based on the 2016 Strategic Capital Investment Planning process. This document shows that the difference is the remaining unfunded need as of FY 2016. We added language to the report to clarify the source of these figures.

The Principal Executive Director also stated that source documents to demonstrate that VA did not effectively identify seismic risks for 15 of 97 critical and essential buildings were not included in the report. Similarly, the Principal Executive Director indicated that the source documents showing that VA has not yet mitigated 28 structural and 65 nonstructural seismic deficiencies were not included in the report. The audit team discussed each building reviewed with capital asset managers and facility engineers during each of our site visits throughout the audit. In addition, we discussed all of the examples in our report with responsible officials from the offices of Construction Facilities Management, Capital Asset Management Engineering and Support, Asset Enterprise Management, and VHA's Office of Emergency Management and Center for Leasing Excellence. Regardless, we will expand our efforts to facilitate the Department's understanding of the underlying source documentation supporting the findings and conditions presented in this report.

Lastly, the Principal Executive Director offered revisions to correct the definitions of exceptionally high-risk and high-risk buildings included in Appendix A of our report. The Principal Executive Director stated that the correct definitions are specified in Volume 1 of the final phase of the *VA Seismic Inventory Report*. We had included the definitions verbatim as they appeared in VA Directive 7512, *Seismic Safety of VA Buildings*, which the Office of Acquisitions, Logistics and Construction is responsible for maintaining. These definitions do not affect the findings, conclusions, and recommendations discussed in our report. Accordingly, we did not change the wording in Appendix A. If the definitions in the *VA Seismic Inventory Report* are correct, VA Directive 7512 should be updated to reflect the correct definitions.

Question 2 **Has VA Effectively Identified and Mitigated the Seismic Risks of Its Leased Facilities?**

Contracting officers did not ensure lessors evaluated the seismic safety of 23 of 46 leased buildings located in high and very high seismic zones. Specifically, the contracting officers did not confirm the seismic safety of VA-leased buildings by obtaining seismic certificates or plans to mitigate seismic risks before executing lease agreements or renewals costing approximately \$24.7 million annually. In addition, the procedures used by VA's Office of Management when executing enhanced use leases (EULs) did not include a process for ensuring the buildings remain seismically safe over the terms of the leases. The EULs did not include a provision requiring the developer to certify the seismic safety of the buildings or to have a plan for mitigating identified seismic deficiencies prior to execution or renewal of a Facility Use Agreement (FUA) with a VA organization.

These conditions occurred because contracting officers were not always aware of the need to obtain seismic certificates or copies of plans to mitigate identified seismic risks. Consequently, VA lacks assurance that its leased buildings are seismically safe and it does not know whether the buildings have seismic risks that need to be mitigated. As a result, veterans and employees potentially are at an increased risk of injury or loss of life during an earthquake.

Management of Leases Needs Improvement

Contracting officers did not confirm the seismic safety of VA-leased buildings by obtaining seismic certificates or plans to mitigate seismic risks before executing lease agreements or renewals for 23 of 46 leased buildings located in high and very high seismic zones.

The *Standards of Seismic Safety for Existing Federally Owned and Leased Buildings* developed by the Interagency Committee on Seismic Safety in Construction in December 2011, state that:

- New leases or lease renewals shall not be made in buildings that do not comply with seismic standards.
- The building owner shall obtain certification by a qualified registered professional engineer that the building conforms to seismic standards.

VA Directive 7512, *Seismic Safety of VA Buildings*, requires VA officials to determine through the lessor the seismic risk of their leased buildings. It states that if the leased buildings have seismic risks, the lessor and VA must develop plans to mitigate the risks. The inability of the lessor or VA to mitigate the risks in a timely manner precludes execution of a lease agreement or renewal.

We found 23 instances in which contracting officers did not confirm buildings were seismically safe by obtaining copies of seismic certificates or plans to mitigate identified seismic risks from the lessors before awarding leases or lease renewals. Instead, they placed this responsibility solely on the lessors, without taking any actions to ensure the lessors fulfilled their duties. As a result, VA officials did not know whether 23 of 46 leased buildings located in high or very high seismic zones were seismically safe.

Example 7

According to a Real Property Service official within CFM, a contracting officer operating within CFM's Real Property Service awarded a 15-year lease, with a 5-year renewal option, for an outpatient clinic, with a total of approximately 34,800 square feet of space in Savannah, GA in February 1990. In July 2011, a contracting officer awarded a 3-year succeeding lease with four 6-month renewal options. VA was paying an annual rent of approximately \$1.1 million in 2015 for the leased outpatient clinic. The solicitation for offer required the offers submitted to include certifications by a registered structural engineer that proposed buildings conformed to the seismic requirements for new construction. However, the Real Property Service official could not provide evidence that seismic certificates were obtained before the initial lease award or subsequent awards to confirm that the building was seismically safe.

Example 8

A contracting officer from Veterans Integrated Service Network 21 awarded a 5-year lease with a 5-year renewal option for a clinical administration center with a total of 11,000 square feet of space in Reno, NV in February 2011. As of June 2012, VA was paying an annual rent of approximately \$412,000 in 2015 for the leased clinical administration center. The solicitation for offer stated that in order to meet seismic standards, an offer must include either a seismic certificate or a commitment to renovate the building to comply with the seismic standards prior to delivery of the space. In addition, it stated that if the offeror proposes to renovate the building, the lessor must deliver a seismic certificate establishing that the building conforms to seismic standards prior to delivery of space to the Government. Despite the language in the statement for offer, the contracting officer could not provide evidence of the seismic certificate for this building.

Contracting Officers Not Aware of Responsibility

Contracting officers operating in the field and within CFM's Real Property Service were generally unaware of their responsibilities—they indicated it was solely the lessor's responsibility to ensure buildings met seismic standards. Nevertheless, contracting officers need to obtain copies of seismic certificates or plans to mitigate identified seismic risks from lessors to demonstrate that they only executed lease awards or renewals when buildings were seismically safe or in the process of being seismically upgraded.

