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*Office of Inspector General*  
***Audit Report***

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*Follow-up Review of the*  
**INTERSTATE 15  
RECONSTRUCTION PROJECT  
IN UTAH**

***Federal Highway Administration***

*Report Number: IN-2001-007*  
*Date Issued: November 13, 2000*





# Memorandum

**U.S. Department of  
Transportation**

Office of the Secretary  
of Transportation

Office of Inspector General

Subject: INFORMATION: Follow-up Review of the  
Interstate 15 Reconstruction Project in Utah  
Report No. IN-2001-007

Date: November 13, 2000

From: Alexis M. Stefani   
Assistant Inspector General for Auditing

Reply to JA-30  
Attn of:

To: Federal Highway Administrator

This memorandum provides the results of our follow-up review of the Interstate 15 (I-15) Reconstruction Project in Utah. The objectives of this review were to: (1) update and evaluate the status of the project's costs, funding, and schedule since our November 1998 report;<sup>1</sup> (2) identify any issues that could affect the project's completion; and (3) assess the implementation of the recommendation contained in our previous report.

## **RESULTS IN BRIEF**

Our analysis of the I-15 project, which was 88 percent complete as of June 30, 2000, did not identify any issues that would adversely affect costs, schedule, funding, or completion of the project. We also found that the Utah Department of Transportation (UDOT) implemented the recommendation in our previous report to keep its finance plan current.

The current cost estimate for the project is \$1.632 billion. In 1996, UDOT's original planning estimate was \$1.36 billion. The estimate rose to \$1.59 billion when the design-build contract was awarded in March 1997. That increase resulted from changes in scope and other factors, such as a stipend given to the losing bidders. In November 1998, we identified about \$42 million in state funds spent on the project before the award of the design-build contract, bringing the total cost estimate to \$1.632 billion. That remains the current estimate.

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<sup>1</sup> Office of Inspector General Report No. TR-1999-028, Review of Interstate 15 (I-15) Reconstruction Project in Utah, (November 24, 1998).

Further, we found:

- **The cost estimate of \$1.632 billion is reasonable.** As of June 30, 2000, \$1.38 billion of work had been completed and \$252 million remains to complete the project. This balance, which includes about \$16 million in contingency funds for unforeseen circumstances, is sufficient to complete the project.

We concluded the project is likely to be completed within budget because the rate of cost increases has been low. As of June 30, 2000, UDOT had expended \$1.203 billion on the design-build contract and incurred \$26.7 million in change orders (2.2 percent of expenditures). In comparison, as of April 30, 1999, we found that the Central Artery/Ted Williams Tunnel Project in Boston, Massachusetts accomplished \$4.1 billion of work and incurred \$867 million in change orders (21.2 percent of expenditures).<sup>2</sup> Given the I-15 project's low rate of cost increases, the \$16 million contingency appears sufficient to meet any cost increases as the remaining work is completed.

- **Funding is sufficient to complete the project.** A total of \$1.632 billion in funding has been committed to the I-15 project. The finance plan for Utah's Centennial Highway Endowment Fund (Centennial Fund), established to pay for the I-15 project and 41 other highway projects, designates about \$1.59 billion - \$448 million in Federal funds and \$1.142 billion in state/local funds for the project. An additional \$42 million in state funds was authorized for the I-15 project prior to the creation of the Centennial Fund. As discussed above, the project is on track to be completed within budget, so the committed funding should be sufficient.
- **The project is ahead of schedule.** The I-15 project is scheduled to be completed in July 2001 - 3 months ahead of the original contract completion date of October 2001.

We are not making any recommendations at this time because funding is sufficient to cover the project's cost and the project is on schedule to be completed in July 2001.

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<sup>2</sup> Office of Inspector General Report No. TR-2000-050, Current Costs and Funding of the Central Artery/Ted Williams Tunnel Project, (February 10, 2000).

## **BACKGROUND**

UDOT constructed I-15 through Salt Lake County in the early 1960s, providing six general-purpose traffic lanes, three in each direction. I-15 is a major north-south highway link between the Canadian and southern California borders, which links the urban areas of Ogden, Salt Lake City, and Provo.

In the 1980s, UDOT began planning the I15 Reconstruction Project to correct deteriorating road and bridge conditions and to provide additional capacity around Salt Lake City. The project will replace the existing six lanes with eight lanes along 16.2 miles of interstate, add high-occupancy-vehicle and ramp lanes in each direction, reconstruct 143 bridges and establish an Advanced Traffic Management System to monitor traffic (see Exhibit A for a map of the project). The construction of the project is divided into the following elements: four construction segments, concrete paving work, and maintenance of traffic.

