

# Deferred Maintenance of Federal Land Management Agencies: FY2005-FY2014 Estimates

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April 21, 2015

Congressional Research Service

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[www.crs.gov](http://www.crs.gov)

R43997

## Summary

Each of the four major federal land management agencies maintains tens of thousands of diverse assets, including roads, bridges, buildings, and water management structures. These agencies are the Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), National Park Service (NPS), and Forest Service (FS). Congress and the Administration continue to focus on the agencies' deferred maintenance in regard to these assets—in essence, the cost of any maintenance that was not done when it should have been or was scheduled to be. Deferred maintenance is often called the *maintenance backlog*.

In FY2014, the most recent year for which these estimates are available, the four agencies had a combined deferred maintenance estimated at between \$16.31 billion and \$21.43 billion, with a mid-range figure of \$18.87 billion calculated by the Congressional Research Service. This figure includes \$11.50 billion (61%) in deferred maintenance for NPS, \$5.10 billion (27%) for FS, \$1.53 billion (8%) for FWS, and \$0.74 billion (4%) for BLM. The estimates reflect project costs but exclude indirect costs.

Over the past decade (FY2005-FY2014), the total deferred maintenance for the four agencies increased by \$1.33 billion in current dollars, from \$17.54 billion to \$18.87 billion, or 8%. Both the BLM and NPS estimates increased, whereas the FWS and FS estimates decreased. By contrast, in constant dollars the total deferred maintenance estimate for the four agencies decreased from FY2005 to FY2014 by \$4.53 billion, from \$23.40 billion to \$18.87 billion, or 19%. The BLM estimate increased, and estimates for the other three agencies decreased.

In each fiscal year, NPS had the largest portion of the total deferred maintenance, considerably more than any other agency. FS consistently had the second-largest share, followed by FWS and then BLM. Throughout the past decade, the asset class that included roads typically comprised the largest portion of each agency's deferred maintenance.

Congressional debate has focused on varied issues, including the level and sources of funds needed to reduce deferred maintenance, whether agencies are efficiently using existing funding, how to balance the maintenance of existing infrastructure with the acquisition of new assets, whether disposal of assets is desirable given limited funding, and the priority of maintaining infrastructure relative to other government functions.

Still other questions relate to why deferred maintenance estimates have fluctuated over time. These fluctuations are likely the result of many factors, among them the following:

- Agencies have refined methods of defining and quantifying the maintenance needs of their assets.
- Levels of funding for maintenance, including funding to address the maintenance backlog, vary from year to year.
- The asset portfolios of the agencies change, with acquisitions and disposals affecting the number, type, size, age, and location of agency assets.
- Economic conditions, including costs of services and products, fluctuate.

The extent to which these and other factors affected changes in each agency's maintenance backlog over the past decade is not entirely clear. In some cases, comprehensive information is not readily available or has not been examined.

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## Introduction

The four major federal land management agencies—the Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), and National Park Service (NPS), all within the Department of the Interior (DOI), and the Forest Service (FS) within the Department of Agriculture—have maintenance responsibility for tens of thousands of diverse assets in dispersed locations. These agencies maintain assets to preserve their functioning and to repair and replace components as needed.<sup>1</sup>

The infrastructure needs of the federal land management agencies have been a subject of significant federal and public attention for many years. Congressional and administrative attention has focused on *deferred maintenance*, defined as “maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed for a future period.”<sup>2</sup> Deferred maintenance often is called the *maintenance backlog*. The agencies assert that continuing to defer the maintenance of facilities accelerates the rate of these facilities’ deterioration, increases their repair costs, and decreases their value. Debate has focused on varied issues, including the level of funds needed to reduce deferred maintenance, whether agencies are using existing funding efficiently, the priority of deferred maintenance relative to regular maintenance, and whether additional sources of funds should be directed to maintenance. Other issues include how to balance the maintenance of existing infrastructure with the acquisition of new assets, whether disposal of assets is desirable given limited funding, and how much to prioritize maintaining infrastructure relative to other government functions.

Still other questions relate to the dollar amount of deferred maintenance and the reasons for fluctuations over time. This report focuses on these questions. It first provides agency deferred maintenance estimates for FY2014, the most recent fiscal year for which this information is available. It next discusses changes in deferred maintenance over the past decade (FY2005-FY2014). It then identifies some of the factors that likely contributed to these changes.

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<sup>1</sup>In FY2014, the agencies managed the following numbers and types of assets. The Bureau of Land Management (BLM) managed 43,991 assets, including (1) 4,220 buildings, (2) 19,163 roads, and (3) 20,608 structures. The Fish and Wildlife Service (FWS) managed 39,011 assets, including (1) 6,826 buildings, (2) 12,136 transportation-related assets, (3) 8,412 water management structures, and (4) 11,637 other assets. The National Park Service (NPS) managed 75,780 assets, including (1) 24,763 buildings, (2) 3,982 housing units, (3) 1,389 campgrounds, (4) 6,157 trails, (5) 2,018 wastewater systems, (6) 1,625 water systems, (7) 6,689 unpaved roads, (8) 9,087 paved roads, and (9) 20,070 other assets. This information was provided to the Congressional Research Service (CRS) by the Department of the Interior (DOI) Budget Office on February 27, 2015. The Forest Service (FS) managed 132,050 assets, including (1) 39,963 buildings, (2) 12,991 road and trail bridges, (3) 26,750 recreation sites, (4) 4,774 wastewater systems, (5) 4,801 water systems, (6) 1,745 dams, (7) 30,574 (55,134 miles) unpaved road segments, and (8) 10,452 (9,453 miles) paved road segments. The FS information was provided to CRS by the Forest Service Legislative Affairs Office on February 27, 2015. CRS has not obtained the size, age, or location of each asset. For example, CRS has not obtained the square footage for the buildings or the size of the water systems, and thus did not analyze the backlog relative to the size of each agency’s assets.