**Enhanced Use
Leases**

VA's Office of Management did not have established policies to ensure that buildings occupied by VA organizations and constructed under EULs remained seismically safe over the terms of the leases. VA's EUL program is considered an innovative method of acquiring needed facilities, goods, and services. In return for allowing VA property to be leased for non-VA uses on VA-controlled land, VA can require rent or other in-kind consideration as long as it enhances a particular VA activity's mission. The Assistant Secretary for Management is responsible for executing EULs. The program is managed by Office of Asset Enterprise Management, which is aligned under the Office of Management.

We evaluated the actions taken by VA officials regarding two buildings constructed by a private company (the developer) according to the terms included in EUL agreements. VA executed FUAs with the developer permitting organizations such as the Veterans Benefits Administration (VBA) and the Office of Information and Technology to occupy portions of the buildings at an annual cost of approximately \$5.3 million. However, the procedures used by VA officials when executing the EULs did not include a process for ensuring the buildings remain seismically safe over the terms of the leases. Specifically, the EULs did not include a provision requiring the developer to certify the seismic safety of the buildings or to have a plan for mitigating identified seismic deficiencies prior to renewal or execution of a new FUA with a VA organization.

**Guidance
Does Not
Address EULs**

The *Standards of Seismic Safety for Existing Federally Owned and Leased Buildings* state that evaluation and mitigation of seismic risks in privately owned buildings on Federal land is the responsibility of the building owner. The standards also recommend that these buildings be evaluated and that unacceptable risks be mitigated. However, VA Directive 7415, *Enhanced-Use Lease Program*, does not contain a requirement for ensuring that EUL buildings occupied by VA organizations are seismically safe over the terms of the EULs. Unless VA officials take proactive actions to require developers to certify the seismic safety of EUL buildings or to have plans for mitigating seismic deficiencies in place before renewal or execution of new FUAs, VA could be unaware that the EUL buildings it occupies are seismically unsafe.

Example 9

In September 2006, VA entered into an EUL agreement to lease a parcel of approximately 7 acres of land to a developer. The parcel of land is located on the VAMC campus in Salt Lake City, UT. The lease term was 45 years and 4 months with options to renew for two 10-year extension periods. As part of the agreement, the developer was required to renovate a building and then to demolish six buildings located on the campus.

The developer also agreed to finance, develop, and construct a commercial building, restaurant and retail pad(s), and related improvements. According to the agreement, the property and related improvements are owned by the

developer during the term of the lease. Before the lease ends, however, the developer must deliver the property and improvements to VA.

In August 2008, VBA entered into an FUA with the developer for the Salt Lake City VARO to use approximately 53,000 square feet in the commercial building built by the developer. The FUA terminates in June 2021. Although the building is located in a very high seismic zone, the EUL agreement did not include a requirement for the developer to certify the seismic safety of the building or to have a plan for mitigating identified seismic deficiencies prior to renewal or execution of a new FUA.

Until VA establishes policies to require developers to certify the seismic safety of EUL buildings or to have plans for mitigating seismic deficiencies in place prior to renewal or execution of new FUAs, VA will lack assurance that the buildings it occupies under EULs are seismically safe.

Conclusion

VA needs to take steps to improve procedures to identify and mitigate seismic risks in its leased facilities. VA contracting officers did not confirm the seismic safety of VA-leased buildings by obtaining seismic certificates or plans to mitigate seismic risks before executing lease agreements or renewals for half of its leased facilities located in high and very high seismic zones. In addition, procedures must be developed to ensure the seismic safety of EUL buildings occupied by VA organizations. Without improved processes to validate the seismic safety of leased facilities, VA lacks reasonable assurance that its leased facilities are safe for veterans and employees.

Recommendations

6. We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction ensure its contracting officers obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals.
7. We recommended the Under Secretary for Health ensure its contracting officers obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals.
8. We recommended the Acting Assistant Secretary for Management revise VA Directive 7415 to mandate that enhanced use lease agreements require developers to certify the seismic safety of buildings or to have a plan for mitigating identified seismic deficiencies prior to renewal or execution of new facility use agreements with VA organizations.

**Management
Comments
and OIG
Response**

The Principal Executive Director, Office of Acquisition, Logistics, and Construction concurred with Recommendation 6 and will add the requirement for completion of a seismic certificate prior to lease award. OALC will issue a Standard Operating Procedure requiring the use and

incorporation of seismic forms on all lease procurements that align with the seismic forms used by GSA.

The Under Secretary for Health concurred with Recommendation 7. VHA's Procurement and Logistic Office will coordinate with the Deputy Under Secretary for Health for Operations and Management to issue a memo directing VHA contracting officers to obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals. Additionally, VHA's Procurement and Logistic Office will also conduct bi-annual audits of lease agreements to ensure compliance.

The Acting Assistant Secretary for Management and Chief Financial Officer concurred with Recommendation 8 and will revise VA Directive 7415. The directive will mandate that enhanced use lease agreements, when applicable for seismic activity, require developers to certify the seismic safety of buildings or to have a plan for mitigating identified seismic deficiencies prior to execution of new facility use agreements with VA organizations.

The Principal Executive Director, OALC, The Under Secretary for Health, and the Acting Assistant Secretary for Management and Chief Financial Officer planned corrective actions are responsive. We will monitor progress and follow up on the implementation of our recommendations until all proposed actions are completed.

Question 3 **Did VA Ensure Its Major Construction Projects Were Structurally Designed to Comply With Seismic Design Requirements?**

VA has established policies and procedures to ensure its major construction projects were structurally designed to comply with seismic design requirements. We evaluated 29 of VA's major construction projects located in high and very high seismic zones that were beyond the 35 percent design completion phase for the following attributes:

- Incorporation of VA's *Seismic Design Requirements*
- Licensed structural engineer certification of design documents
- Peer reviews of construction documents and resolution of identified issues
- Qualified engineers with seismic rehabilitation experience overseeing projects

We found that VA policies and procedures provided reasonable assurance that its major construction projects were designed to comply with seismic design requirements.