In June 1995, the U.S. Olympic Organizing Committee announced that Salt Lake City would host the 2002 Winter Olympic Games. To accelerate the project and have it completed before the Olympic games, UDOT selected the design-build contracting method over traditional methods. The design-build contracting approach differs from traditional “design-bid-build” contracting in that it combines, rather than separates, responsibility for the design and construction phases of a highway project. Under traditional contracting, a project’s design is contracted and performed separately from, and prior to, the construction contract. UDOT estimates that the design-build approach will enable the I-15 project to be completed in 4.5 years instead of 7 years under the traditional contracting approach.

In 1996, the State of Utah established the Centennial Highway Endowment Fund (Centennial Fund) to pay for the I-15 project and 41 other highway projects. The Centennial Fund receives funds through the state’s allocations of Federal funds and various other sources of revenue (e.g., state fuel taxes, state bonds, state General funds, and local contributions). These Centennial Fund projects are in addition to Utah’s regular highway program, which also uses Federal and state transportation funds to pay project costs.

UDOT awarded a single design-build contract to Wasatch Constructors<sup>3</sup> on March 26, 1997. The additional capacity provided by the project is intended to prevent serious traffic problems during the 2002 Winter Olympics. UDOT estimates the project will be completed in July 2001.

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<sup>3</sup> Wasatch Constructors is a joint venture of Peter Kiewit Sons’ of Omaha, Nebraska; Granite Construction Company, Inc. of Watsonville, California; and Washington Construction Company of Highland, California.

## **SCOPE AND METHODOLOGY**

This follow-up review of the I-15 project is one of a series of “mega” infrastructure project reviews by the Department of Transportation, Office of Inspector General (OIG). The OIG defines mega projects as those with estimated costs of \$1 billion or more, and/or having congressional interest.

To assess the current cost and funding of the project, we held discussions with officials from Federal Highway Administration (FHWA), UDOT, and Utah State Legislature, and reviewed and analyzed UDOT’s financial records including, contractor invoices, project cost obligations and expenditures, and the finance plan for the Centennial Fund. To assess the schedule status of the project, the OIG engineer held discussions with UDOT engineers and reviewed construction documentation including schedule, change order logs, cost estimates, and construction progress payments. Our review also included a site visit of the construction area. To identify issues that could affect the completion of the project, we held discussions with FHWA and UDOT officials and reviewed financial and schedule documentation and project status reports.

To assess whether FHWA implemented our previous recommendation, we obtained and reviewed documentation to confirm that UDOT updated and kept current its finance plan.

Our review included discussions with UDOT officials on their owner-controlled insurance program and a review of program documentation and insurance claims. Our review of internal controls included a review of internal control reports prepared by the Utah State Auditors Office and a discussion of report findings with Utah State auditors.

We conducted this review from January through September 2000. We reviewed project documentation as of June 30, 2000. Our review was conducted at UDOT and FHWA offices in Salt Lake City, Utah. We conducted this review in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

## **PRIOR COVERAGE**

In our report of November 24, 1998,<sup>4</sup> we stated that:

- the I-15 project cost estimate of \$1.632 billion was reasonable;
- the Centennial Fund may have a deficit and, therefore, not be sufficient to cover all the costs of the I-15 project,<sup>5</sup> and
- the project was ahead of the contract schedule and on target to be completed in July 2001 – 3 months before the contract completion date of October 2001, and 7 months before the opening of the 2002 Winter Olympics to be held in Salt Lake City.

We recommended that FHWA require UDOT to keep its finance plan current. In addition, we noted that if all requested Federal funds were not received, UDOT must identify how it intended to resolve an I-15 project funding shortfall (\$38 million deficit in state fiscal year<sup>6</sup> (SFY) 2001 and \$31 million deficit in SFY 2002). We did not make any other recommendations because the state was funding a large percentage of the project and the project was ahead of schedule. FHWA concurred with our recommendation and UDOT provided FHWA updated finance plans in May and December 1999 and March 2000.

## **RESULTS**

### **Estimate of Total Project Cost is Reasonable**

The cost of the I-15 project is estimated at \$1.632 billion. As of June 30, 2000, the project was 88 percent complete and \$1.38 billion had been expended (see Table 1). About \$252 million remains to complete the project, which includes about \$16 million in contingency funds for any unforeseen circumstances. We reviewed UDOT's budget and found its estimate was adequate to complete the I-15 project.