<sup>2</sup> This definition is taken from the *Statement of Federal Financial Accounting Standards No. 6*, p. 31, available on the website of the Federal Accounting Standards Advisory Board at <http://www.fasab.gov/pdffiles/sffas-6.pdf>.

## Estimates

The agencies typically identify deferred maintenance through periodic condition assessments of facilities.<sup>3</sup> FS currently reports an annual deferred maintenance dollar total composed of estimates for 13 classes of assets. These classes include roads, buildings, trails, fences, and water systems, among others.<sup>4</sup> DOI currently reports annual deferred maintenance composed of estimates for four broad categories of assets: (1) roads, bridges, and trails; (2) irrigation, dams, and other water structures; (3) buildings; and (4) other structures.

Further, FS reports the amount of deferred maintenance as a single figure, whereas DOI agencies report estimates as a range. According to DOI, “[d]ue to the scope, nature, and variety of the assets entrusted to DOI, as well as the nature of deferred maintenance itself, exact estimates are very difficult to determine.”<sup>5</sup> Specifically, DOI currently uses a range with an “accuracy level of minus 15 percent to plus 25 percent of initial estimate.”<sup>6</sup>

FS estimates of deferred maintenance included in this report are taken from the agency’s annual budget justifications to Congress.<sup>7</sup> The DOI Budget Office provided the Congressional Research Service (CRS) with a deferred maintenance range for each DOI agency for each fiscal year.<sup>8</sup> From these ranges, CRS calculated mid-range figures. For instance, DOI estimated NPS deferred maintenance for FY2014 at between \$9.31 billion and \$13.70 billion. The CRS-calculated mid-range figure is \$11.50 billion.<sup>9</sup> This report reflects CRS’s mid-range calculations to facilitate comparison with FS estimates.

## FY2014

The four agencies had a combined FY2014 deferred maintenance estimated at between \$16.31 billion and \$21.43 billion, with a mid-range figure of \$18.87 billion.<sup>10</sup> The agencies had widely varying shares of the total. NPS had the largest portion, 61%, based on the mid-range estimate of \$11.50 billion.<sup>11</sup> The FS share was 27% of the total, with an estimated deferred maintenance of

<sup>3</sup> For a brief description of FS condition assessments, see U.S. Forest Service, *Fiscal Year 2016 Budget Justification*, pp. 384 and 388-389, at <http://www.fs.fed.us/sites/default/files/media/2015/07/fy2016-budgetjustification-update-four.pdf>. For a brief description of DOI condition assessments, see U.S. Dept. of the Interior, *Agency Financial Report, FY2014*, p. 126, at <http://www.doi.gov/pfm/afr/2014/upload/DOI-FY-2014-AFR.pdf>.

<sup>4</sup> The 13 asset classes are listed in U.S. Forest Service, *Fiscal Year 2016 Budget Justification*, p. 388, at <http://www.fs.fed.us/sites/default/files/media/2015/07/fy2016-budgetjustification-update-four.pdf>.

<sup>5</sup> U.S. Dept. of the Interior, *Agency Financial Report, FY2014*, p. 126, at <http://www.doi.gov/pfm/afr/2014/upload/DOI-FY-2014-AFR.pdf>.

<sup>6</sup> *Ibid.*, p. 126. According to DOI staff, DOI agencies will begin to report deferred maintenance as a single figure beginning with FY2015.

<sup>7</sup> For instance, the FY2014 deferred maintenance estimate was taken from U.S. Forest Service, *Fiscal Year 2016 Budget Justification*, p. 388, at <http://www.fs.fed.us/sites/default/files/media/2015/07/fy2016-budgetjustification-update-four.pdf>.

<sup>8</sup> The DOI Budget Office provided this information to CRS periodically over several years.

<sup>9</sup> CRS calculated this mid-range figure as the average of the high and low estimates.

<sup>10</sup> For comparison, the four agencies combined had FY2014 discretionary appropriations of \$10.57 billion and FY2014 total budget authority (including mandatory appropriations) of \$13.31 billion.

<sup>11</sup> A list of NPS deferred maintenance for FY2014, by state and park unit, is on the agency’s website at [http://www.nps.gov/subjects/plandesignconstruct/upload/FY14-DM-by-State-and-Park\\_2015-03-13.pdf](http://www.nps.gov/subjects/plandesignconstruct/upload/FY14-DM-by-State-and-Park_2015-03-13.pdf).

\$5.10 billion. The FWS portion was 8%, reflecting the agency's deferred maintenance of between \$1.24 billion and \$1.82 billion, with a mid-range figure of \$1.53 billion. BLM had the smallest amount, 4%, based on a backlog estimated at between \$0.66 billion and \$0.81 billion, with a mid-range figure of \$0.74 billion.

