Vermont State Auditor

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Report to the Vermont Agency of Transportation

Liquidated Damages: Outcomes and Opportunities for Better Protecting Taxpayers

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Mission Statement

The mission of the Vermont State Auditor's Office is to hold government accountable. This means ensuring taxpayer funds are used effectively and efficiently, and that we foster the prevention of waste, fraud, and abuse.

Principal Investigator

Andrew C. Stein

Non-Audit Inquiry

This is a non-audit report. A non-audit report is an effective tool used to inform citizens and management of issues that may need attention. It is not an audit and is not conducted under generally accepted government auditing standards. A non-audit report has a substantially smaller scope of work than an audit. Therefore, its conclusions are more limited, and it does not contain recommendations. Instead, the report includes information and possible risk-mitigation strategies relevant to the entity that is the object of the inquiry.

Introduction

This document contains the chief findings of a non-audit inquiry initiated by the Vermont State Auditor's Office (SAO) into the Vermont Agency of Transportation (AOT) practice of assessing liquidated damages.[1] Liquidated damages are charges that a principal assesses a contractor for failing to meet contractual obligations; in this case, charges assessed by AOT for failure to complete a road or bridge project within the agreed timeline.

The SAO's inquiry stemmed from a performance audit of a New Haven highway project, which found that AOT was not collecting for all non-fixed costs associated with a project delay.[2] The aim of the inquiry was to determine: 1) how Vermont calculates liquidated damages; and 2) what costs the agency could collect for that it currently does not. This report strives to meet these two objectives and explores a range of ancillary matters.

Minimum Requirement

Federal law requires states to establish rates for liquidated damages. According to the Code of Federal Regulations, "These rates shall, as a minimum, be established to cover the estimated average daily construction engineering (CE) costs associated with the type of work encountered on the project. The amounts shall be assessed by means of deductions, for each calendar day or workday overrun in contract time, from payments otherwise due to the contractor for performance in accordance with the contract terms."[3]

AOT's method of calculating liquidated damages meets the federal requirement. In practice, AOT data show that the state's liquidated damages covered the actual CE costs per day of projects assessed liquidated damages from 2003 to early 2007 (see the chart on the next page). But rates implemented in 2007 failed to cover the actual engineering costs over a two-year period.

To be precise, 88 percent of projects assessed liquidated damages between 2007 and 2008 failed to cover actual CE costs. Before this shift in charges, 76 percent of the projects assessed liquidated damages were charged a daily rate that was at least as high as the CE costs per day.

In 2009, AOT implemented a new set of rates for liquidated damages. AOT only provided data for five projects that were assessed liquidated damages under the new rate structure – the most recent of which was deemed "substantially complete" in November 2011. Three of those five projects employed liquidated damages that covered daily CE costs. More data would be necessary to assess these rates.

