Online Systems to Process Time-and-Materials Billings: Survey of State Practice

Requested by
John Hancock, Division of Construction

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Executive Summary

**Background**
The Caltrans Division of Construction uses an online system, internet Extra Work Billing (iEBW), to process time-and-materials billings received from contractors. iEBW processes payments made to contractors on highway construction projects for work performed on contract change orders (work that is not covered in a project’s contract). When a time-and-materials billing is approved, iEBW sends the payment information to another Caltrans system for processing.

Upgrading iEBW to meet changing technological demands has proved challenging, and Caltrans is interested in replacing the system. Gathering information from other state departments of transportation (DOTs) will help Caltrans identify alternatives to its current system and practices for processing time-and-materials billings.

To assist with this effort, CTC & Associates conducted an online survey of state DOTs to gather information about the agencies’ use of online systems to process time-and-materials billings and the capabilities of those systems. A limited literature search and follow-up contacts supplemented survey findings.

**Summary of Findings**
An online survey of the members of the AASHTO Subcommittee on Construction sought information about the online systems used by other state DOTs to process time-and-materials billings.

Respondents for all but two of the 24 agencies responding to the survey reported on what they identified as manual processing of time-and-materials billings. Several of the agencies identifying their process as manual employ an online system to address a portion of the billing process.

Only two respondents—from Nebraska Department of Roads and Pennsylvania DOT—completed the survey questions that gathered information about an online system used to manage time-and-materials billings. A respondent from a third agency—Nevada DOT—did not complete the survey but provided information about the agency’s in-house-developed online contractor payment system that processes time-and-materials billings as a force account or change order.

Of the 19 states/districts describing a manual process to handle time-and-materials billings, six—Delaware, District of Columbia, Massachusetts, Minnesota, Montana and Washington—reported plans to update current time-and-materials billing practices or expressed interest in doing so.

**Online Systems**

**System Description**
Nebraska Department of Roads uses a customized version of AASHTOWare Project SiteManager to process time-and-materials billings. Implemented in 1999, the agency spends
an estimated $280,000 annually on licensing and in-house support to maintain the system. SiteManager does not interface with the agency’s payment processing system.

Nevada DOT uses two systems to process time-and-materials billings. AASHTOWare Project FieldManager is used to enter quantities for payment. Time-and-materials billings are entered into FieldManager in the same manner as any other line item. Data from FieldManager are transferred to an in-house-developed comprehensive contractor payment system, which processes these items as a force account or change order. Payment information is submitted to the state controller’s office to generate final payment to the contractor.

Pennsylvania DOT uses ECMS, a customized software program developed specifically for the agency. ECMS addresses much more than time-and-materials billings, providing “up-to-date information on Pennsylvania DOT’s construction projects, construction contracts and consultant agreements.” Cost to implement this system is estimated at more than $20 million over the last 10 years; annual maintenance costs are estimated at a minimum of $1 million. Approved payments are moved from ECMS to the agency’s SAP system, which triggers a review and final processing of the payment.

Note: The following summarizes survey responses provided by the Nebraska and Pennsylvania respondents. The Nevada DOT respondent did not address the survey questions summarized below.

System Features, Functions and Use

Nebraska’s SiteManager application is the more robust of the two systems described by respondents, supporting eight of the 13 features and functions identified by the survey. In contrast, Pennsylvania DOT’s ECMS supports six of the 13 features and functions. Both systems support all but one of the seven billing elements included in the survey. These billing elements are data points that can be entered in an online system when a time-and-materials billing is processed (for example, laborer name, trade, hours worked and equipment hours). While both systems generate automated notifications as a billing makes its way through the processing workflow, neither system generates the full range of automated notices identified in the survey.

System Assessment

When asked to rate a series of system characteristics using the rating scale of 1 = not at all satisfied to 5 = extremely satisfied, both respondents gave a 4 or 5 rating for overall agency satisfaction with their systems. While the Nebraska respondent provided a high overall rating for satisfaction with its SiteManager application, ratings for individual system characteristics such as reporting and flexibility were lower.

Both respondents noted benefits of their systems. Nebraska’s SiteManager allows for standardization and analysis of time-and-materials billings through use of the system’s reporting feature. Pennsylvania’s ECMS “provides clarity for all costs” and simplifies the processing of work orders and payments. The systems are not without challenges, however. In Pennsylvania, it has been challenging to instruct new contractors on the use of ECMS.
Manual Processes

The 19 agencies reporting on manual processes conduct a manual review of time-and-materials billings or use a tracking form to monitor costs. The manual reviews are conducted by the project manager (Delaware) or project engineer or supervisor (Indiana); tracking forms are Excel-based (Arizona and West Virginia) or Access-based calculation sheets (Washington).

Some agencies use an online system to supplement the manual process:

- **AASHTOWare Project SiteManager.** Indiana and Virginia DOTs use SiteManager as part of a manual process. (Nebraska Department of Roads’ SiteManager application is described in the Online Systems portion of this summary.) In Indiana, a change order is prepared in SiteManager when a payment is approved. After verifying quantities on contractor-supplied invoices, Virginia DOT staff members enter invoices in SiteManager for processing.

- **Construction Progress Estimate (CPE).** This in-house-developed online system is used by Arizona DOT to initiate payment of force account billings. CPE interfaces with the accounting systems that process the actual payment.

- **FieldOps.** Minnesota DOT had used FieldOps, an in-house system, to enter all payment data. The agency began transitioning to use of an AASHTOWare product in October 2016.

- **Oracle Primavera Unifier.** Delaware DOT is moving toward the use of Primavera Unifier to process all of the agency's construction-related bookkeeping and submittals.

Future Plans

Delaware DOT’s move toward the use of Primavera Unifier replaces an all-paper recordkeeping system supplemented by a variety of nonstandard spreadsheets and databases used in the field. Minnesota DOT will replace its current FieldOps in-house system, which is used for entry of all payment data, with AASHTOWare Project Construction & Materials. Payment data for all contracts let in October 2016 and later has been entered in the Construction & Materials software.