Each agency's deferred maintenance estimate for FY2014 consisted of various components. For FS, the single largest asset class was roads, which comprised 57% of the FY2014 total of \$5.10 billion. The next largest asset class was buildings, which represented 23% of the FS FY2014 total. Eleven other asset classes made up the remaining 20%.

For NPS, the largest asset category was roads, bridges, and trails, which comprised 59% of the FY2014 deferred maintenance total of \$11.50 billion. The "other structures" category comprised 19% of the total, followed by 15% for buildings and 7% for irrigation, dams, and other water structures.

Roads, bridges, and trails also reflected the largest share of BLM's FY2014 deferred maintenance, with 77% of the \$0.74 billion total. The other three categories of assets had roughly comparable portions, specifically 9% for other structures; 8% for buildings; and 6% for irrigation, dams, and other water structures.

Although roads, bridges, and trails also made up the largest portion of FWS's FY2014 deferred maintenance, this category did not have a majority share, as it did for the other agencies. Rather, 28% of the FWS total of \$1.53 billion was for roads, bridges, and trails. The three other asset categories had roughly similar shares, with 26% for irrigation, dams, and other water structures; 25% for buildings; and 20% for other structures.

## Overview of Decade (FY2005-FY2014)

### Changes in Estimates in Current and Constant Dollars

As shown in **Table 1**,<sup>12</sup> in current dollars the total deferred maintenance estimate for the four agencies increased over the course of the decade by \$1.33 billion, from \$17.54 billion to \$18.87 billion, or 8%. Both the BLM and NPS estimates increased, by \$0.31 billion (71%) and \$2.39 billion (26%), respectively. By contrast, both the FWS and FS estimates decreased, by \$0.50 billion (25%) and \$0.87 billion (15%), respectively.

Within these overall changes, there was considerable variation among agency trends. The NPS estimate increased fairly steadily over the decade, whereas the FS estimate fluctuated. The BLM estimate also fluctuated, with an overall increase during the first half of the decade, a decline in FY2010 and FY2011, and a new high at the end of the decade. The FWS estimate grew by about half during the first five years and then declined by about half during the second five years.

**Figure 1** depicts the annual changes in current dollars for each agency and for the four agencies combined. Factors that might have contributed to the changes are discussed in the "Issues in Analyzing Deferred Maintenance" section below.

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<sup>12</sup> In **Table 1** and throughout this report, figures may not sum to the precise totals shown due to rounding.

By contrast, as shown in **Table 2**, in constant dollars the total deferred maintenance estimate for the four agencies decreased over the course of the decade by \$4.53 billion, from \$23.40 billion to \$18.87 billion, or 19%. Three agencies had overall decreases: \$0.65 billion (5%) for NPS, \$1.18 billion (44%) for FWS, and \$2.86 billion (36%) for FS. However, the BLM estimate increased by \$0.17 billion (29%) over the 10-year period.

Within these overall changes were various fluctuations. The BLM estimate fell and rose during the period, with the largest increase occurring between FY2011 and FY2013 before a drop in FY2014. The FWS estimate rose during the first five years before declining during the second five years. The NPS estimate declined during the first five years, then increased in FY2010 and steadily declined thereafter. The FS estimate declined during the first four years, then rose during the next four years, before declining again during the remaining two years. **Figure 2** depicts the annual changes in constant dollars for each agency and for the four agencies combined.

**Table 1. Estimated Deferred Maintenance by Agency in Current Dollars, FY2005-FY2014**

(in billions of current dollars)

Agency	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
BLM	0.43	0.43	0.42	0.47	0.53	0.44	0.40	0.61	0.74	0.74
FWS	2.03	1.67	2.83	2.79	3.01	3.02	2.85	2.70	2.01	1.53
NPS	9.11	9.11	9.61	10.17	10.17	10.83	11.04	11.16	11.27	11.50
FS	5.97	5.59	5.66	5.15	5.31	5.27	5.51	6.03	5.56	5.10
<b>Total</b>	<b>17.54</b>	<b>16.80</b>	<b>18.53</b>	<b>18.57</b>	<b>19.02</b>	<b>19.56</b>	<b>19.80</b>	<b>20.50</b>	<b>19.58</b>	<b>18.87</b>

**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for Department of the Interior (DOI) agencies were calculated by the Congressional Research Service (CRS) based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Notes:** BLM = Bureau of Land Management; FWS = Fish and Wildlife Service; NPS = National Park Service; FS = Forest Service.

**Table 2. Estimated Deferred Maintenance by Agency in Constant Dollars, FY2005-FY2014**

(in billions of constant dollars)