In a July 1996 Certification Report prepared for the I-15 project, UDOT originally estimated the cost of the project at \$1.36 billion. However, at the time the design-build contract was awarded in March 1997, the project was estimated at

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<sup>4</sup> Office of Inspector General Report No. TR-1999-028, Review of Interstate 15 (I-15) Reconstruction Project in Utah, (November 24, 1998).

<sup>5</sup> In November 1998, there were 41 highway projects funded from the Centennial Fund. Currently, there are 42 projects.

<sup>6</sup> The Utah state fiscal year is from July 1 through June 30.

\$1.59 billion - a \$230 million increase for changes in scope and other factors, such as providing a stipend to the losing design-build contract bidders and payments for utility relocations. In our November 1998 report on the I-15 project, we concluded that the estimated cost of the I-15 project was \$1.632 billion. Our estimate included the \$1.59 billion plus \$41.6 million paid out of Utah's General Fund prior to the award of the design-build contract and the establishment of the Centennial Fund.

<b>Table 1</b>			
<b>Summary of Costs of the I-15 Reconstruction Project</b>			
<b>as of June 30, 2000</b>			
<b>(in millions)</b>			
<b>Program Element</b>	<b>Expected Costs</b>	<b>Expended</b>	<b>Remaining Costs</b>
Preliminary Engineering	\$ 21.9	\$ 22.1	\$ (.2)
Wasatch/Design-Build	1,390.9 <sup>a/</sup>	1,203.0	187.9
Right-of-Way	62.1	49.3	12.8
Program Management	44.0	32.9	11.1
Parallel Streets	41.5	40.1	1.4
Owner-Controlled Insurance Program	21.4	11.8	9.6
Utilities/Railroads	20.0	10.4	9.6
Advanced Traffic Management System Center	6.4	5.9	.5
Public Information	5.4	3.6	1.8
Region 2 Maintenance	1.7	.7	1.0
Management Directed Liability <sup>b/</sup>	16.3	0.0	16.3
<b>Total<sup>c/</sup></b>	<b>\$1,631.6</b>	<b>\$1,379.8</b>	<b>\$251.8</b>

<sup>a/</sup>This amount includes about \$26.7 million in change order activity.

<sup>b/</sup>UDOT uses this account as its contingency for unforeseen circumstances.

<sup>c/</sup>Total expected costs include \$1,590 million from the Centennial Fund and \$41.6 million paid out of Utah's General Fund prior to the establishment of the Centennial Fund.

The total cost estimate for the project has not changed since construction began in April 1997. Change orders have been a source of significant cost increases on other projects we have reviewed, however, they have been comparatively low on the I-15 project. As of June 30, 2000, UDOT expended \$1.203 billion on the design-build contract and UDOT approved 87 change orders for a net increase to the design-build contract of \$26.7 million (2.2 percent of expenditures). Conversely, in our review of the Central Artery/Ted Williams Tunnel Project in Boston, Massachusetts, we found that from its inception through April 30, 1999, that project accomplished \$4.1 billion of work and incurred \$867 million in change orders (21.2 percent of expenditures).<sup>7</sup> Unlike Central Artery, the overall

<sup>7</sup> Office of Inspector General Report No. TR-2000-050, Current Costs and Funding of the Central Artery/Ted Williams Tunnel Project, (February 10, 2000).

cost of the I-15 project did not rise, however, because decreases in other cost categories offset the \$26.7 million in change orders. Based on the amount of work completed and the low rate of change order increases, we concluded that the I-15 project is well-positioned to be completed within its \$1.632 billion budget.

An additional \$11.7 million in betterments (i.e., enhancements) have been added to the I-15 project that are above and beyond the original scope of the project and paid by local municipalities and utility companies. These betterments are not reflected in UDOT’s project cost estimate because they are paid by outside sources.

### **Funding is Sufficient to Complete I-15 Project**

Our analysis of UDOT’s finance plan for the Centennial Fund, shows that funding from Federal, state and local sources is sufficient to complete the I-15 project. The I-15 project and 41 other projects are funded through the Centennial Fund, which was established by the Utah legislature in 1996 and covers an 11-year period from 1997 through 2007. The finance plan estimates revenue from all sources at \$3.4 billion. UDOT projects Federal funding of \$450 million to occur over a 10-year period (SFY 1998 – SFY 2007)<sup>8</sup> and state and local funding of \$2.9 billion to occur over the entire 11-year period (see Exhibit B).