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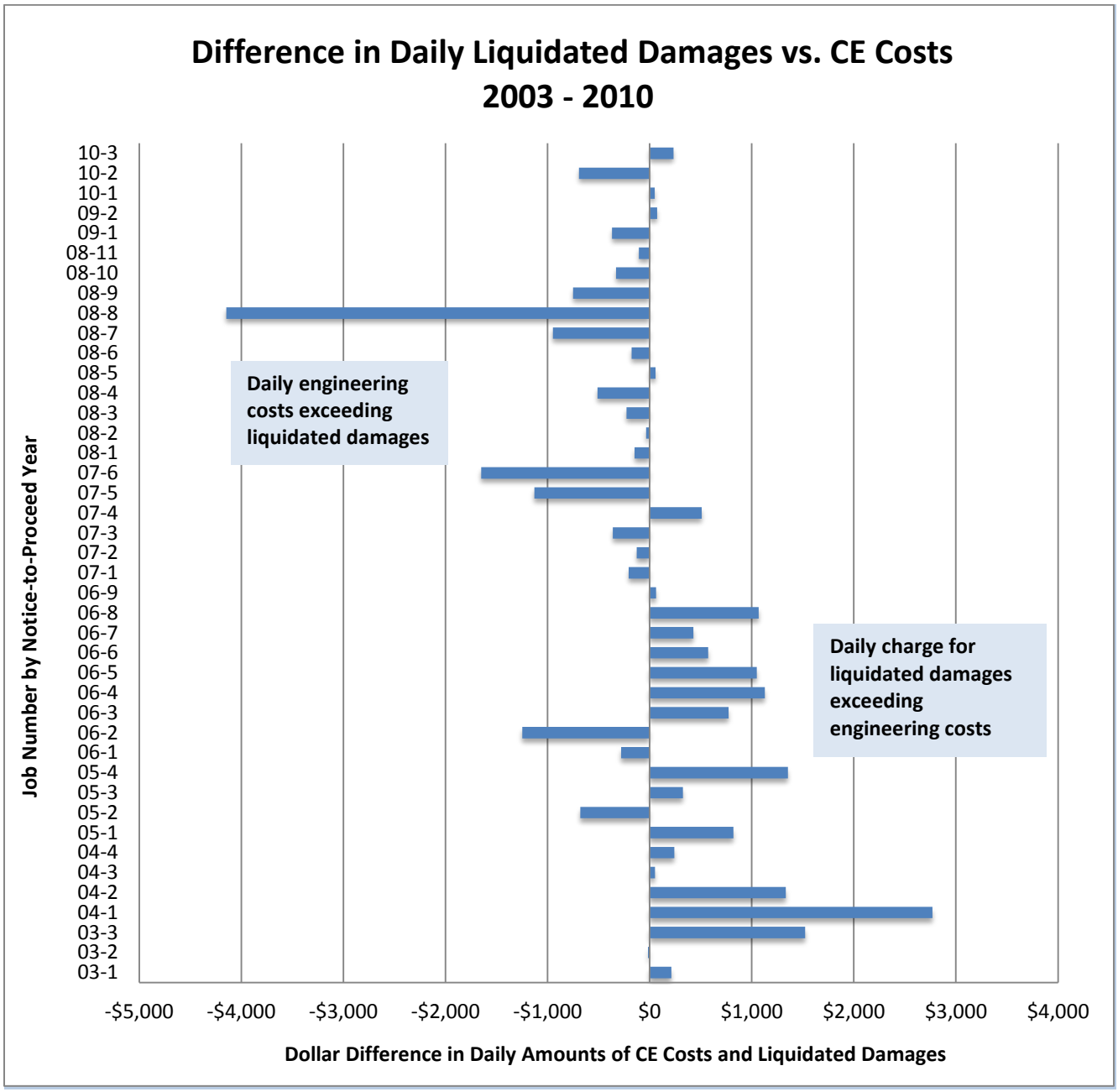
1 See: Chapter 9 of the SAO's Professional Standards Manual.