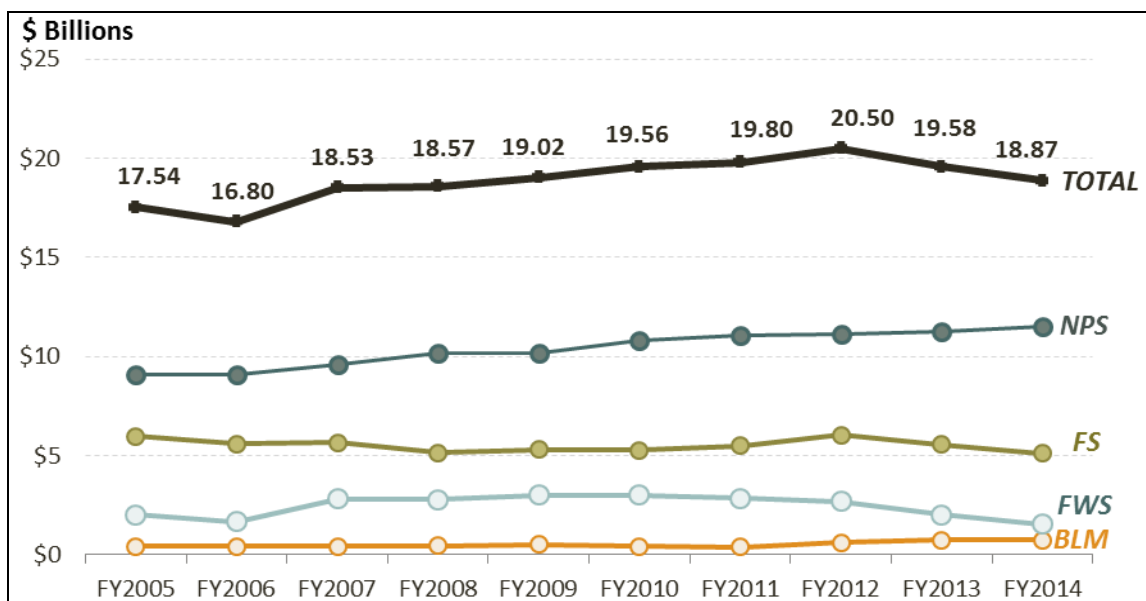
Agency	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
BLM	0.57	0.53	0.49	0.52	0.59	0.49	0.44	0.64	0.77	0.74
FWS	2.71	2.06	3.29	3.10	3.34	3.38	3.10	2.85	2.08	1.53
NPS	12.15	11.24	11.18	11.32	11.30	12.12	12.01	11.78	11.65	11.50
FS	7.96	6.90	6.59	5.73	5.90	5.90	6.00	6.37	5.75	5.10
<b>Total</b>	<b>23.40</b>	<b>20.73</b>	<b>21.56</b>	<b>20.66</b>	<b>21.13</b>	<b>21.88</b>	<b>21.55</b>	<b>21.65</b>	<b>20.24</b>	<b>18.87</b>

**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for DOI agencies were calculated by CRS based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Notes:** These figures were calculated by CRS using U.S. Department of Commerce, Bureau of Economic Analysis, Table 3.9.4, "Price Indexes for Government Consumption Expenditures and Gross Investment," for nondefense structures, annual indexes, at <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>.

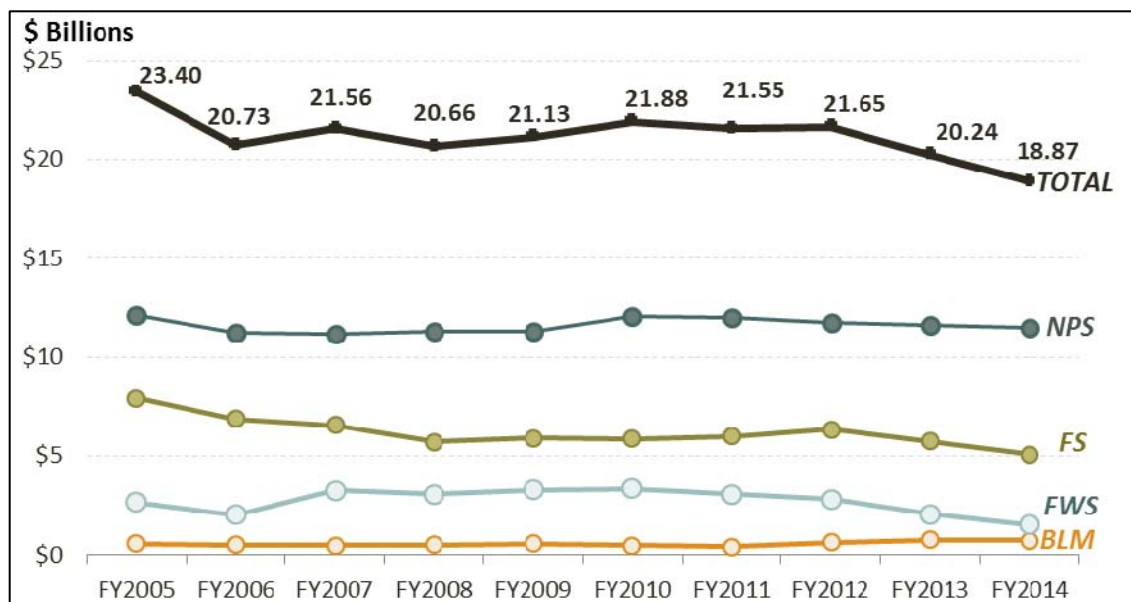


**Figure 1. Change in Deferred Maintenance by Agency in Current Dollars, FY2005-FY2014**



**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for DOI agencies were calculated by CRS based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Figure 2. Change in Deferred Maintenance by Agency in Constant Dollars, FY2005-FY2014**



**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for DOI agencies were calculated by CRS based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Notes:** Amounts were calculated by CRS using the U.S. Department of Commerce, Bureau of Economic Analysis, Table 3.9.4, "Price Indexes for Government Consumption Expenditures and Gross Investment" for nondefense structures, annual indexes, at <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>.