Design Requirement

Design documents contained specific information regarding the seismic criteria applicable to the projects being completed. We evaluated the design documents to ensure that the structural designs incorporated the appropriate occupancy category from the International Building Code as well as the corresponding importance factor. We also validated that architect and engineer contracts and scope of work documents required firms to comply with VA's *Seismic Design Requirements*.

Design Certification

VA Directive 7512, *Seismic Safety of VA Buildings*, requires that a licensed engineer with experience in seismic rehabilitation sign construction documents before construction begins to seismically rehabilitate a seismically deficient building. We verified that design documents were certified by licensed engineers experienced in seismic rehabilitation in the states where the construction projects were located.

Independent Peer Reviews

For major construction projects involving the construction of new buildings or the seismic rehabilitation of existing buildings, VA Directive 7512 requires that independent peer reviews of construction documents are performed to ensure compliance with VA's *Seismic Design Requirements*. These peer reviews identify and correct possible errors in design documents that may have otherwise remained unaddressed. After an independent review of design documents is completed, a technical clearance document is signed by a team of architects and engineers specializing in specific technical areas of design, such as structural, mechanical, and electrical. A signed

technical clearance indicates the team of technical experts agreed with actions taken to correct errors identified during the peer review process. The technical clearance also acknowledges that the drawings and specifications for the project have been reviewed, represent reasonable professional performance, and are acceptable to issue for bidding and construction.

We obtained peer review comments regarding the structural aspect of the design documents and confirmed that a technical clearance had been signed by a structural engineer indicating that the peer review comments had been sufficiently addressed and applicable corrections had been made to the design documents.

***Oversight of
Seismic
Projects***

VA Directive 7512 requires that qualified engineers with experience in seismic rehabilitation oversee projects involving the seismic correction of buildings. We validated that architect and engineering firms overseeing VA's seismic projects had sufficient seismic experience to ensure that VA's major construction projects were properly managed.

Conclusion

Our evaluation of the documentation associated with major construction projects did not identify any instances in which VA officials circumvented established policies and procedures. Therefore, we did not make any recommendations for this area of our audit.

Question 4 **Has VA Developed and Tested Plans to Mitigate Risks and Ensure Essential Facilities Remain Operational After a Seismic Event?**

VA had not adequately developed and tested Continuity of Operations Plans (COOPs) to mitigate risks to veterans and employees and ensure essential facilities remain operational after an earthquake.⁷ We evaluated the COOPs for the 18 health care systems and medical centers that owned the 97 buildings we discussed under Question 1. Although all of the medical facilities had developed COOPs, none of the plans addressed all of the requirements we evaluated them against, as described in Federal Continuity Directive 1 (FCD 1), *Federal Executive Branch National Continuity Program and Requirements*. In addition, 17 of the 18 facilities did not address all of the requirements found in FCD 1 for COOP testing that we evaluated them against. These conditions occurred because:

- VHA did not have policies or procedures established requiring emergency managers to adhere to the development and testing requirements contained in FCD 1.
- Emergency managers located at medical facilities indicated the requirements in FCD 1 only applied to VA Headquarters organizations and not to individual medical facilities.

As a result, VA medical facilities could find themselves unprepared to adequately respond in the event of a major earthquake. Additionally, medical facilities are at an increased risk of not being able to keep essential facilities and functions operational after an earthquake.

Continuity Planning Guidance

In August 2007, the President approved the *National Continuity Policy Implementation Plan* to provide guidance to Federal executive agencies. The Department of Homeland Security developed FCD 1 in February 2008. The current edition, dated October 2012, provides direction and clarification for the further development of continuity plans within the Federal executive branch. The provisions of FCD 1 are applicable at all levels of Federal executive branch organizations regardless of their locations, including regional and field locations. In addition to plan development, FCD 1 provides requirements for testing, training, and exercising of continuity capabilities.

⁷We considered the development and testing of contingency plans and post-event continuity operations to be part of VA's COOPs, which included elements of both contingency and continuity planning. Therefore, we used the term "COOP" to refer to both aspects throughout our audit report.

Plans Need Strengthening

None of the COOPS, we selected, complied with all nine of the FCD 1 requirements that we evaluated. However, the COOPs generally complied in the following two areas:

- Identification and prioritization of essential functions
- Identification of interoperable and external communications

Essential functions are used to identify tasks and resources required to continue operations during an emergency or natural disaster. All other elements of a COOP support those identified essential functions and ensure that critical activities continue during a continuity event, such as a major earthquake.

Table 1 identifies seven areas in which the COOPs did not comply with FCD 1 requirements.

Table 1. Results of Analysis for Adequacy of COOP Development

FCD 1 Requirements	Number of Inadequate COOP Plans
Categorization of essential functions as uninterrupted or will resume within 12 hours?	10
Identification of an Order of Succession for other key managers?	10
Identification of alternate sites?	5
Incorporation of telework procedures during a continuity event?	18
Identification and protection of records that specify how an organization will operate in an emergency and continue essential functions?	11
Development of procedures to ensure that essential personnel will have access to essential records at continuity facilities?	12
Identification of a process for employees to communicate pertinent information regarding patient and staff as well as a process for the organization to communicate pertinent HR guidance?	13

Source: OIG Results of Analysis COOP Adequacy

**Testing of
COOPs
Needs
Improvement**

Testing of COOP capabilities is essential to VHA medical facilities' ability to identify weaknesses and improve continuity of operations in the event of an emergency. If emergency procedures are not tested, planned responses may compromise the continuance of essential functions. Medical facilities did not perform adequate testing or sufficiently document testing performed in accordance with requirements of FCD 1 for 17 of the 18 COOPs we evaluated.

Table 2 identifies eight areas in which the COOPs did not comply with FCD 1 requirements.