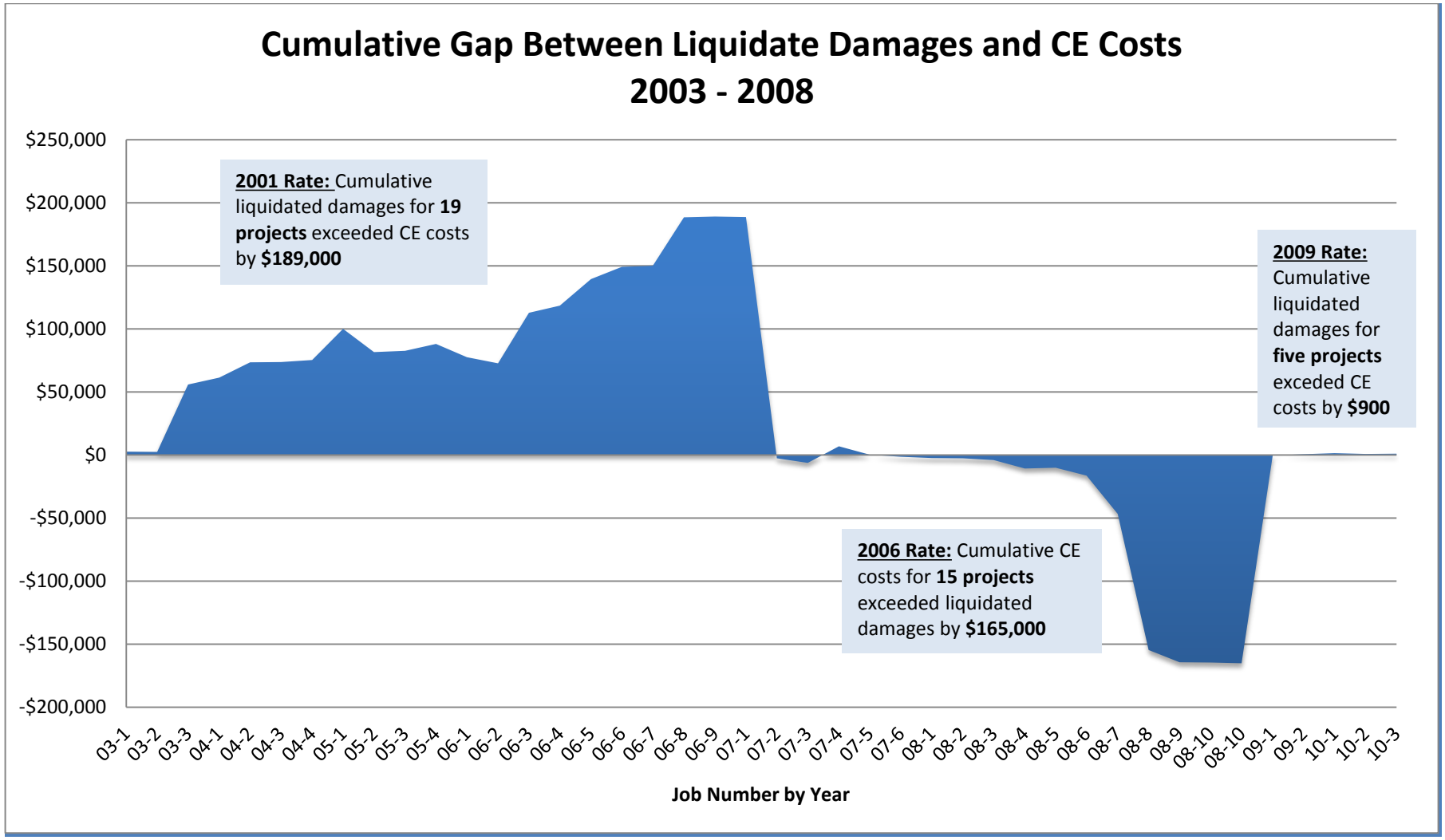
2 Read: New Haven Paving Project: Opportunities Exist to Shorten Project Timelines, Reduce Costs, and Limit Financial Risk.

3 See: CFR §635.127 Agreement provisions regarding overruns in contract time.



Source: AOT spreadsheet for projects closed out between August 2008 and August 2013 that incurred liquidated damages. CE cost data was drawn from the dataset used to create the daily charge table for damages and an AOT query.

We also examined whether liquidated damages covered CE costs by applying daily rates and engineering costs to the respective days of project delays. As the graph on the next page shows, Vermont rates for liquidated damages netted $189,000 above engineering costs for delayed projects, between 2003 and 2007. From early 2007 until the end of 2008, the state's 2006 rates failed to collect $165,000 in CE costs. The 2009 rates for liquidated damages netted roughly $900 above CE costs, but this was for a much smaller sample size.



Gross liquidated damages for the 19 projects assessed liquidated damages between 2003 and 2007 were $567,000, and the CE Costs – daily CE cost multiplied by days of assessed delay – totaled $378,000 (net $189,000). Gross liquidated damages for the 15 later projects equaled $308,000, and CE costs totaled $473,000 (net -$165,000). Gross liquidated damages for the five projects in 2009 and 2010 were $67,800, and engineering costs totaled $66,900 (net $900).