Four agencies reported plans to update current processes or expressed interest in doing so:

- The District of Columbia is developing an in-house system.

- Massachusetts DOT is enhancing current applications and processes as part of its comprehensive e-Construction initiative.

- Montana DOT is reviewing unspecified off-the-shelf products that may address time-and-materials billings.

- As the respondent noted, the Washington State DOT legacy systems are “quite old” and the agency has investigated updating them in the past. There are no current plans, and “an online system for time-and-material entry is not a high priority at this time.”

None of the respondents expressed firm interest in participating in a pooled fund focused on developing an online system for time-and-materials billings that is optimized for use by state DOTs. Seven respondents indicated they might be interested in participating in this type of pooled fund effort.
Gaps in Findings
The survey conducted for this project did not uncover a range of system options for Caltrans to consider, with only two respondents providing details of online systems used to process time-and-materials billings. Other agencies use online systems to support a manual process, but respondents provided little detail of their use of these systems. Survey responses appear to indicate that other state DOTs may not process a large volume of time-and-materials billings, which can limit the motivation to invest significant resources in automating that billing process.

Next Steps
Moving forward, Caltrans could consider:

- Contacting the survey respondents from Nebraska Department of Roads and Pennsylvania DOT to learn more about their use of an online system to manage time-and-materials billings.
- Consulting with agencies that describe current processes as manual but employ a commercial online system to manage a portion of the billing process. These agencies include Indiana and Virginia DOTs (AASHTOWare Project SiteManager), Minnesota DOT (AASHTOWare Project Construction & Materials) and Delaware DOT (Oracle Primavera Unifier).
- Reviewing AASHTOWare’s Project Construction & Materials software to identify how it might be used in the Caltrans processing environment. This software package replaces the existing AASHTOWare Project modules SiteManager and FieldManager, which are now used by some survey respondents.
- Investigating the availability of other commercial products, not identified by survey respondents, to automate the processing of time-and-materials billings.
Detailed Findings

Background

The Caltrans Division of Construction uses an online system, iEWB, to process extra work bills from contractors. iEWB processes payments made to contractors on highway construction projects for work performed for contract change orders (work that is not covered in a project’s contract). Upgrading iEWB to meet changing technological demands has proved challenging, and Caltrans is interested in replacing the system.

In the current system, prime contractors submit extra work bills electronically to the resident engineer for payment. The bill is validated and verified within iEWB, and can be viewed online by both the contractor and resident engineer, which eliminates delays associated with mailing or transferring paper documents. When an extra work bill is approved, iEWB sends the payment information to another Caltrans system for processing.

It is important to note that the system Caltrans seeks to replace is not a comprehensive invoicing system designed to process and pay all of the agency’s contractor invoices. The online system of interest in this Preliminary Investigation is specific to a subset of contractor payments that transportation agencies refer to as “extra work bills” or “time-and-materials billings,” or as payment of work performed by force account.

Survey of Practice

Survey Approach

Members of the AASHTO Subcommittee on Construction received an online survey that included these questions:

Introductory Questions

Responses to the two questions below determined how respondents completed the survey:

- Respondents replying “yes” to both questions responded to survey questions about their online time-and-materials billing systems.
- Respondents replying “no” to the first and/or second questions responded to the survey’s final three questions about manual billing processes and interest in developing an online system.

All respondents were presented with a wrap-up question that asked them to provide any comments or additional information about their previous responses.

1. Does your agency use an online system that accepts and processes invoices submitted by contractors?
2. Does this online system include functionality to process bills for work not covered under the contract (for example, for contract change orders that are charged on a time-and-materials basis)?
Respondents Using an Online Time-and-Materials Billing System

**System Description**

1. What type of online system does your agency use to process time-and-materials billings? Select all that apply.
   - Enterprise (agencywide use).
   - Desktop-based (individual desktop use).
   - Single/stand-alone online system.
   - Multiple tools (part of larger system).
   - Customized software developed specifically for our agency.
   - Commercial off-the-shelf (COTS) product.
   - COTS product customized for agency use.
   - Other (please specify).

2. What is the name of your agency’s time-and-materials billing system?

3. If your agency uses a commercial product, what are the names of the product and the vendor?

4. If available, please provide links below to documentation relating to your agency’s time-and-materials billing system.

**System Features**

1. What features and functions are supported by your agency’s time-and-materials billing system (even if your agency is not currently using them)? Select all that apply.
   - Allows contractors to upload documents.
   - Allows staff to upload documents.
   - Allows owners to reject portions of a billing.
   - Integrates with Blue Book/Equipment Watch.
   - Integrates with labor compliance for payroll checking.
   - Prepopulates names of equipment in a drop-down list.
   - Prepopulates names of laborers in a drop-down list.
   - Produces standard agency reporting.
   - Produces standard contractor reporting.
   - Produces customized agency reporting.
   - Produces customized contractor reporting.
   - Offers tablet access.
   - Offers smartphone access.

2. Please describe other features and functions supported by your agency’s system that do not appear in the list above.

3. What individual billing elements can be entered into the online system when a time-and-materials billing is submitted? Select all that apply.
   - Laborer name.
• Trade.
• Hours worked.
• Type of equipment used (make and model).
• Equipment hours.
• Material used.
• Description of the invoice.
• Other (please describe).

4. What types of notification are automatically generated by the system as a billing goes through the workflow? Select all that apply.
   • No automated notifications are generated.
   • Notification of bill submission.
   • Partial approval.
   • Full approval.
   • Partial rejection.
   • Full rejection.
   • Revision.
   • Bill status.
   • Other (please describe).

5. Does your agency’s time-and-materials billing system interface with the system that processes your agency’s contractor payments?
   • No, the time-and-materials billing system also processes payments.
   • No, the time-and-materials billing system does not interface with the payment system.
   • Yes, the time-and-materials billing system interfaces with the payment processing system.

System Implementation and Costs
1. When did your agency implement the time-and-materials billing system?
2. How long did it take to implement the system?
3. What was the total cost to implement the system?
4. What are the ongoing annual maintenance costs for the system?