Of the \$3.4 billion, UDOT’s finance plan indicates \$1.59 billion will be designated for the I-15 project. Total funding authorized for the I-15 project is \$1.632 billion (see Table 2).

<b>Table 2 Sources of Funding for I-15 Project As of June 30, 2000 (in millions)</b>	
Federal	\$ 447.8
State/Local	1,184.2 <sup>a/</sup>
<b>Total</b>	<b>\$1,632.0</b>

<sup>a/</sup>This amount includes \$41.6 million in funding expended prior to the creation of the Centennial Fund.

As of June 30, 2000, UDOT projected \$450 million in Federal funds for the Centennial Fund from SFY 1998 through SFY 2007,<sup>9</sup> of which \$448 million has

<sup>8</sup> The Utah state fiscal year (SFY) is from July 1 through June 30.

<sup>9</sup> Although the I-15 project will be completed in SFY 2002, UDOT can still receive Federal reimbursements through SFY 2007.

been authorized for the I-15 project (see Table 3). Because of the amount of state and local funding available, UDOT does not expect to use the entire amount of Federal funding. The UDOT Comptroller expects Federal reimbursements received through the Centennial Fund for the I-15 project at completion will total about \$372 million through SFY 2007. In that case, UDOT plans to apply Formula funds<sup>10</sup> not used for I-15 to other highway projects within the Centennial Fund that are eligible for Federal funding.

Although the finance plan shows that funding for the I-15 project should be sufficient, the UDOT Comptroller told us that if a funding shortfall occurs, UDOT would recommend that the State Transportation Board prioritize funding for the I-15 project and delay other projects in the Centennial Fund that are in the design phase. Keeping its finance plan current, as recommended in our November 1998 report, was a valuable tool for ensuring identification of adequate funding.

<b>Table 3</b> <b>Federal Funding for I-15 Project</b> <b>as of June 30, 2000</b> <b>(in millions)</b>		
<b>Sources</b>	<b>Authorized</b>	<b>Reimbursed</b>
Formula Funds <sup>10</sup>	\$371.4	\$ 61.4
Interstate Maintenance Discretionary	49.3	49.3
Bridge Replacement Discretionary	11.0	11.0
High Priority Projects	5.5	2.0
Blood Alcohol Enforcement	1.6	1.1
Right-of-Way Acquisition	9.0	6.4
<b>Total</b>	<b>\$447.8</b>	<b>\$131.2</b>

<sup>10</sup>Includes funds obligated and funds authorized as advance construction. Advance construction is a method, in which costs that are eligible for Federal reimbursement, but exceed the state's currently available apportionment, are paid for by the state. The state then repays itself out of the Federal apportionment it receives in future years. About \$61.4 million has been reimbursed; the remaining \$310 million will be reimbursed in future years.

### **Early Project Completion Date**

Wasatch Constructors is forecasting a completion date of July 15, 2001 - 3 months ahead of the contractual obligation date of October 15, 2001. As of June 30, 2000, total project construction was 88 percent complete; by segment the percentage of completion varies between 83 percent and 94 percent (see Table 4).

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<sup>10</sup> Formula funds are Highway Trust funds that are distributed annually to the states according to formulas prescribed by law.

<b>Table 4</b> <b>I-15 Project – Percentage of Completion by Segment</b> <b>as of June 30, 2000</b>		
<b>Segment</b>	<b>Construction Segment</b>	<b>Percent Complete</b>
1	Cottonwood	93
2	Jordan	83
3	Downtown	89
4	Advanced Traffic Management System	94

We reviewed the project’s schedule, visited the construction site, and spoke with UDOT engineers to confirm that the project is on schedule to be completed by July 15, 2001, without any delays in critical path construction activities. As an incentive to Wasatch to perform at a superior level and to complete the project by July 15, 2001, UDOT established an award fee process. UDOT has budgeted \$50 million in award fee incentives. As of June 30, 2000, UDOT has provided Wasatch \$27.2 million in award fee incentives.

As part of the I-15 project, Wasatch Constructors are installing the hardware for an Advanced Traffic Management System infrastructure. The software necessary to operate the system, which is for other roadways within the Salt Lake Valley as well as Interstate 15, will be installed under a separate project and is not included in the cost of the I-15 project. The cost of the software project is estimated between \$10 million and \$11 million. Funding for the software project will be equally provided by the state of Utah and the Federal Highway Administration.