Rates and Calculations

Like most states, Vermont uses a schedule of rates to assess for liquidated damages. The current schedule of rates (recreated below) was implemented in 2009 and approved by the Federal Highway Administration (FHWA) as part of a comprehensive review of the state's 2011 Standard Specifications manual.[4]

Current Daily Charges for Liquidated Damages Per Each Working Day of Delay	
Contract Amount	**Daily Charge**
$0 - $300,000	$700
$300,000 - $500,000	$900
$500,000 - $1,000,000	$1,300
$1,000,000 - $1,500,000	$1,500
$1,500,000 - $3,000,000	$1,900
$3,000,000 - $5,000,000	$2,200
$5,000,000 - $10,000,000	$2,700
$10,000,000 - $20,000,000	$4,200
$20,000,000+	$6,600

To create the current schedule of rates, AOT documents show that the agency drew from five years of data (roughly 600 projects) to plot the CE costs per day against the original contract values. "A best fit curve," or natural log regression, was then applied to the data points, and the largest value for each contract range was used to set a daily charge. For example, the point on the curve at $300,000 was selected for contracts between $0 and $300,000. This method is logical because the standard deviations for daily CE costs at each contract range vary significantly, from several hundred to several thousand dollars.

Limited data was available for the top two contract ranges, and AOT derived these daily charges by averaging contract data.[5] The contracts and specifications engineer, who oversaw the calculation of the liquidated damages assessments, said that the same methodology was used to calculate the rates in 2006 and 2009.

Daily Charges by Year[6]			
Original Contract Amount	**2001**	**2006**	**2009**
$0 - $300,000	$390	$300	$700
$300,000 - $500,000	$670	$700	$900
$500,000 - $1,000,000	$1,000	$900	$1,300
$1,000,000 - $1,500,000	$1,700	$1,100	$1,500
$1,500,000 - $3,000,000	$2,500	$1,400	$1,900
$3,000,000 - $5,000,000	$3,500	$1,900	$2,200
$5,000,000 - $10,000,000	$3,500	$2,500	$2,700
$10,000,000 - $20,000,000	$3,500	$3,400	$4,200
$20,000,000 +	$3,500	$4,200	$6,600

Shifts in Rates

As the table at left shows, seven of the nine daily charges established in 2006 were lower than the previous rates in the 2001 Standard Specifications for Construction manual. Four of the nine 2009 charges were also lower than the nominal values in 2001. AOT did not provide documentation on the methodology used to calculate the 2001 rates.

According to federal law, AOT should review these "rates at least every 2

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4 See: Vermont 2011 Standard Specifications for the Construction Book, 1-120.

5 Mike Lozier and Jim Laxroix, *Specifications Committee Article 09-02*, 2009.

6 These rates were drawn from the 2001, 2006, and 2011 Standard Specifications manuals. Since the SAO was able to verify that the 2011 rates went into effect in 2009, the SAO used 2009 as a reference point.

years and provide updated rates, when necessary, for FHWA approval."[7] The SAO has only found two examples of AOT reviewing these rates since 2001, which occurred when the rates were updated.

The state's current rates are based on data that is between five and ten year's old. Using dated information may lead to an underestimation of costs, as it did in 2007 and 2008. AOT did not provide sufficient information to assess the performance of the rates implemented in 2009.

Outside Costs

While AOT meets the requirements set out in federal law (by assessing liquidated damages for CE costs), there may be other costs that taxpayers are covering as a result of project delays.

Federal law is explicit that states can, "with FHWA concurrence, include additional amounts as liquidated damages in each contract to cover other anticipated costs of project related delays or inconveniences to the (agency) or the public. Costs resulting from winter shutdowns, retaining detours for an extended time, additional demurrage, or similar costs as well as road user delay costs may be included."[8]

Two contract items that are not fixed costs for projects, but which the state appears to routinely incur during delays, are flaggers and uniformed traffic officers (UTO). The SAO's performance audit of the New Haven Project found that the state paid, but did not bill the contractor for, an estimated $33,000 for flaggers and traffic officers during a 24-day period for which the state assessed liquidated damages. AOT officials say deeper analysis is needed to determine whether those costs would have been incurred even if the project were completed on time, and thus not as a result of the delay.