System Assessment
1. Please indicate your agency’s level of satisfaction with each system characteristic listed below using the rating scale of 1 = not at all satisfied to 5 = extremely satisfied.
   • Ease of use.
   • Flexibility.
   • Reliability.
   • Automate workflows.
   • Ability to customize.
• Reporting features.
• Contractor satisfaction with the system.
• Overall agency satisfaction with the system.

2. Please describe how use of the time-and-materials billing system has benefited your agency.
3. Please describe any challenges your agency has experienced in using the system.

**Respondents Not Using an Online Time-and-Materials Billing System**
1. Does your agency manually process time-and-materials billings?
2. Does your agency have any plans to develop or implement its own online system to process time-and-materials billings?
3. Would your agency be interested in participating in a pooled fund to develop an online system for time-and-materials billings that is optimized for use by state departments of transportation (DOTs)?

**Summary of Survey Results**
Of the 24 states responding to the survey, only two reported on a system to manage online time-and-materials billings:

• Nebraska Department of Roads uses a COTS product customized for agency use.
• Pennsylvania DOT uses customized software developed specifically for the agency.

A third state—Nevada—uses its contractor payment system to process time-and-materials billings as a force account or change order.

Respondents from the 19 states/districts listed below reported on a manual process to handle time-and-materials billings:

• Arizona.
• Arkansas.
• Delaware.
• District of Columbia.
• Florida.
• Indiana.
• Iowa.
• Massachusetts.
• Minnesota.
• Montana.
• New Hampshire.
• North Dakota.
• Oregon.
• South Carolina.
• Utah.
• Virginia.
• Washington.
• West Virginia.
• Wisconsin.

Respondents from Georgia and South Dakota DOTs indicated that their agencies do not use an online system to process time-and-materials billings, but neither respondent described a manual process for handling these billings.

See Appendix A of this Preliminary Investigation for the full text of survey responses.

The following summarizes survey results in four topic areas:

• Online systems.
• Manual processes.
Online Systems
Information about the two online systems described by respondents is presented below in these topic areas:

- System description.
- System functionality.
- System use.
- System assessment.

Also included is a brief discussion of Nevada DOT’s systems and practices to process time-and-materials billings.

System Description
The table below describes the type of time-and-materials billing system used in Nebraska and Pennsylvania, including implementation and costs.

<table>
<thead>
<tr>
<th>Time-and-Materials Billing System Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nebraska</strong></td>
</tr>
<tr>
<td><strong>System Type</strong></td>
</tr>
<tr>
<td><strong>System Name</strong></td>
</tr>
<tr>
<td><strong>Vendor or System Web Site</strong></td>
</tr>
<tr>
<td><strong>When Implemented</strong></td>
</tr>
<tr>
<td><strong>Time to Implement</strong></td>
</tr>
<tr>
<td><strong>Implementation Cost</strong></td>
</tr>
<tr>
<td><strong>Annual Maintenance Costs</strong></td>
</tr>
<tr>
<td><strong>Interface with Payment Processing System (Yes/No)</strong></td>
</tr>
</tbody>
</table>
System Functionality

Respondents were presented with 13 system features and asked to indicate which features were supported by their online systems. Only one system feature—labor compliance for payroll checking—is not supported by either system.

Nebraska’s SiteManager application is the more robust of the two systems, supporting eight of the 13 features and functions identified by the survey. In contrast, Pennsylvania’s ECMS supports six of these features and functions. The table below presents survey responses.

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<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebraska</td>
<td>AASHTOWare SiteManager</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>ECMS</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>State</td>
<td>System</td>
<td>Laborer Name</td>
<td>Trade</td>
<td>Hours Worked</td>
<td>Type of Equipment Used (Make and Model)</td>
<td>Equipment Hours</td>
<td>Material Used</td>
<td>Description of the Invoice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>--------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebraska</td>
<td>AASHTOWare SiteManager</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>ECMS</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

The survey also asked respondents to indicate the types of notifications generated by the online system as a billing makes its way through the processing workflow. Neither system generates notifications for partial or full rejection of a time-and-materials billing, or for revision of a billing. The table below summarizes survey responses.

<table>
<thead>
<tr>
<th>State</th>
<th>System</th>
<th>Notification of Bill Submission</th>
<th>Partial Approval</th>
<th>Full Approval</th>
<th>Bill Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebraska</td>
<td>AASHTOWare SiteManager</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>ECMS</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**System Assessment**

**System Ratings**

When asked to rate a series of system characteristics using the rating scale of 1 = not at all satisfied to 5 = extremely satisfied, both respondents gave a 4 or 5 rating for overall agency satisfaction with the system. While the Nebraska respondent provided a high overall rating for
satisfaction with its SiteManager application, ratings for individual system characteristics such as reporting and flexibility were lower. The tables below present the respondents' ratings.

<table>
<thead>
<tr>
<th>Assessment* of SiteManager (Nebraska)</th>
<th>Assessment* of ECMS (Pennsylvania)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Features</strong></td>
<td><strong>System Features</strong></td>
</tr>
<tr>
<td>Ease of use = 4</td>
<td>Ease of use = 5</td>
</tr>
<tr>
<td>Flexibility = 3</td>
<td>Flexibility = 5</td>
</tr>
<tr>
<td>Reliability = 4</td>
<td>Reliability = 5</td>
</tr>
<tr>
<td></td>
<td>Reporting features = 2</td>
</tr>
<tr>
<td>Overall satisfaction with the system = 4</td>
<td>Contractor satisfaction with the system = 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Functions</th>
<th>System Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automate workflows = 4</td>
<td>Automate workflows = 5</td>
</tr>
<tr>
<td>Ability to customize = 4</td>
<td>Ability to customize = 5</td>
</tr>
<tr>
<td>Reporting features = 2</td>
<td>Reporting features = 5</td>
</tr>
</tbody>
</table>

* Rating scale: 1 (not at all satisfied) to 5 (extremely satisfied)

**Benefits and Challenges**

Both respondents noted benefits of their systems. Nebraska’s SiteManager allows for standardization and analysis of time-and-materials billings through use of the system’s reporting features. Pennsylvania’s ECMS “provides clarity for all costs” and simplifies the processing of work orders and payments. The systems are not without challenges, however. In Pennsylvania, instructing new contractors on the use of ECMS has been challenging. In Nebraska, external approval of change orders is complicated, with the respondent citing the need for approvals from contractors and Federal Highway Administration. For Nebraska, the latter challenge appears to have more to do with meeting regulatory demands than with any limitations of the online system.