Table 2. Results of Analysis for Adequacy of COOP Testing

FCD 1 Requirements and Follow-Up Actions Taken	Number of Inadequate Testing
Annual testing of alert, notification, and activation procedures for continuity and devolution personnel?	12
Annual testing of recovery strategies for essential records, critical information systems, services, and data?	14
Annual testing of the capabilities for protecting essential records and information systems and for providing access to them from the continuity facilities?	15
Quarterly testing of the internal and external interoperability and viability of communications equipment and systems?	15
Annual testing of the capabilities required for performing an organization's essential functions?	14
Annual testing of telework capabilities, to include IT infrastructure, required for supporting telework options during a continuity event?	16
Annual testing of internal and external interdependencies identified in the organization's continuity plan, with respect to performance of an organization's and other organizations' essential functions?	15
Actions taken to address any areas that needed improvement?	17

Source: OIG Results of Analysis of COOP Testing

***Policies and
Procedures
Need
Strengthening***

Emergency managers located at medical facilities indicated that the requirements in FCD 1 only applied to VA Headquarters organizations and not to individual medical facilities. In addition, VHA did not have established policies or procedures mandating that emergency managers adhere to the development and testing requirements contained in FCD 1.

Conclusion

While all 18 of the medical facilities we reviewed had developed COOPs, none of the plans sufficiently addressed all of the FCD 1 requirements that we evaluated and only 1 of the 18 medical facilities adequately tested its plan. A significant factor contributing to this condition was that VHA policies and procedures did not require emergency managers to adhere to FCD 1 requirements. Consequently, emergency managers at the medical facilities indicated FCD 1 requirements only applied to VA Headquarters organizations. The weaknesses we identified could cause medical facilities to experience difficulties in maintaining essential operations and delivering health care services to veterans in the aftermath of a major earthquake.

Recommendation

9. We recommended the Under Secretary for Health develop policies and procedures requiring VHA medical facilities to develop and test Continuity of Operations Plans, to include documenting the testing performed, in accordance with Federal Continuity Directive 1 requirements.

***Management
Comments
and OIG
Response***

The Under Secretary for Health concurred with the recommendation. The VHA Office of Emergency Management will draft a memo communicating the requirements that all VA medical centers develop and test Continuity of Operations Plans and become compliant with FCD 1. Additionally, VHA's Office of Emergency Management will develop procedural guidance for use at VAMCs, which captures the requirements set forth in FCD 1. Evaluation of compliance and corrective action regarding Continuity of Operation Plan exercises and standard operating procedures will be examined as part of the Emergency Management Capabilities Inspection Program criteria and on-site inspections, beginning in June 2016.

The Under Secretary for Health's planned corrective actions are responsive. We will monitor progress and follow up on the implementation of our recommendations until all proposed actions are completed.

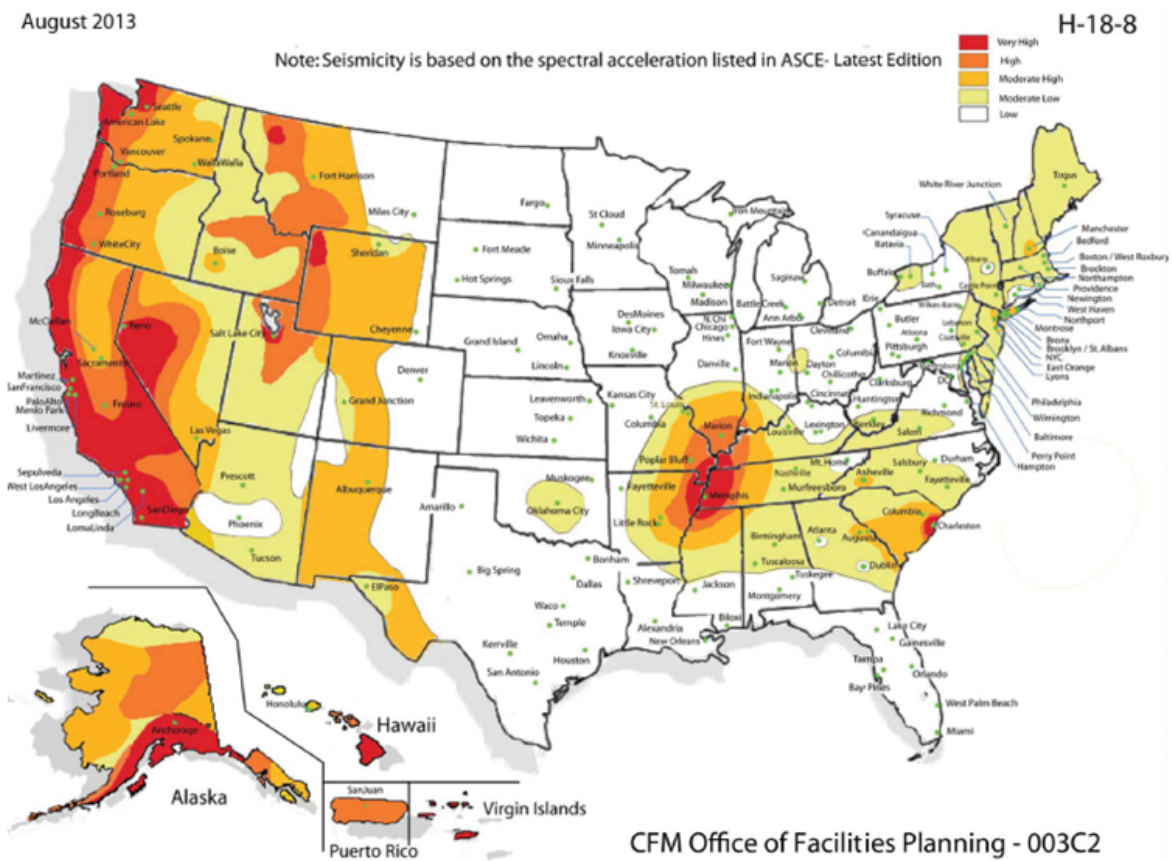
Appendix A Background

Seismic Vulnerability Overview

The United States Geological Survey estimated in March 2015 that there is more than a 99 percent chance California will suffer an earthquake of a magnitude greater than 6.7 within the next 30 years. The 2014 United States Geological Survey's update to the U.S. National Seismic Hazard Maps indicated 16 states are at high risk of experiencing a damaging earthquake. The risk is especially high along the west coast, the intermountain west, and in several active regions of the central and eastern United States, such as near New Madrid, MO, and Charleston, SC. The 16 states at high risk are: Alaska, Arkansas, California, Hawaii, Idaho, Illinois, Kentucky, Missouri, Montana, Nevada, Oregon, South Carolina, Tennessee, Utah, Washington, and Wyoming. These states historically have experienced earthquakes with a magnitude of 6 or greater.