## Agency Shares of Deferred Maintenance in Current and Constant Dollars

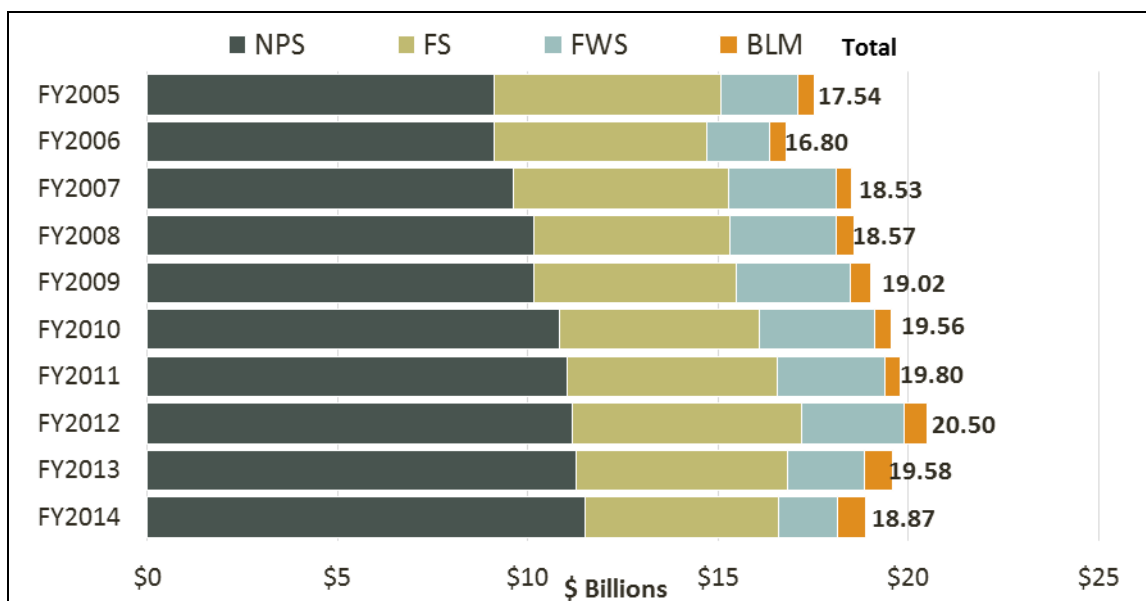
Throughout the decade, agency shares of the deferred maintenance totals differed, as shown in **Figure 3** and **Figure 4**. In both current and constant dollars, in each fiscal year NPS had the largest portion of total deferred maintenance and considerably more than any other agency. FS consistently had the second-largest share, followed by FWS and then BLM. Moreover, the NPS portion of the annual total grew overall throughout the period, from 52% in FY2005 to 61% in FY2014. By contrast, the FS share of the total decreased over the 10-year period from 34% to 27%. The FWS component also declined, from 12% to 8%, whereas the BLM portion rose from 2% to 4%.<sup>13</sup>

The asset class or category that included roads typically comprised the largest portion of each agency's deferred maintenance. Roads represented the largest portion of FS deferred maintenance from FY2005 to FY2014. Over the 10-year period, the NPS roads, bridges, and trails category had the highest share of the agency's deferred maintenance, and irrigation, dams, and other water structures had the smallest. In most years, the portion of NPS deferred maintenance for the "other structures" category exceeded the buildings portion, but in a few years the reverse was the case. Roads, bridges, and trails also was the biggest category of BLM's deferred maintenance from FY2005 to FY2014, and it typically represented a majority of the FWS total deferred maintenance in most years during the decade as well.<sup>14</sup> A decline in the dollar estimate for roads, bridges, and trails resulted in a sizeable drop in overall FWS deferred maintenance in FY2013 and FY2014, as discussed below.