**Nevada DOT’s Systems and Practices**

The Nevada DOT respondent reported that the agency makes use of an online system to process time-and-materials billings. Rather than responding to the survey questions about the system, the respondent provided a brief overview of the agency’s system in response to a follow-up contact.

Nevada DOT uses two systems to process time-and-materials billings. The agency uses AASHTOWare Project FieldManager to enter quantities for payment. Time-and-materials billings are paid as a force account line item and are entered into FieldManager in the same manner as any other line item. Data from FieldManager are transferred to an in-house-developed comprehensive contractor payment system, which processes these items as a force account or change order. Payment information is submitted to the state controller’s office to generate the final payment to the contractor.

While the Construction Division is satisfied with its in-house system, the respondent noted that it can be challenging to obtain the required backup documentation to justify payment for time-and-materials billings.
Manual Processes

Most agencies responding to the survey manually process time-and-materials billings. While some described the use of an online system, as the table below indicates, these respondents identified their processes as largely manual. The table below summarizes the survey responses that offered some level of detail about the manual process used to process time-and-materials billings.

<table>
<thead>
<tr>
<th>Type of Process</th>
<th>State</th>
<th>Description</th>
<th>Online System Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Review</td>
<td>Delaware</td>
<td>The contractor prepares a submittal that is verified by the estimating office. The project manager is responsible for placing the submittal on a change order.</td>
<td>Currently transitioning to the use of Primavera Unifier.</td>
</tr>
<tr>
<td></td>
<td>Indiana</td>
<td>The contractor submits a payment request to the project engineer or supervisor, who conducts an independent analysis to determine if payment will be made.</td>
<td>If payment will be made, a change order is prepared in AASHTOWare Project SiteManager. When approved, the change order is placed on an estimate for payment.</td>
</tr>
<tr>
<td></td>
<td>Oregon</td>
<td>Inspectors create daily force account records in the field. Contractors submit labor and material invoices monthly that are reviewed at the local office and quality checked at headquarters before invoices are paid.</td>
<td>None indicated.</td>
</tr>
<tr>
<td></td>
<td>Virginia</td>
<td>The agency verifies quantities on contractor-submitted invoices.</td>
<td>After verification, invoices are entered in AASHTOWare Project SiteManager for recording and processing.</td>
</tr>
<tr>
<td></td>
<td>Wisconsin</td>
<td>The contractor and agency compare records at the end of each workday. Equipment rates are determined using the agency’s rental rate book for construction equipment; labor rates are determined by prevailing wages.</td>
<td>None indicated.</td>
</tr>
<tr>
<td>Tracking Form</td>
<td>Arizona</td>
<td>A multisheet Excel workbook is used by contractors to enter and submit force account billing details.</td>
<td>The agency’s in-house-developed CPE online system is used to initiate payment of force account billings. CPE interfaces with the agency’s accounting systems, which make the actual payment.</td>
</tr>
</tbody>
</table>

Produced by CTC & Associates LLC
### Respondents’ Manual Processes for Time-and-Materials Billings

<table>
<thead>
<tr>
<th>Type of Process</th>
<th>State</th>
<th>Description</th>
<th>Online System Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking Form</td>
<td>Massachusetts</td>
<td>Field staff track costs daily using standard forms.</td>
<td>None indicated.</td>
</tr>
<tr>
<td></td>
<td>Minnesota</td>
<td>Users track information daily and create a summary when all contractor paperwork has been submitted.</td>
<td>All payment entries are made in FieldOps, an in-house-developed system (transitioning to the use of AASHTOWare Project Construction &amp; Materials). SWIFT (Statewide Integrated Financial Tools), a statewide PeopleSoft-based financial, procurement and reporting system implemented in 2012, is used to make the actual payment.</td>
</tr>
<tr>
<td></td>
<td>Washington</td>
<td>Time, equipment and material data are gathered by the project inspector. Office staff enters this data in an Access-based calculation sheet developed in-house, or calculates payment data by hand.</td>
<td>Payment data are entered in the agency’s contract accounting payment system (developed in-house).</td>
</tr>
<tr>
<td></td>
<td>West Virginia</td>
<td>Work is tracked and payment is calculated using Excel spreadsheets. Once the work is complete, a change order is created to pay for the work.</td>
<td>None indicated.</td>
</tr>
</tbody>
</table>

**Florida DOT’s Billing Process**

State statute requires Florida DOT to encumber funds before work can be authorized on a construction project; therefore, time-and-materials or force account-type work is not permitted. Florida DOT reviews Requests for Equitable Adjustment as they are submitted, and uses work orders and supplemental agreements to add work to contracts through negotiation of time and costs. If the agency and contractor cannot agree on the cost of the added work, a unilateral payment is made to the contractor. Final payment to the contractor is made using the agency’s Electronic Estimate Disbursement system. All activities up to the point of issuing the payment are done manually and transmitted electronically via email.

**Future Plans**

Two agencies reported plans to implement a new online system that will address at least a portion of the time-and-materials billing process:

- **Delaware DOT.** The agency is moving toward the use of Primavera Unifier to process all of the agency’s construction-related bookkeeping and submittals. Unifier replaces an all-paper recordkeeping system supplemented by a variety of nonstandard spreadsheets and databases used in the field. The agency’s central administration is seeking one system that will be implemented statewide to allow for fully electronic recordkeeping.
Delaware DOT investigated the use of AASHTOWare products, but upper management elected to implement Unifier because the agency’s design unit currently handles all scheduling and financing using other Primavera products. The respondent noted that “Unifier has a short shelf life and will be discontinued in the near future, but our management wants to stay with Primavera.”

