



PRINCE WILLIAM COUNTY, VIRGINIA

## Prince William County, Virginia

### Internal Audit of the Department of Transportation (DOT)

**Prepared By:  
Internal Auditors**

**April 1, 2014**



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April 1, 2014

The Audit Committee of  
Prince William County, Virginia  
1 County Complex Court  
Prince William, Virginia 22192

Pursuant to the approved internal audit plan for fiscal year ("FY") 2013-14 for Prince William County, Virginia (the "County"), we hereby present the internal audit of the Department of Transportation (the "Department", "DOT") for the County. We will be presenting this report to the Audit Committee of Prince William County at the next scheduled meeting on April 15, 2014. Our report is organized in the following sections:

<b>Executive Summary</b>	This provides a summary of the issues related to our internal audit of the Department of Transportation.
<b>Background</b>	This provides an overview of the Department of Transportation processes covered as a part of this audit. Additionally, this section provides a depiction of each process in flowchart format.
<b>Objectives and Approach</b>	The internal audit objectives and focus are expanded upon in this section as well as a review of the various phases of our approach.
<b>Issues Matrix</b>	This section gives a description of the items noted during our internal audit and recommended actions as well as management's response, responsible party and estimated completion date.
<b>Best Practices</b>	This section provides a description of our process improvement observation and recommended action.

We would like to thank the staff and all those involved in assisting the Internal Auditors in connection with the internal audit of the Department of Transportation.

Respectfully Submitted,

**INTERNAL AUDITORS**

## **Executive Summary**

# Executive Summary

The objective of this audit was to assess whether the system of internal controls over the Department of Transportation's various selected processes were adequate and appropriate for promoting and encouraging the achievement of management's objectives for effective recording and monitoring. In addition to evaluating the Department's approach and policies, the internal audit and testing focused on the following processes:

- Construction (Roads)
- Request for Payment (Pay Applications)
- Change Orders
- Withholding and Releasing Retainage
- Virginia Department of Transportation ("VDOT") Acceptance – Close-Out
- Accounting Close-Out

In order to facilitate our procedures with respect to the processes noted above, McGladrey selected a sample of 3 projects for further testing which included, but was not limited to, the review of 6 pay applications, 6 change orders and 2 closeout packages. Projects were selected for testing based upon their relative size, complexity, contract delivery method and duration. Other than those reported herein, no exceptions were noted in the documentation subjected to our procedures.

The following section provides a summary of the Issues identified during our procedures. We have assigned relative risk factors to each issue identified. A summary of issues identified and their relative risk rating is provided below. This is the evaluation of the severity of the concern and the potential impact on the operations. There are many areas of risk to consider including financial, operational, and/or compliance as well as public perception or 'brand' risk when determining the relative risk rating. Items are rated as High, Moderate, or Low.

- *High Risk Items* are considered to be of immediate concern and could cause significant operational issues if not addressed in a timely manner.
- *Moderate Risk Items* may also cause operational issues and do not require immediate attention, but should be addressed as soon as possible.
- *Low Risk Items* could escalate into operational issues, but can be addressed through the normal course of conducting business.

The details of these Issues are included within the issues and recommendations section of this report.

Issues	Risk Rating
<b>1. Change Order – Internal Estimation Acceptable Variance Policy</b>	<b>Moderate</b>
<p>During our review of change orders, we noted that as a part of the evaluation / review process, the Department's Project Manager/Engineer compares the contractor's cost estimate to an independent cost estimate he / she prepares utilizing RS Means. RS Means is a commonly used industry benchmarking resource that provides cost data on construction materials, equipment, and labor by utilizing local market resources and national averages. This process provides the Project Manager with a useful benchmark to evaluate the contractor's proposed costs for accuracy and reasonableness.</p>	