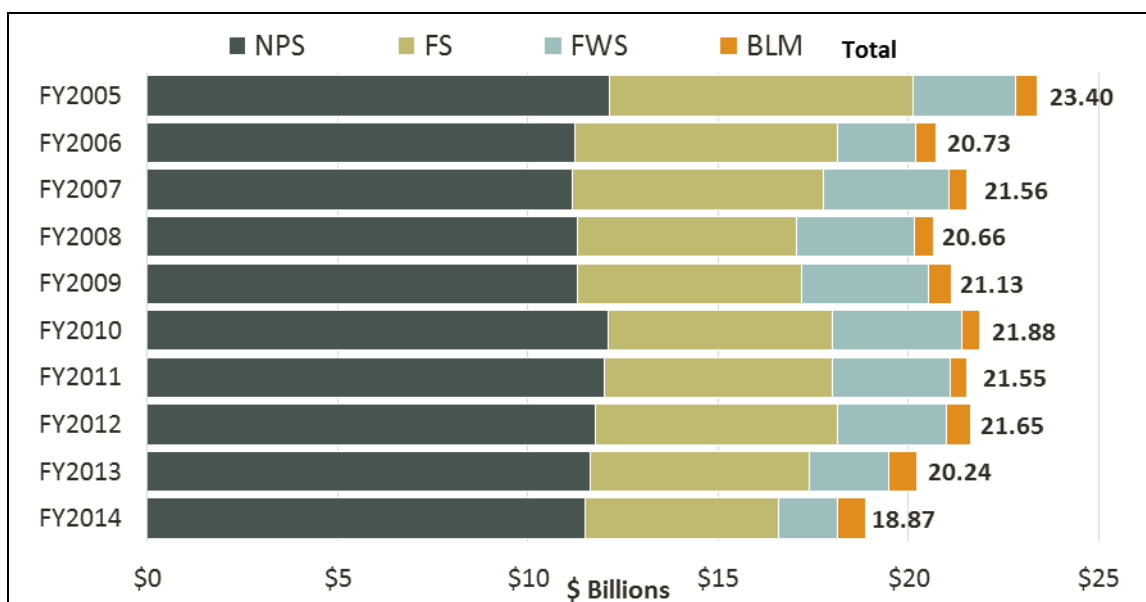
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<sup>13</sup> An analysis of data over a longer period would provide additional perspective and in some respects a different one than presented in this report. For instance, in current dollars the four agencies had a combined deferred maintenance of \$14.40 billion in FY1999, the first year for which estimates for all agencies are readily available. In contrast to the FY2005-FY2014 years, in FY1999 FS had the largest share of the backlog—\$8.90 billion, or 62% of the total. This was more than twice the NPS amount of \$4.25 billion, or 29% of the total. The estimates for FWS and BLM were \$0.95 billion (7%) and \$0.30 billion (2%), respectively. From FY1999 through FY2014, total deferred maintenance of the four agencies increased in current dollars by \$4.47 billion (31%), from \$14.40 billion to \$18.87 billion. As compared with the 10-year period examined in this report, agencies had different amounts of change during this 16-year period. Specifically, estimates of deferred maintenance increased for the three DOI agencies: by \$7.25 billion (171%) for NPS, \$0.59 billion (62%) for FWS, and \$0.44 billion (145%) for BLM. By contrast, the FS estimate declined by \$3.80 billion (43%).

<sup>14</sup> This was not the case in all years, such as FY2014, as previously mentioned.

**Figure 3. Deferred Maintenance Total by Agency in Current Dollars, FY2005-FY2014**

**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for DOI agencies were calculated by CRS based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Figure 4. Deferred Maintenance Total by Agency in Constant Dollars, FY2005-FY2014**

**Sources:** Estimates for FS were taken from the agency's annual budget justification to Congress. Estimates for DOI agencies were calculated by CRS based on deferred maintenance ranges provided to CRS by the DOI Budget Office over several years.

**Notes:** Amounts were calculated by CRS using U.S. Department of Commerce, Bureau of Economic Analysis, Table 3.9.4, "Price Indexes for Government Consumption Expenditures and Gross Investment" for nondefense structures, annual indexes, at <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>.

## Issues in Analyzing Deferred Maintenance

Fluctuations in deferred maintenance estimates are likely the result of many factors, among them estimation methods, levels of funding, asset portfolios, and economic conditions, as discussed below. The extent to which these and other factors affected year-to-year changes in any one agency's maintenance backlog is not entirely clear, in part because in some cases comprehensive information is not readily available or has not been examined. Therefore, the data in this report may not fully explain the changes in deferred maintenance estimates over time.

## Methodology

Methods for assessing the condition of assets and estimating deferred maintenance have changed over the decade. As a result, it is unclear what portion of the change in deferred maintenance estimates is due to the addition of maintenance work that was not done on time and what portion may be due to changes in methods of assessment and estimation. With regard to facility assessment, agencies have enhanced efforts to define and quantify the maintenance needs of their assets. Efforts have included collecting comprehensive information on the condition of facilities and maintenance and improvement needs. For instance, the first cycle of comprehensive condition assessments of NPS industry-standard facilities<sup>15</sup> was completed at the end of FY2006. NPS continues to develop business practices to estimate the maintenance needs of non-industry-standard assets.<sup>16</sup> This category presents particular challenges because it includes unique asset types.<sup>17</sup>

Alterations in methodology have contributed to changes in deferred maintenance estimates as shown in the following examples for roads. The FY2015 FWS budget justification states that

[i]n 2012, Service leadership concluded that condition assessment practices and policies in place at that time were unintentionally producing higher than appropriate [deferred maintenance (DM)] cost estimates for some types of constructed real property. DM estimates for our extensive inventory of gravel and native surface roads are a major contributor to this challenge. In response, the FWS is refining its practices and procedures to improve consistency of DM cost estimates and their use in budget planning. Significant reductions in the DM backlog are resulting from this effort.<sup>18</sup>

The FWS FY2016 budget justification elaborates on changes to methods of estimating deferred maintenance for roads.<sup>19</sup> Of note is that the roads, bridges, and trails category of FWS deferred

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<sup>15</sup> Industry-standard assets include buildings, housing, campgrounds, trails, unpaved roads, water utilities, and wastewater utility systems.

<sup>16</sup> U.S. Dept. of the Interior, National Park Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, p. ONPS-Ops&Maint-8, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_NPS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_NPS_Greenbook.pdf).

<sup>17</sup> Currently there are 25 non-industry-standard asset types, among them bridges, tunnels, monuments and memorials, ruins, amphitheatres, dams, marinas, and railroads.

<sup>18</sup> U.S. Dept. of the Interior, Fish and Wildlife Service, *Budget Justifications and Performance Information, Fiscal Year 2015*, p. NWR-30, at [http://www.doi.gov/budget/appropriations/2015/upload/FY2015\\_FWS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2015/upload/FY2015_FWS_Greenbook.pdf).