Implementation has begun with use by field inspectors, but the respondent noted that full implementation is at least a year away, perhaps longer. When fully implemented, Unifier will replace multiple in-house databases and software packages. Field inspectors will enter their data using tablets, eliminating the need to prepare handwritten reports.

- **Minnesota DOT.** The agency will replace its current FieldOps in-house system, which is used for entry of all payment data, with AASHTOWare Project Construction & Materials. Payment data for all contracts let in October 2016 and later has been entered in the Construction & Materials program. Contracts let prior to that date will continue to be administered with FieldOps, with the respondent noting “there is little return on investment to try to migrate the data.”

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**Note:** As the AASHTOWare product web site indicates, “Project Construction & Materials software replace[s] the client/server construction, materials and laboratory information management functionality of existing AASHTOWare Project modules including AASHTOWare Project SiteManager, AASHTOWare Project FieldManager and AASHTOWare Project Construction Administration.”

See page 17 of this Preliminary Investigation for more information about AASHTOWare products and other commercial and custom agency products used by respondents in connection with time-and-materials billings.

Four other agencies reported plans to update current processes or expressed interest in doing so:

- District of Columbia DOT is developing an in-house system.
- Massachusetts DOT is enhancing current applications and processes as part of its comprehensive e-Construction initiative.
- Montana DOT is reviewing unspecified off-the-shelf products that may address time-and-materials billings.
- As the respondent noted, the Washington State DOT legacy systems are “quite old” and the agency has investigated updating them in the past. There are no current plans, and “an online system for time-and-material entry is not a high priority at this time.”

**Interest in Pooled Fund Participation**

Respondents currently using manual processes were asked about their interest in participating in a pooled fund focused on developing an online system for time-and-materials billings that is optimized for use by state DOTs. No respondents provided a “yes” response, and 13 respondents said “no.” Respondents from seven agencies—Arizona, District of Columbia, Florida, Massachusetts, Minnesota, Oregon and South Carolina—indicated they might be interested in participating in this type of pooled fund effort.
Related Resources

Information about the commercial products and in-house systems used by respondents is provided below.

Commercial Products

**AASHTOWare Project Construction & Materials**, American Association of State Highway and Transportation Officials, undated.  
http://www.aashtoware.org/Project/Pages/Construction.aspx?PID=7  
From the web site:

The AASHTOWare Project Construction & Materials software replace[s] the client/server construction, materials and laboratory information management functionality of existing AASHTOWare Project modules including AASHTOWare Project SiteManager, AASHTOWare Project FieldManager and AASHTOWare Project Construction Administration. The AASHTOWare Project Construction & Materials module will provide the functionality necessary to manage contract data from award through contract finalization—integrating field based data collection, administration of contract records, contractor payments and materials management. Laboratory information management functionality will integrate material and lab administration to provide sampling and testing workflow management.

Minnesota DOT began transitioning to the use of Construction & Materials in October 2016.

**AASHTOWare Project FieldManager**, American Association of State Highway and Transportation Officials, undated.  
http://www.aashtoware.org/Project/Pages/FieldManager.aspx?PID=13  
From the web site:

With AASHTOWare Project FieldManager, data can be entered once and shared electronically between the field office and central office, alleviating the need for manual data-entry from multiple locations. AASHTOWare Project FieldManager is one of four Project tools that work at the field office level to speed data-sharing. The field tools improve accuracy, information management and record keeping. The suite is available to any organization that manages construction projects.

Nevada DOT uses FieldManager to enter quantities for payment.

**AASHTOWare Project SiteManager**, American Association of State Highway and Transportation Officials, undated.  
http://www.aashtoware.org/Project/Pages/SiteManager.aspx?PID=19  
From the web site:

All levels of personnel can utilize AASHTOWare Project SiteManager, including field inspectors, project managers, auditors, producer/suppliers, contractors and the FHWA. AASHTOWare Project SiteManager’s primary functions are:

- Contract Administration. Monitor contractor progress, receive payrolls, generate status reports, and provide reference data for vendors and subcontractors.
- Contract Records. Record all types of project data.
• Daily Work Reports. Enable inspectors to capture work performed at the job site on a laptop and upload it for review and approval.
• Contractor Payments. Generate estimates, process contract and line item adjustments, and manage retainage.
• Materials Management. Record, track, and report on material samples and test results from job sites, plants, and test labs.
• Laboratory Inventory Management System. Integrate material and lab administration to manage sampling and testing workflow.

SiteManager is used by Indiana, South Carolina and Virginia DOTs and Nebraska Department of Roads.

Primavera Unifier, Oracle, undated.  
https://www.oracle.com/applications/primavera/products/unifier.html
From the web site:

The best-in-class project lifecycle management solution for capital planning, project delivery, cost control, and facilities and real estate management. Primavera Unifier provides governance across all project phases, from planning and building to operations and maintenance.

Delaware DOT is moving toward the use of Primavera Unifier to process all of the agency’s construction-related bookkeeping and submittals.

Agency In-House Systems

Arizona

From the introduction:

CPE is an accounting software program used to help the Construction office staff provide accurate, well documented progress payments to contractors. Progress payments and time charges can be logged and recorded. Monthly Contractor Estimates and other reports are used to track construction progress.

Florida

Electronic Estimate Disbursement (EED) System, Information Technology Operational Audit, Florida Department of Transportation, January 2014.  
This audit report of the EED System “focused on evaluating the effectiveness of selected general and application information technology (IT) controls applicable to the EED System.”

From the audit’s summary:

The Electronic Estimate Disbursement (EED) System is a mainframe system that is used by the Department of Transportation (Department) to capture contract payment request transactions from various Department systems, validate the transactions, and build payment request records that are submitted for payment to the Department of Financial Services (DFS), Florida Accounting Information Resource Subsystem (FLAIR). The purpose of the
EED System is to increase the accuracy of payment request data; implement edits not available in FLAIR; and reduce the amount of manual work needed to input, submit, and document payments.