As a follow-up to that work, the SAO analyzed flagger and UTO costs for three projects that incurred liquidated damages. Those projects were: 1) a 2006 Waitsfield-Moretown project contracted to Pike Industries, Inc., 2) a 2006 West Rutland project contracted to F.W. Whitcomb Construction Corp., and 3) a 2006 Sunderland project contracted to Petricca Construction Co.

As the table at left shows, these three projects incurred $21,146 in flagger and traffic officer costs after the adjusted contract completion date established in the Extension of Time Memos. If AOT assessed the contractors for the flagger and traffic officer costs incurred after the adjusted completion date, the agency would have collected 10 percent more in liquidated damages.

Flagger and UTO Costs for Three Projects			
Project	Liquidated Damages Days	Total Liquidated Damages	Flagger and UTO Costs During Delay
Waitsfield	17	$59,500	$4,660
West Rutland	36	$61,200	$16,486
Sunderland	52	$88,400	$0
Total:	**105**	**$209,100**	**$21,146**

One major difference between these projects and the New Haven project is that the state paid significantly less for flagger and traffic officers than it contracted for. While flagger and traffic officer costs came in $41,000

[7] See: CFR §635.127.
[8] Ibid.

over budget for the New Haven project, these combined costs were $109,000 under budget for the Waitsfield, West Rutland, and Sunderland contracts.

First appearance suggests that the state may be saving money on these jobs, but the contracted costs of these items are based on estimates at the outset of a project. The state could incur more costs for these items due to a delay than it otherwise would have – even if the actual costs come in under budget.

Penalties

States must be cautious about over-assessing for delays.

In New York, for example, "where the liquidated damages are disproportionately high to the anticipated loss, the provision will be deemed to be an unenforceable penalty," the *New York Law Journal* states. "The courts … will step in to invalidate a liquidated damages clause where the movant has met its burden of proving that the provision serves as a penalty, rather than a means for parties to predetermine damages amounts that would otherwise be difficult to ascertain."[9] In Alabama, a state Supreme Court ruling found that disincentive clauses were "void and unenforceable as a penalty," and there are many other similar examples that can be found in law journals across the country.[10]

There is legal precedent for assessing liquidated damages in Vermont. According to the Vermont Supreme Court:

> It is well settled that a liquidated damages clause must meet three criteria to be upheld: (1) because of the nature or subject matter of the agreement, damages arising from a breach would be difficult to calculate accurately; (2) the sum fixed as liquidated damages must reflect a reasonable estimate of likely damages; and (3) the provision must be intended solely to compensate the non-breaching party and not as a penalty for breach or as an incentive to perform.[11]

AOT, in its 2011 Standard Specifications manual, makes clear that liquidated damages are assessed "not as a penalty but as an assessment of damages that are impossible or difficult to determine with accuracy."[12] According to FHWA guidance, "The primary function of liquidated damages is to recover the (transportation agency's) construction oversight costs associated with the contractor's failure to complete the project on time."[13] While most states seem to implement liquidated damages in a similar manner to Vermont, some states aim to collect for additional costs.

Assessing for Additional Costs

Massachusetts uses a liquidated damages table with daily charges that closely resemble Vermont's. However, the neighboring state has a policy that stipulates: "In addition to the daily charge, the contractor shall pay without reimbursement the entire cost of all traffic officers, railroad flagmen and

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9 George Smith and Thomas Hall, "Determining the Validity of Liquidated Damages," *New York Law Journal*, 2012. Read the article.

10 See: The FHWA Contract Administration Core Curriculum, Pre Award Procedures, 8.

11 Vermont Supreme Court, *New England Educational Training Service vs. Silver Street* Partnership, 2990. Read the decision.