<sup>19</sup> U.S. Dept. of the Interior, Fish and Wildlife Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, pp. NWR-31 – NWR-32, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_FWS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_FWS_Greenbook.pdf).

maintenance declined substantially in the past few years in current dollars, from \$1.46 billion in FY2012 to \$0.43 billion in FY2014. This decline is reflected in the smaller FWS deferred maintenance total for FY2014 (\$1.53 billion)—the smallest during the decade examined.

Similarly, FS attributes variations in deferred maintenance during the decade partly to changes in the methodology for estimating roads. Since FY2008, the roads estimate has been limited to certain types of roads—passenger-car roads (Levels 3-5)—whereas prior year estimates included closed roads and high-clearance roads (Levels 1-2).<sup>20</sup> Also, in FY2013 and FY2014, FS adjusted the survey methodology for passenger-car roads, with the goal of providing more accurate estimates of the roads backlog.<sup>21</sup> Overall, the FS estimate of deferred maintenance for roads fell sharply during the decade in current dollars, from \$4.57 billion in FY2005 to \$2.92 billion in FY2014.<sup>22</sup> The extent to which the drop is attributable to changes in methodology, including regarding the types of roads reflected in the estimates, is not certain.<sup>23</sup>

Broader changes in methodology also occurred during the decade. For example, NPS previously used an accuracy range of -30% to +50% to derive the estimated range of deferred maintenance for industry-standard assets.<sup>24</sup> The change to its current accuracy range of -15% to +25% of the initial estimate would have affected NPS deferred maintenance estimates and CRS's calculations of mid-range figures as reflected in this report.

## Funding

How much total funding is provided each year for deferred maintenance for the four agencies is unclear because annual presidential budget requests, appropriations laws, and supporting documents typically do not aggregate funds for backlogged maintenance. Sources of funding might include portions of appropriations for agency maintenance and construction accounts, recreation fees, concession fees, and the Highway Trust Fund (Department of Transportation) for roads, among others. Moreover, funding figures are not directly comparable to deferred maintenance estimates because the estimates are limited to project costs and thus do not reflect indirect costs, such as salaries and benefits for government employees. Annual appropriations figures typically reflect indirect costs. Evaluations of the sufficiency of federal funding for

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<sup>20</sup> Phone communication between CRS and FS staff on March 17, 2015, and U.S. Dept. of Agriculture, Forest Service, *Fiscal Year 2010 President's Budget, Budget Justification*, pp. 14-18, at <http://www.fs.fed.us/publications/budget-2010/fy-2010-budget-request.pdf>.

<sup>21</sup> Information provided to CRS by the Forest Service Legislative Affairs Office on March 13, 2015.

<sup>22</sup> Following the particular changes mentioned, the roads estimate decreased in current dollars by \$0.76 billion from FY2007 to FY2008, and by \$0.84 billion from FY2012 to FY2014. (Other years during the decade had varying amounts of increase or decrease related to prior years.)

<sup>23</sup> It is worth noting that not all of the changes in methodology contributed to decreased backlog estimates. As an example, the FY2009 FS budget justification attributed an increase in current dollars in deferred maintenance for roads from FY2006 to FY2007 in part to a “new surveying sampling protocol” and surveys conducted “at a higher standard.” The agency also described efforts at the time to develop a more “statistically valid” method for calculating the deferred maintenance of roads. U.S. Dept. of Agriculture, Forest Service, *Fiscal Year 2009 President's Budget, Budget Justification*, pp. 15-18, at <http://www.fs.fed.us/publications/budget-2009/fy2009-forest-service-budget-justification.pdf>.

<sup>24</sup> U.S. Dept. of the Interior, National Park Service, *Annual Report, Fiscal Year 2007*, p. 93. This source states that this was “the accepted industry accuracy range” at the time. CRS did not seek to establish how long this accuracy range was used by the NPS and whether it was used by other DOI agencies in any years during the decade examined.

deferred maintenance may be hindered by the lack of total funding figures and by the incomparability of appropriations and deferred maintenance estimates.

Moreover, consistent and comprehensive information on the impact of federal funding on the condition of facilities and deferred maintenance over the decade does not appear to be available in budget documents. In particular, information based on the facilities condition index (FCI)<sup>25</sup> seems to be incomplete or inconsistent in agency budget justifications. In some cases, budget justifications either do not provide FCI figures for assets or provide figures only for certain years. The FY2011 BLM budget justification, for example, notes in several places that the FCI was a new measurement beginning in 2009.<sup>26</sup> In other cases, it is not clear if the FCI figures cover all agency assets or a subset of the assets. Together, the budget justifications present a mix of FCI information using quantitative measurements; percentage measurements; and qualitative statements, such as that a certain number or percentage of structures are in “good” condition, but without corresponding FCI figures.

Although amounts and impacts of deferred maintenance funding may not be readily available, the agencies at times have asserted a need for increased appropriations to reduce their backlogs. As a recent example, the FY2016 NPS budget justification sets out a proposal for increased funds to address deferred maintenance.<sup>27</sup> In the past, agencies sometimes attributed reductions in deferred maintenance (or slower rates of increase) in part to additional appropriations, such as those provided in the American Recovery and Reinvestment Act of 2009 (ARRA; P.L. 111-5).<sup>28</sup> The FY2016 FWS budget justification notes the ARRA funding as one factor contributing to a reduction in the backlog from the FY2010 high, for instance.<sup>29</sup>

## **Assets**

The asset portfolios of the four agencies vary considerably in terms of number, type, size, age, and location of agency assets. Although comprehensive data on these variables over the past decade is not readily available, it is likely that they affect agency maintenance responsibilities and maintenance backlogs. For instance, NPS has more assets than the other DOI agencies, a sizeable portion of which were constructed before 1900 or in the first half of the twentieth century.