*Minnesota*

This user manual includes step-by-step instructions and screen shots, and “is written in a logical sequence of how a project should be handled in the field, from initial system setup to producing a final. It is a basic manual to cover only application issues; please use it with the Contract Administration Manual to administer your projects.”

**Welcome to the SWIFT Project**, Minnesota Management and Budget, State of Minnesota, undated. [http://www.swift.state.mn.us/home](http://www.swift.state.mn.us/home)
SWIFT incorporates administrative functions across state agencies, including financial, procurement, reporting and human resources/payroll, and is used by Minnesota DOT to make the actual payments.

*Pennsylvania*

**Engineering and Construction Management System**, Pennsylvania Department of Transportation, undated. [https://www.dot14.state.pa.us/ECMS/](https://www.dot14.state.pa.us/ECMS/)
Users can log in to ECMS using this site. As the web site indicates, the “site provides up-to-date information on PennDOT's construction projects, construction contracts and consultant agreements.”
Appendix A: Survey Results

The full text of each survey response is provided below. For reference, we have included an abbreviated version of each question before the response. Responses from agencies using an online system to process time-and-materials billings begin below; responses from agencies not using such a system begin on page 23. The full question text appears on page 6 of this Preliminary Investigation.

Agencies with Online Systems to Process Time-and-Materials Billings

Respondents from only two states—Nebraska and Pennsylvania—reported on the use of online systems to process time-and-materials billings.

Nebraska

Contact: Lorraine Legg, Assistant Construction Engineer, Nebraska Department of Roads, 402-479-4455, lorraine.legg@nebraska.gov.

System Description

1. **Type of online system**: Commercial off-the-shelf product customized for agency use.
2. **System name**: AASHTOWare SiteManager.
3. **Name of commercial product and vendor**: AASHTOWare SiteManager.
4. **Documents**: See [http://www.aashtoware.org/Project/Pages/SiteManager.aspx?PID=19](http://www.aashtoware.org/Project/Pages/SiteManager.aspx?PID=19) for AASHTOWare Project SiteManager.

System Features

1. **Features and functions supported by the system**:
   - Allows staff to upload documents.
   - Allows owners to reject portions of a billing.
   - Prepopsulates names of equipment in a drop-down list.
   - Prepopsulates names of laborers in a drop-down list.
   - Produces standard agency reporting.
   - Produces standard contractor reporting.
   - Produces customized agency reporting.
   - Produces customized contractor reporting.
2. **Other features and functions**: Automatic notifications for contractor approvals are in progress.
3. **Billing elements that can be entered**:
   - Laborer name.
   - Hours worked.
   - Type of equipment used (make and model).
   - Equipment hours.
   - Material used.
• Description of the invoice.
• [Data are] entered on [the] daily work report and [the system] authorizes for payment from that.

4. **Type of automated notification:**
   - Notification of bill submission.
   - Partial approval.
   - Full approval.

5. **Interface with the payment processing system?** No, the time-and-materials billing system does not interface with the payment system.

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### System Implementation and Costs

1. **When implemented:** 1999.
2. **Time to implement:** Not sure, 1-2 years seems likely.
3. **Implementation cost:** Unknown.
4. **Ongoing annual maintenance costs:** $280,000 for licensing for SiteManager, in-house support.

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### System Assessment

1. **Level of satisfaction (1 = not at all satisfied to 5 = extremely satisfied):**
   - Ease of use = 4.
   - Flexibility = 3 (satisfied).
   - Reliability = 4.
   - Automate workflows = 4.
   - Ability to customize = 4.
   - Reporting features = 2.
   - Contractor satisfaction with the system = N/A.
   - Overall agency satisfaction with the system = 4.

2. **System benefits:** Standardization, allows analysis through reporting.
3. **System challenges:** External approvals of change orders is complicated (contractors, FHWA).

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**Pennsylvania**

Contact: Michele Harter, Contract Management Chief, Pennsylvania Department of Transportation, 717-783-9457, micharter@pa.gov.

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### System Description

1. **Type of online system:** Customized software developed specifically for our agency.
2. **System name:** ECMS (Engineering and Construction Management System).
3. **Name of commercial product and vendor:** [No response.]
4. **Documents:** [http://www.dot14.state.pa.us/ECMS/](http://www.dot14.state.pa.us/ECMS/)
System Features

1. **Features and functions supported by the system:**
   - Allows contractors to upload documents.
   - Allows staff to upload documents.
   - Integrates with Blue Book/Equipment Watch.
   - Prepopulates names of equipment in a drop-down list.
   - Offers tablet access.
   - Offers smartphone access.

2. **Other features and functions:** [No response.]

3. **Billing elements that can be entered:**
   - Trade.
   - Hours worked.
   - Type of equipment used (make and model).
   - Equipment hours.
   - Material used.
   - Description of the invoice.

4. **Type of automated notification:**
   - Partial approval.
   - Full approval.
   - Bill status.

5. **Interface with the payment processing system?** Yes, the time-and-materials billing system interfaces with the payment processing system. Once all payments have been approved, they move to our SAP system which triggers our comptroller and Treasury to review and process the payment.

System Implementation and Costs

1. **When implemented:** [No response.]

2. **Time to implement:** 3 years or more.

3. **Implementation cost:** Over the last 10 years, over $20 million total.

4. **Ongoing annual maintenance costs:** It depends on the quantity of enhancements we make; minimum $1 million.

System Assessment

1. **Level of satisfaction (1 = not at all satisfied to 5 = extremely satisfied):**
   - Ease of use = 5.
   - Flexibility = 5.
   - Reliability = 5.
   - Automate workflows = 5.
   - Ability to customize = 5.
• Reporting features = 5.
• Contractor satisfaction with the system = 4.
• Overall agency satisfaction with the system = 5.

2. **System benefits:** It provides clarity for all costs and ease of processing of work orders and payments.