### **Owner-Controlled Insurance Program Provides Savings over Traditional Insurance Coverage**

We reviewed the owner-controlled insurance program (OCIP) for the I-15 project based on our findings on the insurance program for the Central Artery/Ted Williams Tunnel Project.<sup>11</sup> On that project we found that Federal funds were systematically used to overpay the project’s insurance reserves to create an investment trust to offset project cost overruns. In our review of the I-15 project, however, we found that its OCIP is financed entirely by state funds. Further, we found that UDOT chose an OCIP over traditional insurance based on an independent analysis performed by its insurance broker. This analysis estimated the cost of traditional insurance at \$52 million and OCIP at \$22 million – a savings of \$30 million.

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<sup>11</sup> Office of Inspector General Report No. TR-1999-104, Overpayments of Premiums for Central Artery Project’s Owner-Controlled Insurance Program (May 24, 1999).

The OCIP includes pre-construction survey, workers' compensation, general liability, and miscellaneous insurance. As of June 30, 2000, claims against workers' compensation, general liability, and builders' risk coverages offered through the OCIP totaled about \$4 million (see Table 5). Because of its experience with the I-15 OCIP, the State of Utah began using OCIPs in 1999 on other highway projects.

<b>Table 5 I-15 Project OCIP Claims as of June 30, 2000</b>			
<b>Type Of Claim</b>	<b>Claims</b>		<b>Deductible</b>
	<b>Filed</b>	<b>Paid</b>	
Workers' Compensation	\$1,905,000	\$1,465,000	No deductible; however, there is a \$250,000 cap
General Liability	2,051,000	879,000	Wasatch is responsible for the first \$5,000 of each claim
Builders' Risk	103,000	78,000	Wasatch is responsible for the first \$25,000 of each claim
<b>Total</b>	<b>\$4,059,000</b>	<b>\$2,422,000</b>	

### **No Material Weaknesses in Internal Controls Identified**

On the I-15 project, because the Utah State Auditors Office reviewed the internal controls of UDOT and the I-15 project, we examined its reports and found that the reports did not disclose any material weaknesses. The State Auditor examined contract compliance issues, award fee procedures, and UDOT's control over payments for the I-15 project, and found that UDOT's management of the project in these areas was sound. State Auditor officials told us they do not plan any additional reviews of the I-15 project at this time due to the lack of significant findings from their prior reviews.

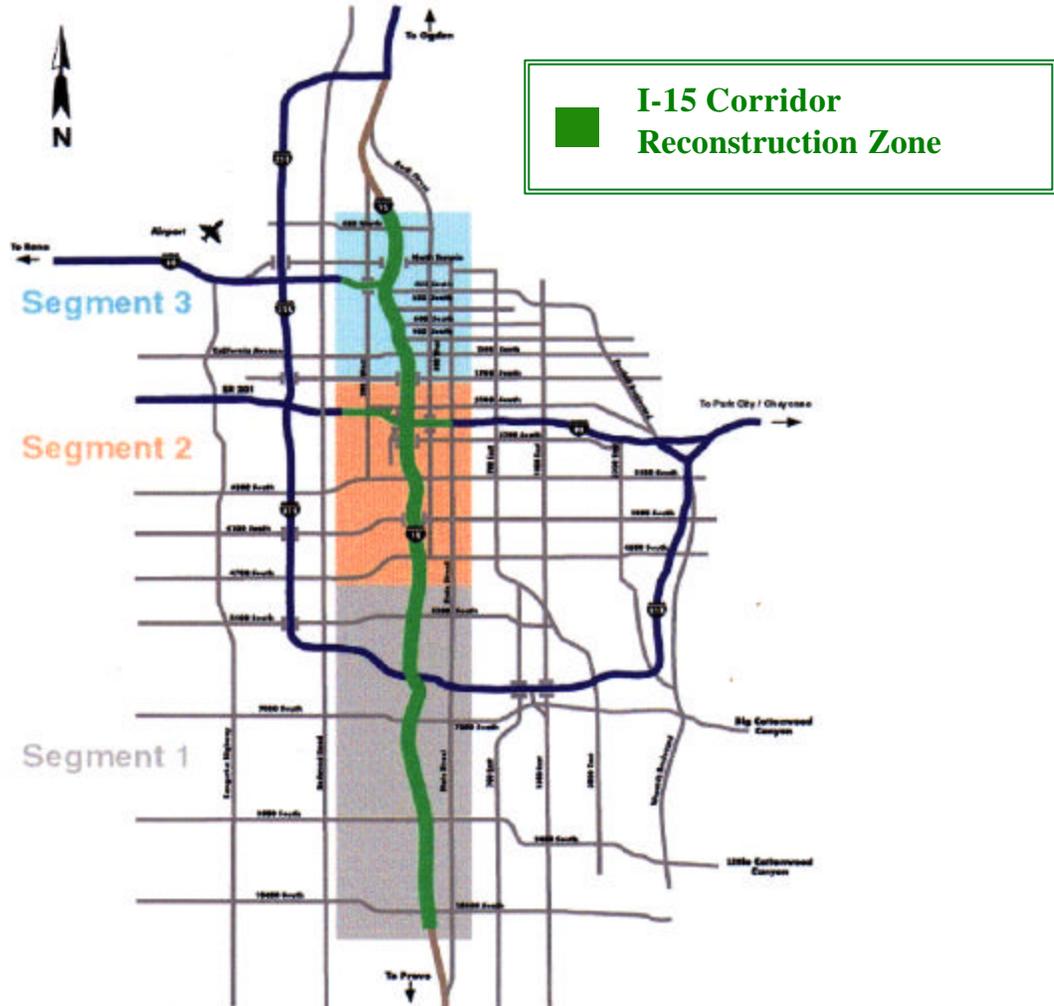
### **MANAGEMENT COMMENTS AND ACTION REQUIRED**