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<sup>25</sup> The facilities condition index is an accepted industry measure of the condition of constructed assets at a specific point in time, and it serves as a performance measure for condition improvement.

<sup>26</sup> U.S. Dept. of the Interior, Bureau of Land Management, *Budget Justifications and Performance Information, Fiscal Year 2011*, pp. IV-217 and IV-222 – IV-223, for example, at [http://www.doi.gov/budget/appropriations/2011/upload/FY2011\\_BLM\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2011/upload/FY2011_BLM_Greenbook.pdf).

<sup>27</sup> U.S. Dept. of the Interior, National Park Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, p. Overview-3 for example, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_NPS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_NPS_Greenbook.pdf).

<sup>28</sup> The law provided emergency funding to the agencies for FY2009, with the monies available for obligation through September 30, 2010. Some of the projects were completed in subsequent fiscal years. Under the law, the four agencies received \$1.99 billion in appropriations for various accounts and purposes (excluding funding for wildland fire management), although the portion used for deferred maintenance is not clear. These funds were in addition to regular appropriations for FY2009.

<sup>29</sup> U.S. Dept. of the Interior, Fish and Wildlife Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, p. NWR-31, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_FWS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_FWS_Greenbook.pdf). Information provided to CRS by DOI (for NPS) and by FS also attributed reductions or slower growth of deferred maintenance to ARRA funding. The information was provided to CRS by the DOI Budget Office on February 27, 2015, and by the Forest Service Legislative Affairs Office on March 13, 2015.

Moreover, some of these assets are in urban areas or are iconic structures, which could affect maintenance costs.<sup>30</sup>

The comprehensive effect of changes in agency asset portfolios on deferred maintenance is not entirely clear. However, it could be asserted that the acquisition of assets, such as a sizeable number of large or iconic assets in relatively poor condition, would increase regular maintenance needs and the backlog, if maintenance is not performed when scheduled. Similarly, it could be argued that disposal of assets, such as a large quantity of old assets in poor condition, would be a factor in reducing deferred maintenance.

To this end, agencies have examined whether to retain assets given their condition and uses and have disposed of some assets, as the following examples indicate. FS has sought to reduce the maintenance backlog through conveyance of unneeded or underused administrative sites, as well as decommissioning of roads, road and facility infrastructure, and non-priority recreation sites.<sup>31</sup> FWS attributed recent reductions in deferred maintenance in part to “disposing of unneeded assets.”<sup>32</sup> NPS identified for potential disposal assets that are not critical to the agency’s mission and that are in relatively poor condition. However, NPS later noted that although the agency seeks to improve the condition of its asset portfolio by disposing of assets, “analysis of removal costs versus annual costs often precludes the removal option.”<sup>33</sup>

## Economic Conditions

Deferred maintenance estimates also may vary due to general economic conditions that are not related to agency efforts or within the control of facility managers. To the extent that deferred maintenance estimates reflect costs of needed materials, supplies, and labor, they change over time as the costs of these products and services change. NPS, for example, noted generally that deferred maintenance estimates fluctuate with market trends and inflation.<sup>34</sup> As one specific example of the effect of the economy, FS noted that the increase (in current dollars) in the deferred maintenance estimate for roads from FY2006 to FY2007 was partly the result of rises in fuel prices and other associated construction costs.<sup>35</sup>

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<sup>30</sup> As one example, the NPS has identified deferred maintenance of Arlington Memorial Bridge at ranging between \$128 million and \$244 million, in large part depending on the method for repairing, rehabilitating, or replacing the historic steel drawbridge span. Information provided to CRS by the DOI Budget Office on March 25, 2015.

<sup>31</sup> See, for example, U.S. Dept. of Agriculture, Forest Service, *Fiscal Year 2008 President’s Budget, Budget Justification*, pp. 17-23 – 17-28, at <http://www.fs.fed.us/publications/budget-2008/fy2008-forest-service-budget-justification.pdf>.

<sup>32</sup> U.S. Dept. of the Interior, Fish and Wildlife Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, p. NWR-31, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_FWS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_FWS_Greenbook.pdf).

<sup>33</sup> U.S. Dept. of the Interior, National Park Service, *Budget Justifications and Performance Information, Fiscal Year 2016*, p. ONPS-Ops&Maint-16, at [http://www.doi.gov/budget/appropriations/2016/upload/FY2016\\_NPS\\_Greenbook.pdf](http://www.doi.gov/budget/appropriations/2016/upload/FY2016_NPS_Greenbook.pdf).

<sup>34</sup> Information provided to CRS by the DOI Budget Office on February 27, 2015.

<sup>35</sup> U.S. Dept. of Agriculture, Forest Service, *Fiscal Year 2009 President’s Budget, Budget Justification*, pp. 15-18, at <http://www.fs.fed.us/publications/budget-2009/fy2009-forest-service-budget-justification.pdf>.

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