The figure below shows the Seismic Hazard Map that is included in VA's *Seismic Design Requirements*.

Figure. Department of Veterans Affairs Seismic Zone Map



Source: VA's Seismic Design Requirements Dated August 2013

VA's Seismic Safety Program

VA initiated its seismic safety program following the 1971 San Fernando earthquake in Southern California. In 1994, the President issued Executive Order 12941, which required all Federal agencies to develop an inventory of their buildings and cost estimates for mitigating unacceptable seismic risks in those buildings. In November 1997, VA hired a contractor to help it meet this requirement. The contractor conducted its evaluation of VA buildings in six phases from November 1997 through May 2006.

The contractor continued to update the *VA Seismic Inventory* by performing preliminary and detailed studies of a selected number of VA buildings until May 2006—the conclusion of Phase 6. By the end of the study, the contractor had identified 85 exceptionally high-risk and 150 high-risk buildings. At the time, the contractor estimated it would cost approximately \$783 million to seismically rehabilitate all of the exceptionally high-risk buildings and approximately \$664 million to rehabilitate all of the high-risk buildings. Exceptionally high-risk buildings meet all of the following criteria:

- Located in high seismic zones
- Designated as essential facilities
- Designed prior to adoption of VA's Seismic Design Requirements as of August 2013
- Containing an area greater than 10,000 square feet
- Categorized as at high risk of major damage or collapse

High-risk buildings meet the definition of exceptionally high-risk except they are:

- Located in an area of moderate to high seismicity, or
- Smaller than 10,000 square feet but greater than 1,000 square feet.

Over time, VA has taken actions to reduce the number of buildings categorized as exceptionally high-risk and high-risk. As of April 2015, there were 52 buildings remaining on the exceptionally high-risk and 68 buildings remaining on the high-risk lists.

Program Objectives

According to VA Directive 7512, *Seismic Safety of Department of Veterans Affairs Buildings*, VA is committed to providing life-safety protection to veterans, employees, and other building occupants in all of its facilities. In addition, facilities identified as essential must remain operational after a seismic event.

Roles and Responsibilities

CFM has primary responsibility for VA's seismic safety program. Its responsibilities include:

- Providing direction, guidance, and policy requiring all new buildings to be structurally designed and constructed in compliance with VA *Seismic Design Requirements*, International Building Code, and American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures.
- Identifying and reporting on life-safety hazards of existing buildings and reporting on the capability of hospitals and other essential facilities to remain in operation after an earthquake.
- Maintaining the FCA program that assesses compliance with VA *Seismic Design Requirements* for bracing of all nonstructural components, such as ceilings, ducts, and equipment in high seismic areas on a 3-year cycle.

Under secretaries, assistant secretaries, deputy assistant secretaries, and other key officials are responsible for overseeing seismic safety program implementation for facilities within their jurisdictions. Their responsibilities include:

- Developing mitigation plans to address seismic deficiencies for their buildings and structures.
- Complying with seismic life-safety standards.
- Ensuring all essential buildings and structures are included in the strategic planning process.
- Determining, through the lessor, the seismic risk of leased buildings and only executing lease agreements or renewals if plans have been developed to mitigate the seismic risk in a timely manner.

VA Buildings at Risk

According to the Office of Asset Enterprise Management, VA owned 6,112 buildings as of September 2014. VHA accounted for approximately 91 percent of this total. Of the 6,112 buildings, 269 were critical or essential buildings located in a high or very high seismic zone. In addition, VA leased 1,938 buildings as of September 30, 2014, with VHA and VBA accounting for roughly 86 percent and 11 percent, respectively. There were 117 leased buildings located in a high or very high seismic zone.

Appendix B Scope and Methodology

Scope

We conducted our audit work from October 2014 through September 2015. Our universe was 269 critical or essential VA-owned buildings and 117 leased buildings located in a high or very high seismic zone. We evaluated whether VA had effectively identified and mitigated the seismic risk of its facilities in VISNs 7, 8, 9, 15, 19, 20, 21, and 22. We conducted site visits at St. Petersburg, FL; Murfreesboro, TN; Kansas City, MO; Salt Lake City, UT; Vancouver, WA; Portland, OR; San Francisco, CA; West Los Angeles, CA; and Long Beach, CA. We also assessed VA's earthquake preparedness by evaluating whether its construction projects complied with seismic design requirements.

To accomplish our objectives, we evaluated a statistical sample of 97 owned and 46 leased buildings. However, we did not project the results of our sample due to the relatively small size of our universe of buildings. We also evaluated 29 major construction projects to assess whether the projects were structurally designed to comply with seismic design requirements. Finally, we evaluated VA's continuity planning by evaluating COOPs for 18 medical facilities that owned the majority of the buildings in our sample of 97 VA-owned buildings located in high or very high seismic zones.

Methodology

We reviewed applicable laws, regulations, and policies related to seismic safety and continuity planning to gain an understanding of program requirements and responsibilities. We interviewed key officials from CFM, the Office of Asset Enterprise Management, and VHA's Office of Emergency Management. During site visits, we interviewed VISN Capital Asset Managers and facility engineers, toured buildings, and obtained and discussed documentation supporting the identification and mitigation of seismic deficiencies.