We are not making any recommendations at this time because funding is sufficient to cover the project's cost and the project is on schedule to be completed in July 2001. We discussed our findings with officials from UDOT and FHWA Headquarters and Utah Division, who generally concurred with our draft report and made suggestions. We have incorporated their comments, where appropriate. For example, FHWA suggested we add the footnote to Table 3, which explains how Formula funds are used on the I-15 project.

We appreciate the courtesies and assistance extended by FHWA and UDOT to our staff during this review. In accordance with Department of Transportation Order 8000.1C, since we are not making any recommendations, no response or follow-up action is required. If I can answer any questions or be of further assistance, please feel free to contact me at (202) 366-1992, or Tom Howard, Acting Deputy Assistant Inspector General for National Transportation Infrastructure Activities, at (202) 366-5630.

**EXHIBIT A**

**MAP OF I-15 RECONSTRUCTION PROJECT**



I-15 Reconstruction Project Statistics			
Project Cost		\$1,632 Million	Funding: Federal \$448 Million
Completion Date		July 15, 2001	State/Local \$1,184 Million
Segment	Project Element	Number of Miles	Number of Bridges
1	Cottonwood	8.2	39
2	Jordan	4.4	58
3	Downtown	3.6	46
4	Advanced Traffic Management System infrastructure <sup>a/</sup>	N/A	N/A
Total		16.2	143

<sup>a/</sup> Installing an Advanced Traffic Management System infrastructure, concrete paving work, and maintenance of traffic occurs throughout the entire length of the project.

**Projected Funding of Centennial Fund by Fiscal Year  
as of June 30, 2000  
(in millions)**

<b>Source</b>	<b>FY 1997</b>	<b>FY 1998</b>	<b>FY 1999</b>	<b>FY 2000</b>	<b>FY 2001</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>Total</b>
Federal	\$0	\$11.5	\$70.3	\$78.1	\$77.2	\$26.9	\$29.4	\$36.0	\$37.8	\$39.7	\$43.2	<b>\$450</b>
State *	110.7	1,010.4	237.9	165.1	184.4	349.4	254.5	163.5	140.7	152.2	170.2	<b>2,939</b>
<b>Total</b>	<b>\$110.7</b>	<b>\$1,022</b>	<b>\$308.3</b>	<b>\$243.2</b>	<b>\$261.6</b>	<b>\$376.4</b>	<b>\$283.9</b>	<b>\$199.5</b>	<b>\$178.5</b>	<b>\$191.9</b>	<b>\$213.4</b>	<b>\$3,389</b>
Federal percent of total	<b>0%</b>	<b>1.1%</b>	<b>22.8%</b>	<b>32.1%</b>	<b>29.5%</b>	<b>7.2%</b>	<b>10.3%</b>	<b>18%</b>	<b>21.2%</b>	<b>20.7%</b>	<b>20.2%</b>	<b>13.3%</b>

\* Includes total local contributions of \$6 million to the Centennial Fund.