## Executive Summary - continued

Issues	Risk Rating																						
<b>1. Change Order – Internal Estimation Acceptable Variance Policy - continued</b>	<b>Moderate</b>																						
<p>For 1 of 6 change orders tested (Change Order #5 for the Route 1 North), we noted the following:</p> <ul style="list-style-type: none"> <li>In the Notes section of the Internal Estimation Comparison sheet, we noted the following comment, "The Engineer estimate is higher than the contractor, therefore the contractor request is acceptable =7% higher than the contractor estimate." However, Change Order #5 was a deductive change order for which the inverse relationship should apply (Department's Engineer estimate should be less than the contractor estimate). Amounts are as follows:</li> </ul> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #cccccc;">Description</th> <th style="background-color: #cccccc;">Amount</th> </tr> </thead> <tbody> <tr> <td>Contractor's (Lane) Estimate</td> <td style="text-align: right;">\$ (1,468,701)</td> </tr> <tr> <td>Department's PM / Engineer Estimate</td> <td style="text-align: right;">(1,564,365)</td> </tr> <tr> <td>Difference</td> <td style="text-align: right;">\$ 95,663</td> </tr> </tbody> </table> <p>As result, the Department approved the contractor's proposed change order, despite the Department's Engineer / Project Manager's estimated credit to the County being \$95,663 higher than the contractor's estimated credit.</p> <p>Based upon interviews with Project Management, review of policies and procedures, and review of change order documentation, we were unable to determine if a formalized policy existed outlining an acceptable tolerable variance between the Project Manager's RS Means estimate and that of the Contractors. We also were unable to identify if there was a formal process for approval of these internal estimation differences above an acceptable tolerable variance.</p>		Description	Amount	Contractor's (Lane) Estimate	\$ (1,468,701)	Department's PM / Engineer Estimate	(1,564,365)	Difference	\$ 95,663														
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<b>2. Change Order – Cost Proposal Breakouts</b>	<b>Moderate</b>																						
<p>During our review of change orders for the University Boulevard Extension project, we noted there were certain categories of cost for which a sufficient breakdown of the proposed charges was not obtained. Detailed cost proposal breakdowns were obtained for the total change order amount; however, certain attributes within those breakdowns were not sufficiently detailed. For example:</p> <ol style="list-style-type: none"> <li>Change Order #22 - On the Cost Proposal Summary provided by Shirley Design/Build, LLC, the following categories of proposed cost contained descriptions only: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #cccccc;">Description</th> <th style="background-color: #cccccc;">Amount</th> </tr> </thead> <tbody> <tr> <td colspan="2"><u>Utility Allowance - Subcontracted Work</u></td> </tr> <tr> <td>Design</td> <td style="text-align: right;">\$ 21,500</td> </tr> <tr> <td>QA/QC</td> <td style="text-align: right;">15,000</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">\$ 36,500</td> </tr> </tbody> </table> </li> <li>Change Order #22 - On the Cost Estimate Summary provided by Colonial Pipeline, the following categories of proposed cost contained descriptions only: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #cccccc;">Description</th> <th style="background-color: #cccccc;">Amount</th> </tr> </thead> <tbody> <tr> <td colspan="2"><u>Engineering/Surveying</u></td> </tr> <tr> <td>Plan and estimate phase engineering support services</td> <td style="text-align: right;">\$ 61,500</td> </tr> <tr> <td colspan="2"><u>Colonial Internal Costs</u></td> </tr> <tr> <td>Expenses</td> <td style="text-align: right;">15,000</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">\$ 76,500</td> </tr> </tbody> </table> </li> </ol> <p>A detailed breakdown of proposed change order costs is considered necessary for the proper evaluation of proposed costs such as detailed hourly rates, unit prices, hours and quantities. Obtaining this breakdown enhances the reviewer / approver the ability to identify contractually disallowable, unnecessary, or unreasonable costs.</p>		Description	Amount	<u>Utility Allowance - Subcontracted Work</u>		Design	\$ 21,500	QA/QC	15,000	Total	\$ 36,500	Description	Amount	<u>Engineering/Surveying</u>		Plan and estimate phase engineering support services	\$ 61,500	<u>Colonial Internal Costs</u>		Expenses	15,000	Total	\$ 76,500
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## Executive Summary - continued