To assess the effectiveness of VA's efforts to identify and mitigate seismic risks in owned buildings, we obtained and analyzed documents, such as FCAs, detailed building studies, and construction project applications. Based on our review of the documentation, we evaluated whether VA identified seismic risks in a timely fashion and reported them accurately. We also evaluated whether VA took timely actions to mitigate the identified risks.

To assess the effectiveness of VA's efforts to identify and mitigate seismic risks in leased buildings, we evaluated the actions taken by contracting officers to ensure VA-leased buildings were seismically safe. We reviewed lease agreement documentation and determined whether contracting officers obtained either copies of certificates of seismic compliance or plans to mitigate identified seismic deficiencies before executing lease agreements or renewals.

To assess whether VA's major construction projects were structurally designed to comply with seismic design requirements, we analyzed documents, such as architect and engineer contracts, general structural notes of design documents, peer review documentation, and independent inspection reports. We also confirmed that all design documents were certified by a registered engineer.

To assess the adequacy of VA's continuity planning, we obtained and analyzed continuity guidance contained in FCD 1 and identified 17 yes or no questions related to COOP development and testing. We evaluated COOP and testing documentation to determine whether each medical facility's plans and testing adequately complied with the requirements outlined in FCD 1.

***Fraud
Assessment***

We assessed the risk that fraud, violations of legal and regulatory requirements, and abuse could occur during this audit. We exercised due diligence in staying alert to any fraud indicators by taking actions, such as:

- Conducting steps to review program operations for potential fraud
- Reviewing key documentation to ensure that it existed and sufficiently supported VA's seismic safety program operations
- Conducting interviews with VA officials responsible for various aspects of the seismic safety program and continuity of operations planning

We did not identify any instances of fraud.

Data Reliability

We assessed the accuracy of the VA-owned and leased building data obtained through VA's Capital Asset Inventory system by selecting two VA campuses: VA West Los Angeles Medical Center and VA San Francisco Medical Center. During site visits, we physically verified the existence of the buildings and ensured that the data contained no missing records. We were also provided a list of current major construction projects from VA's Construction and Facilities Management Information System. We examined these data for missing records by comparing the list with the construction projects included in VA's FY 2015 budget submission. Based on our reliability assessments, we concluded that these data were appropriate and sufficient for the purposes of our audit.

***Government
Standards***

Our assessment of internal controls focused on those controls relating to our audit objectives. We conducted this performance audit in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Appendix C Principal Executive Director for Acquisition, Logistics, and Construction Comments

Department of Veterans Affairs

Memorandum

Date: October 27, 2015

From: Principal Executive Director, Office of Acquisition, Logistics, and Construction (003)

Subj: OIG Draft Report, Audit of the Seismic Safety of VA's Facilities, Project Number: 2014-04756-R6-0255 (VAIQ 7641369)

To: Assistant Inspector General for Audits and Evaluations (52)

1. The Office of Acquisition, Logistics, and Construction (OALC) has reviewed the Office of Inspector General (OIG) Draft Report, Audit of the Seismic Safety of VA's Facilities and submits the following responses to Recommendations 1, 2, 3, 5, and 6:

OIG Recommendation 1: We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction establish policy requiring medical facilities to conduct detailed seismic studies for all critical and essential buildings located in high and very high seismic zones that have not already undergone detailed seismic studies.

OALC Response: Concur. In accordance with Executive Order 12941, the Department of Veterans Affairs (VA) Seismic Inventory project (1999-2006) was completed based on the minimum Federal standard at the time, Standards of Seismic Safety for Existing Federally Owned or Leased Buildings in Recommended Practice 4 (RP4). The current minimum Federal seismic standard, RP8, uses more recent benchmark codes but only requires seismic evaluation of existing buildings based on certain triggers (e.g., facility renovations, increased importance, etc.) and is not intended to be applied retroactively to buildings that were already considered based on prior versions of the Federal seismic standard. However, while not required by RP8, OALC concurs that this recommendation is a proactive measure to ensure the seismic safety of VA's aging critical and essential building inventory. OALC will implement this recommendation by updating VA Directive 7512, Seismic Safety of VA Buildings.

The Directive update will require seismic studies for all VA-owned critical and essential buildings in high and very high seismic zones that have not been studied and are not already on the Exceptionally High Risk/High Risk lists, using at least the current benchmark evaluation standards in RP8. Additional buildings exempt from study will be based on RP8 exemptions and other appropriate exemptions based on input from the Advisory Committee on Structural Safety of Department of Veterans Affairs Facilities (VA Structural Advisory Committee).

Target Completion Date: OALC will implement the update to VA Directive 7512 within 180 days effective the date of this memorandum, allowing time for input from the VA Structural Advisory Committee.

OIG Recommendation 2: We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction revise its Facility Condition Assessment guidance to require Facility Condition Assessment contractors to review structural design documents for buildings that have completed seismic retrofit projects.

OALC Response: Concur. Facility Condition Assessment (FCA) Guidance for structural seismic items has advanced over the years and current requirements resulted in the FCA Consultant identifying a design oversight on the Anchorage minor project discussed in Example 2 of the draft report. An FCA Consultant discovered this oversight because FCA Guidance requires Consultants to gather building structural information for future input in HAZUS (a geographic information system-based risk assessment software developed by the Federal Emergency Management Agency) for seismic risk assessment of VA buildings. This information is collected on the recommendation of the VA Committee on Structural Safety. Based on lessons learned from this example, OALC will revise its FCA Guidance to require FCA Consultants to perform a targeted review of structural documents for key design information to document in the FCA database.

Target Completion Date: OALC will implement this revised requirement in its FCA Guidance within 120 days effective the date of this memorandum.

OIG Recommendation 3: We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction revise its Facility Condition Assessment guidance to ensure conditions of seismically unsafe buildings are properly reported on assessment reports.