12 See: Vermont's Standard Specifications for the Construction Book, 1-11.

13 Ibid.

inspectors the engineer or the chief engineer of the railroad determines to be necessary during the period of overrun of time."[14]

New York uses a different method to separate engineering costs from other costs incurred during a delay. New York's Standard Specifications indicate that during a delay the state will assess for "all appropriate engineering and inspection expenses incurred by the State, its consultants, and inspection agencies, and by railroad companies." In addition to assessing for engineering costs, New York will also charge the contractor a daily rate for liquidated damages, which suggests that New York's liquidated damages rates are based on costs of oversight not limited to those for engineering.[15]

Many states pursue additional charges for road user costs, which are generally associated with what are called incentive/disincentive (I/D) provisions. The FHWA stipulates that "an I/D rate must be based on estimated road user costs," and the agency draws a clear distinction between liquidated damages and I/D provisions. While liquidated damages are aimed at recovering costs associated with construction oversight, I/D provisions are meant to: 1) "motivate the contractor to complete the work on, or ahead of, schedule," and 2) "recover damages to the traveling public for late completion."[16]

A study by the National Cooperative Highway Research Program found that "accelerating construction to achieve earlier completion leads to increased costs."[17] The study outlined best-practices for use of I/D provisions and identified five conditions for appropriate use of these provisions. Those conditions are:

1. Projects on high traffic volume facilities, generally in urban areas.
2. Projects that will complete a gap in a significant highway system.
3. Major reconstruction or rehabilitation on an existing facility that will severely disrupt traffic.
4. Major bridges out of service.
5. Projects with lengthy detours.[18]

The 2010 study indicates that Vermont used I/D provisions 13 times over the prior two fiscal years.[19] AOT provided the SAO numerous examples from contracts of I/D provisions. In one case, AOT provided an incentive of $2,700 for each day that a bridge in Woodstock was completed ahead of schedule. The disincentive for the 2013 projects was $1,350 per day of delay, in addition to liquidated damages. In another case, AOT provided a lump sum incentive of $30,000 if a Newfane bridge were completed before the finish date. In addition to the $30,000, the contractor could earn $225 per hour that the work was completed ahead of time, with a maximum incentive of $65,000, which included the lump sum payment. The disincentive for this bridge project was $225 per hour that the project was late, in addition to liquidated damages.

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14 See: Massachusetts Standard Specifications for Highways and Bridges, I. 48.
15 See: New York's Standard Specifications for Highways and Bridges, 148.
16 See: FHWA Contract Administration Core Curriculum, Pre-Award Procedures, 8.
17 National Cooperative Highway Research Program, *Time-Related Incentive and Disincentive Provisions in Highway Construction Contracts*, 2010, 1. Read the report.
18 Ibid, 27.
19 Ibid, 6.

Business Costs

FHWA guidance strictly forbids state transportation departments from assessing liquidated damages for costs to businesses, and/or including such provisions in I/D clauses. According to FHWA guidance, "It is not acceptable to include business impact costs in the calculation of liquidated damages for the following reasons:

- The contractor could challenge the clause on the basis that such costs are not costs to the State or the public as required by 23 CFR 635.127(c). *'The STD may, with FHWA concurrence, include additional amounts as liquidated damages in each contract to cover other anticipated costs of project related delays or inconveniences to the* ***STD or the public****.'*
- The FHWA's existing guidance on Incentive/Disincentive clauses, in Technical Advisory TA 5080.10, Section 7-a prohibits the inclusion of such costs.[20]
- There are numerous problems and issues in providing a fair, open, transparent process for estimating business damages and losses.
- The FHWA is prohibited from re-distributing such funds without Congressional approval."[21]

Summary

AOT's method of calculating and assessing liquidated damages for late projects meets federal requirements. Nevertheless, the agency's liquidated damages rates failed to cover actual engineering costs for most projects after 2006.

AOT could pursue at least two options going forward. It could charge for the per-project engineering costs incurred during a delay, which would eliminate the type of losses that were identified in 2007 and 2008. Or, AOT could review its schedule of rates more frequently, as is required by federal law.

Finally, the agency may be leaving additional costs on the table that result from delayed projects, such as those for flaggers and traffic officers. If so, taxpayers are covering costs that should be the responsibility of the contractor. At least one state employs a policy to collect for traffic officer costs during a delay, and the agency could increase project savings by pursuing such a policy.

A draft version of this report was submitted to AOT for comment. The agency chose not to issue a formal response and indicated it would conduct an internal review of this matter.

[20] See: FHWA Technical Advisory for Incentive/Disincentive for Early Completion.
[21] See: FHWA Contract Administration Core Curriculum, B. Post-Award Procedures, 8.