3. **System challenges:** Instructing new contractors on ECMS.

**Agencies Not Using an Online System to Process Time-and-Materials Billings**

Respondents from 20 states indicated that they do not use an online system to process time-and-materials billings. Of these, six states or districts—Delaware, District of Columbia, Massachusetts, Minnesota, Montana, and Washington—reported plans to update current practices or expressed interest in doing so. Additional information gathered in a follow-up contact is presented with survey responses, if applicable.

**Arizona**

Contact: Julie Kliewer, State Construction and Materials Engineer, Arizona Department of Transportation, 602-712-7323, jkliewer@azdot.gov.

1. **Description of manual process:** We generally don't utilize time-and-materials billings for change orders. Change orders are typically done via item numbers. However, we do have time-and-materials force accounts that can either be established as part of the original contract or can be a supplemental agreement force account (not very common). We have a standard multisheet Excel spreadsheet that the contractors use to enter and submit their force account billing details. The force account is then paid via an in-house application called CPE (Construction Progress Estimate). CPE interfaces with our accounting systems to actually make the payment to the contractor.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** Maybe.

4. **Additional comments:** [No response.]

**Arkansas**

Contact: David Henning, State Construction Engineer, Arkansas State Highway and Transportation Department, 501-569-2251, david.henning@ahtd.ar.gov.

1. **Description of manual process:** Only on force accounts. Labor and equipment rates are agreed to before beginning the force account. Hours for labor and equipment and invoices for materials are reviewed and a final force account amount is determined.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** No.

4. **Additional comments:** [No response.]
**Delaware**
Contact: Chris Costello, District Construction Engineer, Delaware Department of Transportation, 302-326-4401, chris.costello@state.de.us.

1. **Description of manual process:** The contractor makes the submittal; our estimating office verifies the numbers and returns the submittal to the project manager, who places it on a change order.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** DelDOT is currently moving toward using Primavera Unifier to process all of our construction bookkeeping/submittals/etc. [See https://www.oracle.com/applications/primavera/products/unifier.html for information about Primavera Unifier, described as "[t]he best-in-class project lifecycle management solution for capital planning, project delivery, cost control, and facilities and real estate management. Primavera Unifier provides governance across all project phases, from planning and building to operations and maintenance."]

**Follow-Up Contact:**
The survey respondent provided the following in response to a follow-up email contact:

1. **What is prompting this change?**
   DelDOT has been using an all-paper recordkeeping system that is supplemented by a nonuniform mish-mash of spreadsheets and databases that are in use in the field. Our central administration building wants one system to be implemented statewide that can handle fully electronic recordkeeping. We looked into using AASHTOWare, but our upper management decided to go with Unifier because our design folks currently handle all of their scheduling and financing through other Primavera products. Unifier has a short shelf life and will be discontinued in the near future, but our management wants to stay with Primavera, so that's what we are doing.

2. **When do you expect to implement Primavera Unifier?**
   We've begun rolling it out for the field inspectors, but full implementation is still at least a year away, maybe longer.

3. **How do you expect current practices to change when Primavera Unifier is implemented?**
   Many different homemade databases and software packages will be replaced by a single system. Field inspectors will input their data through tablets. There will be no more handwritten reports.

**District of Columbia**
Contact: Ali Shakeri, Program Manager, Infrastructure Project Management Division, District Department of Transportation, 202-671-4612, ali.shakeri@dc.gov.

1. **Description of manual process:** All work [is] inspected and documented and the contractor's bills are verified and processed.
2. **Plans to develop or implement online system?** Yes. We are developing [an] in-house system. [We contacted the survey respondent to inquire about the system in development. We had not received a response at the time of publication.]
4. Additional comments: None at this time.

Florida
Contact: David A. Sadler, Director, Construction, Florida Department of Transportation, 850-414-5203, david.sadler@dot.state.fl.us.

1. Description of manual process: FDOT reviews contractor Requests for Equitable Adjustment as they are submitted. FDOT does not do time/materials or force account-type work, as by statute FDOT must have the funds encumbered before work can be authorized on a construction project. FDOT uses work orders (WOs) and supplemental agreements (SAs) to add work to contracts through negotiation of time/costs and will use a unilateral payment to a contractor if an agreement on the price of the added work is not agreed upon. Once an SA/WO is executed by all parties or a unilateral payment issued by FDOT, the payment to the contractor is made by FDOT’s Electronic Estimate Disbursement (EED) process. Everything up to that point is manual and transmitted electronically via email.

2. Plans to develop or implement online system? No.
4. Additional comments: [No response.]

Indiana
Contact: Gregory G. Pankow, Construction Management/State Construction Engineer, Indiana Department of Transportation, 317-232-5502, gpankow@indot.in.gov.

1. Description of manual process: Time-and-material requests are submitted to the resident project engineer/supervisor who prepares an independent cost analysis to decide if payment will be approved. If the answer is yes, a change order is prepared in SiteManager. When the change order is approved, the item is placed on an estimate for payment.

2. Plans to develop or implement online system? No.
4. Additional comments: [No response.]

Iowa
Contact: Thomas Jacobson, Highway/Contract Administration Engineer, Iowa Department of Transportation, 515-239-1453, thomas.jacobson@iowadot.us.

1. Description of manual process: Extra work paid on the basis of “force account” is used only in instances when an agreed price is not reached or if the scope of extra work cannot be determined. A majority of extra work is paid on an agreed unit price or lump sum.

2. Plans to develop or implement online system? No.
4. Additional comments: [No response.]
**Massachusetts**
Contact: Michael McGrath, Deputy Chief Engineer, Construction, Massachusetts Department of Transportation, 857-368-9540, michael.a.mcgrath@state.ma.us.

1. **Description of manual process:** Field staff tracks all costs on a daily basis on standard forms.
2. **Plans to develop or implement online system?** Yes. As part of our e-Construction initiative we are working on enhancing our current applications to handle this.
3. **Interest in pooled fund participation?** Maybe.
4. **Additional comments:** [No response.]