OALC Response: Concur. It is beyond the scope of work for an FCA Consultant to complete in-depth seismic studies of buildings included in an FCA. Current FCA Guidance is based on VA Structural Advisory Committee recommendations and leverages the data from the VA Seismic Inventory that includes completed in-depth seismic studies by qualified structural engineers. In the case of Example 3 cited in the report, no additional evidence (technical or factual) of a seismic deficiency was provided. Nonetheless, OALC agrees that new technical information and factual evidence of seismic deficiency should be considered by the FCA Consultant when assigning a condition code and will revise its FCA Guidance to clarify that all new technical information and factual evidence shall be considered during the FCA process.

Target Completion Date: OALC will implement this revised requirement in its FCA Guidance within 120 days effective the date of this memorandum.

OIG Recommendation 5: We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction ensure that Facility Condition Assessment contractors include specific and detailed descriptions of nonstructural seismic deficiencies in their assessments.

OALC Response: Concur with finding but do not concur with the recommendation. It is beyond the scope of work for an FCA Consultant to pinpoint specific locations of items (e.g., ductwork, pipe, file storage, shelving) requiring nonstructural seismic bracing as stated in the feedback received in example 5 of the draft report. An FCA is not intended to produce a design document or statement of

work-level detail to abate deficiencies. The FCA Guidance document provided to FCA Consultants currently requires the assessment of nonstructural components and equipment, referring to ASCE Standard ASCE/SEI 41-13 for guidance. OALC has observed that some FCA Consultants' final reports are inconsistent in the level of descriptive language provided for nonstructural component seismic condition assessments. OALC will improve the FCA Guidance document to help ensure that consultants provide more descriptive language in their reports thus providing VA engineering staffs with a better understanding of the full scope of repairs needed for the facility.

Target Completion Date: OALC will implement this revised requirement in its FCA Guidance within 120 days effective the date of this memorandum.

OIG Recommendation 6: We recommended the Principal Executive Director for the Office of Acquisition, Logistics, and Construction ensure its contracting officers obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals.

OALC Response: Concur. Leased facilities and VA's Lessors in particular, are required to obtain Certificates of Occupancy from the municipality in which the leased facilities are located prior to VA accepting the space as substantially complete. One part of this process is an inspection to ensure local seismic codes are met. Due to this requirement, the VA Lease Based Outpatient Clinic Design Guide (LBOPCDG) did not require seismic certificates or plans to mitigate seismic deficiencies from Lessors prior to award. However, it will not add significant burden to the process to add the requirement for completion of a seismic certification to the documents that offerors must submit prior to award.

Target Completion Date: The Office of Construction & Facilities Management will issue a Standard Operating Procedure in the first quarter of fiscal year (FY) 2016 requiring the use and incorporation of seismic forms on all lease procurements that align with seismic forms used by the General Services Administration. Additionally, the revised LBOPCDG will incorporate this as a standard requirement for major leases.

2. Additionally, we offer comment to the "What We Found" section. The report compares the Strategic Capital Investment Planning (SCIP) seismic deficiency need of \$8.6 billion to a budget of \$1.7 billion through FY 2016. Please clarify whether the \$1.7 billion is a cumulative figure, and if so, over what duration? Also, the source documents to demonstrate that, "... VA did not effectively identify 15 of 97 critical and essential buildings located in high and very high seismic zones ..." do not appear to be included in the report. Since these conclusions may be subject to interpretation, we are unable to concur with this statement. Other citations are similarly noted, such as, "VA has not mitigated 28 structural and 65 nonstructural seismic deficiencies ..." If such data is available, we would appreciate the opportunity to review and comment.

3. We also offer revisions to Appendix A to reflect the correct definitions of Exceptionally High Risk (EHR) and High Risk (HR) buildings, as specified in Volume 1 of the final Phase 6 VA Seismic Inventory report.

EHR buildings are those that meet all of the following criteria:

- i. Building is located in an area of High or Very High seismicity.
- ii. Building is an Essential or Critical facility.

- iii. Building structural design did not utilize VA Seismic Design Requirements and/or the building was constructed before 1977.
- iv. Building is not otherwise exempt.
- v. Building square footage is greater than 10,000 square feet.

HR buildings are buildings that meet either one of the following criteria:

- i. Buildings that meet the definition of EHR except are located in an area of Moderate-High seismicity, or
- ii. Buildings that meet the definition of EHR except are smaller than 10,000 square feet and greater than 1,000 square feet in area.

- 4. Thank you for the opportunity to comment on the subject OIG draft report. Should you have any questions regarding our comments, contact Melanie Griffin, Staff Assistant/Management Analysis Officer, at (202) 461-6626 or at Melanie.griffin@va.gov

(original signed by:)

Gregory L. Giddens

Appendix D Under Secretary for Health Comments

Department of Veterans Affairs

Memorandum

Date: October 20, 2015
From: Under Secretary for Health (10)
Subj: OIG Draft Report, Audit of the Seismic Safety of VA's Facilities (Project Number 2014-04756-R6-0255) (VAIQ 7641414)
To: Director, Dallas Audit Operations Division (52DA)

1. I have reviewed the draft report and concur with the recommendations made to the Veterans Health Administration.
2. Attached is the action plan for recommendations 4, 7, and 9.
3. If you have any questions, please contact Karen M. Rasmussen, M.D., Director, Management Review Services (10AR) at VHA10ARMRS2@va.gov.

(original signed by:)

David J. Shulkin, M.D.

Attachment

VETERANS HEALTH ADMINISTRATION (VHA)

Action Plan

OIG Draft Report, Audit of the Seismic Safety of VA's Facilities

Date of Draft Report: September 22, 2015

Recommendations/ Actions	Status	Target Completion Date
-----------------------------	--------	------------------------

Recommendation 4: We recommended the Under Secretary for Health ensure medical facilities submit construction project applications, in a timely manner, for all identified seismically unsafe structural and nonstructural deficiencies.

VHA Comments: Concur.

Seismically deficient mission critical buildings are listed on the VHA Exceptionally High Risk (EHR) and High Risk (HR) lists. The VHA Office of Capital Asset Management and Engineering Support (OCAMES) maintains an updated mitigation list for EHR and HR buildings and the listing is updated every year after the Strategic Capital Investment Planning (SCIP) process. These buildings are the highest priority for seismic mitigation and are included in the earlier years of the SCIP plan. In addition, seismic deficiencies are also listed in the Facility Condition Assessment (FCA) database.

To address this recommendation, OCAMES will work with VA Construction and Facilities Management (CFM) to develop priorities for more detailed seismic analysis and will verify that seismic deficiencies are addressed in a timely manner in all future SCIP cycles. Based on the priorities listing (EHR/HR) developed with CFM, OCAMES will verify that medical facilities submit construction project applications in SCIP process and will follow-up with facilities if the applications have not been submitted within a reasonable timeframe.

To complete this action, VHA will provide documentation of:

1. EHR and HR Seismic Mitigation plans
2. SCIP projects list that address seismic FCA deficiencies

Status In Process	Target Completion Date May 2016
----------------------	------------------------------------

Recommendation 7: We recommended the Under Secretary for Health ensure its contracting officers obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals.

VHA Comments: Concur.

VHA's Procurement and Logistic Office (P&LO) will coordinate with the Deputy Under Secretary for Health for Operations and Management (DUSHOM) to issue a memorandum directing VHA contracting officers to obtain copies of seismic certificates or plans to mitigate seismic deficiencies from lessors prior to executing lease agreements or renewals. Additionally, P&LO will conduct an audit of Lease Agreements awarded between October 2015 and January 2016 for compliance during the VHA Procurement Operations Audit of Leasing Product Line teams. These audits will be conducted and reported bi-annually.

To complete this action, P&LO will provide documentation of:

1. A copy of the signed DUSHOM memorandum
2. A copy of first Leasing Product Line Audit Results

Status
In Process

Target Completion Date
January 2016

Recommendation 9: We recommended the Under Secretary for Health develop policies and procedures requiring VHA medical facilities to develop and test Continuity of Operations Plans, to include documenting the testing performed, in accordance with Federal Continuity Directive 1 requirements.

VHA Comments: Concur.

The VHA Office of Emergency Management (OEM) will draft a memorandum communicating the requirement that all VA medical centers (VAMC) develop and test Continuity of Operations Plans and become compliant with Federal Continuity Directive (FCD) 1. Additionally, VHA OEM will develop procedural guidance for use at VAMCs which capture the requirements set forth in FCD1. A Continuity Checklist will be developed and distributed to VAMCs to measure compliance and facilitate local continuity plan development. Evaluation of compliance and corrective action regarding Continuity of Operations Plan exercises and standard operating procedures will be examined as part of the Emergency Management Capabilities Inspection Program (EMCIP) criteria and on-site inspections, beginning in June 2016.

To complete this action, OEM will provide the following documentation:

1. Signed memorandum communicating the requirement to comply with FCD1 to VAMCs
2. A copy of the Continuity Checklist for VAMCs
3. EMCIP Criteria for evaluation of VAMC compliance with FCD 1
4. Evidence of FCD 1 compliance or corrective actions initiated in at least three facilities

Status
In Process

Target Completion Date
August 2016

Appendix E Assistant Secretary for Management Comments

Department of Veterans Affairs

Memorandum

Date: October 1, 2015
From: Acting Assistant Secretary for Management and Interim Chief Financial Officer (004)
Subj: VA Office of the Inspector General (OIG) Draft Report: Audit of the Seismic Safety of VA's Facilities (Project Number: 2014-04756-R6-0255)
To: Assistant Inspector General for Audits and Evaluations (52)

1. The Office of Management (OM) appreciates the opportunity to review the OIG draft report on Audit of the Seismic Safety of VA's Facilities.
2. VA is dedicated to ensuring Veterans, employees, and other building occupants in all facilities are being served and/or work in a safe and secure environment. VA's planning and budgeting processes incorporate the commitment to keep Veterans, staff, and visitors safe and secure.
3. VA uses criteria to rank infrastructure projects that are submitted for consideration for the current budget year by relative importance to VA's strategic goals. One of the criteria is Improving Safety and Security, which includes prioritizing projects that mitigate potential destruction and injury caused by seismic events. The Department's budget requests have included significant amounts of funding to correct seismic deficiencies.
4. In the terms of OIG Recommendation #8 on page 14 of the report, OM concurs with the recommendation to revise VA Directive 7415 to mandate that enhanced use lease agreements, where applicable for seismic activity, require developers to certify the seismic safety of buildings or to have a plan for mitigating identified seismic deficiencies prior to execution of new facility use agreements with VA organizations.
5. OM plans to implement the recommended changes in the VA Directive 7415 by end of Fiscal Year 2016.
6. If you have any questions, please call me or have a member of your staff contact James M. Sullivan, Director, Office of Asset Enterprise Management, at 202-461-6671.

(original signed by:)

Edward J. Murray

Appendix F Office of Inspector General Contact and Staff Acknowledgments

OIG Contact	For more information about this report, please contact the Office of Inspector General at (202) 461-4720.
-------------	-----------------------------------------------------------------------------------------------------------

Acknowledgments	Mario M. Carbone, Director Theresa Cinciripini Clenes Duhon Michael Jacobs Jehri Lawson Sean Lupton Crystal Markovic Kristin Nichols
-----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------

Appendix G Report Distribution

VA Distribution

Office of the Secretary
Veterans Health Administration
Veterans Benefits Administration
National Cemetery Administration
Assistant Secretaries
Office of General Counsel

Non-VA Distribution

House Committee on Veterans' Affairs
House Appropriations Subcommittee on Military Construction,
Veterans Affairs, and Related Agencies
House Committee on Oversight and Government Reform
Senate Committee on Veterans' Affairs
Senate Appropriations Subcommittee on Military Construction,
Veterans Affairs, and Related Agencies
Senate Committee on Homeland Security and Governmental Affairs
National Veterans Service Organizations
Government Accountability Office
Office of Management and Budget
U.S. Senate: Dianne Feinstein

This report is available on our Web site at www.va.gov/oig.