**Minnesota**
Contact: Jennie Carlson, Construction Documentation and Payment Supervisor, Minnesota Department of Transportation, 651-366-4207, jennifer.carlson@state.mn.us.

1. **Description of manual process:** Users track information daily, then create a summary when all appropriate paperwork has been received from the contractor. They make entries into our current system (home-grown system, but moving to AASHTOWare). Payment is made on normal contract payment estimate, which is processed through SWIFT, an Oracle PeopleSoft Enterprise Resource Planning product. [SWIFT, or Statewide Integrated Financial Tools, is a statewide financial, procurement and reporting system implemented in 2012.]
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** Maybe.
4. **Additional comments:** I would like more information as to why you process these different than other payments.

**Follow-Up Contact:**
The survey respondent provided additional information in response to a follow-up email contact:

MnDOT is replacing FieldOps, a system developed in-house and used for entry of payment data, with AASHTOWare Project Construction & Materials. The AASHTOWare product is used for entry of payment data associated with contracts let October 2016 and later. Contracts let prior to that date will continue to be administered with FieldOps, with the respondent noting “there is little return on investment to try to migrate the data.”

**Montana**
Contact: Kevin Christensen, Construction Engineer, Montana Department of Transportation, 406-444-6008, kechristensen@mt.gov.

1. **Description of manual process:** Agency workers track time and materials and document.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** We are looking at some off-the-shelf products that may address this.
**Nevada**
Contact: Sharon Foerschler, Chief Construction Engineer, Nevada Department of Transportation, 775-888-7460, sfoerschler@dot.state.nv.us.

1. **Description of manual process:** [No response.]
2. **Plans to develop or implement online system?** Yes. NDOT already has a system in place to process contractor payments. We utilize our contractor payment system and process time and materials as a force account or change order within that system.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** Please give me a call if you have any questions.

**Follow-Up Contact:**
The survey respondent provided the following in response to a follow-up email contact:
**System description.** NDOT uses AASHTOWare FieldManager to input our quantities for payment and then uses a state-developed system to submit the payment to our State Controller’s Office, [which] cuts the check to the contractors. I am not aware of any documentation that describes our contractor payment system after it is entered in FieldManager.

**Satisfaction with the system.** The Construction Division is pleased with our system; however, our Accounting and/or Financial Management Division may have a different perspective.

**System challenges.** NDOT’s time and materials are paid as a force account line item and entered into FieldManager the same as any other line item. The difficulty in time and materials is in the required backup documentation to justify the payment.

**New Hampshire**
Contact: Ted Kitsis, Construction Administrator, New Hampshire Department of Transportation, 603-271-2571, ted.kitsis@dot.nh.gov.

1. **Description of manual process:** Reconcile with contractor on a daily basis.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** [No response.]

**North Dakota**
Contact: Cal Gendreau, Construction Engineer, North Dakota Department of Transportation, 701-328-2563, cgendrea@nd.gov.

1. **Description of manual process:** Contractor submittals due weekly and are processed manually.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** The time-and-material incidences are minimal in our state. Most costs for changes are negotiated.
Oregon
Contact: Gene Wilborn, Highway/Construction Claims Engineer, Oregon Department of Transportation, 503-986-3135, gene.wilborn@odot.state.or.us.

1. **Description of manual process:** Inspectors create daily force account records in the field. Contractor submits labor and material invoices monthly that are reviewed at the local PM [project manager] office and quality checked at headquarters before invoices are paid.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** Maybe.

4. **Additional comments:** [No response.]

South Carolina
Contact: Todd Steagall, Director, Construction, South Carolina Department of Transportation, 803-737-1308, steagallrt@scdot.org.

1. **Description of manual process:** Our resident construction engineers send the contractor a copy of the installed work for concurrence in quantities. SCDOT then submits the estimate to accounting for payment.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** Maybe.

4. **Additional comments:** SCDOT utilizes SiteManager for our monthly estimate generation. It has been working well.

Utah
Contact: Rob Wight, Director, Construction, Utah Department of Transportation, 801-633-6252, rwight@utah.gov.

1. **Description of manual process:** All “extra work” by the contractor requires a change order or an exception agreement to proceed.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** No.

4. **Additional comments:** [No response.]

Virginia
Contact: Justin Hsieh, Senior Construction Engineer, Virginia Department of Transportation, 804-786-2852, justin.hsieh@vdot.virginia.gov.

1. **Description of manual process:** Contractor submits invoice and after VDOT verifies quantities, they are input into SiteManager for recording and processing.

2. **Plans to develop or implement online system?** No.

3. **Interest in pooled fund participation?** No.

4. **Additional comments:** [No response.]
Washington
Contact: Greg Morehouse, HQ Construction/State Specification Engineer, Washington State Department of Transportation, 360-705-7834, morehog@wsdot.wa.gov.

1. **Description of manual process:** The time, equipment and material data is gathered by the project inspector and the office staff enters the data into an Access-based calculation sheet or calculates by hand and enters the payment into our contract accounting payment system. Both the calculation sheet and payment system were developed in-house.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** Our legacy systems are quite old and we have investigated updating a number of times, but nothing going on currently and an online system for time- and-material entry is not a high priority at this time.

West Virginia
Contact: Doug Clark, Contract Administration, West Virginia Department of Highways, 304-543-0719, douglas.l.clark@wv.gov.

1. **Description of manual process:** The work is tracked and payment is calculated using Excel spreadsheets. Once the work is complete, a change order is created to pay for the work.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** [No response.]

Wisconsin
Contact: Wayne Chase, Chief Construction Oversight Engineer, Wisconsin Department of Transportation, 608-267-7774, wayne.chase@dot.wi.gov.

1. **Description of manual process:** Contractor and department compare records at the end of each work day. Equipment rates are determined using rental rate book for construction equipment. Labor rates determined by prevailing wages.
2. **Plans to develop or implement online system?** No.
3. **Interest in pooled fund participation?** No.
4. **Additional comments:** [No response.]