Issues	Risk Rating
<b>3. Formalization of Internal Work forces Projects</b>	<b>Low</b>
<p>The Department of Transportation utilizes Construction Services, a branch of Prince William County's Public Works department, to complete internal work forces projects. The Construction Services Branch Chief facilitates the performance of work on such projects and the Department of Transportation oversees the management of the project to verify its successful completion. The process for determining the scope, cost and schedule for these projects is currently performed through email and phone communications between the relevant Departmental personnel. During our review of the University at Progress Court project, we noted the following:</p> <ul style="list-style-type: none"> <li>• A formal Agreement or Scope of Services document was not executed between the parties.</li> <li>• While Department Project Management indicates they received and reviewed a detailed cost estimate from the Construction Services Branch Chief, a formally documented proposal including approval of the proposed costs was not developed.</li> <li>• A formal Notice to Proceed (NTP) or other initiation document was not issued.</li> </ul> <p>A formal, documented understanding of the project between parties (even those internal to the County), will assist the Department in avoiding miscommunications, errors, omissions and overruns.</p>	
<b>4. Retainage Withholding Policy</b>	<b>Low</b>
<p>During our review the Route 1 North and University Boulevard Extension projects, we noted that the Department is making progress payments in the amount earned by the contractor each month based upon the project's percentage of completion, without withholding any retainage. After the Department has paid 95% of the lump sum price, 5% of the lump sum is held as retainage, until the project reaches substantial completion and is reduced by 3% and then 2% more upon Final Acceptance, as outlined in Article 14.2.6 of their contract:</p> <p style="padding-left: 40px;"><b><i>The County shall pay (the contractor) the first 95% of the Lump Sum Fixed Price when payment is due in accordance with Section 14.2.2. The County shall retain the remaining 5% of the Lump Sum Fixed Price until (the contractor) has obtained Substantial Completion. Upon (the contractor's) achievement of Substantial Completion the County shall increase payments to 98% of the Lump Sum Fixed Price following submission of a Draw Request in accordance with Article 14.2.2. The County shall retain the remaining 2% of the Lump Sum Fixed Price until (the contractor) has achieved Final Acceptance.</i></b></p> <p>We noted that this contractual guidance is in compliance with the Virginia Statutes §2.2-4333. However, the above contract language conflicts with the Department's procedural guidance outlined in the Process 2.3.5 flow chart which states that the Department is to deduct 5% retainage from each request for payment, subject to project manager recommendation subsequent to 50% completion. While current practice is compliant with the Department's contractual language; payment in full of the first 95% of the project is not compliant with the Department's procedural guidance. Further, lack of retainage throughout the duration of the project (up until 95% complete) reduces the Department's financial leverage against the Contractor in the event of a potential claim or disagreement (prior to the achievement of substantial completion). Withholding retainage from project inception provides the Department with financial leverage to help ensure the project is completed timely and according to plans and specs.</p>	

# Executive Summary - continued

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## **Best Practices**

During the course of our review, we identified various opportunities for process improvement that if implemented will help align the Department with best practices and standards in the industry. The following section provides a summary of each item identified by process.

### **1. Comprehensive Closeout Package**

During our review of the Close-Out process for road construction projects, we noted that the Department is currently responsible for the execution / completion of 2 project closeout checklists; the VDOT *Check List for Street Acceptance Paper Review in Prince William County* and the Department's internal *Performance OCA Closure Checklist*.

Additionally, we noted that supporting documentation evidencing the completion of certain tasks within the Department's *Performance OCA Closure Checklist* is not attached. (Example: final pay applications, VDOT acceptance forms, etc.)

A comprehensive closeout package that includes all checklists and relevant supporting documents will assist the Department in ensuring all closeout procedures are completed and can help prevent inefficiencies in the closeout review process.

### **2. Consistency in Notice to Proceed (NTP)**

During our review of the Route 1 North and University Blvd Extension projects, we noted a lack of consistency with respect to the use of Notices to Proceed (NTP). The contractor for the Route 1 North project was issued a formal NTP document while the contractor for the University Boulevard Extension project was instructed to proceed on the basis of the executed construction contract with no formal NTP.

Section 12.4(f) of both the University Boulevard Extension and Route 1 North contracts state:

*Execution of this Agreement by the County shall constitute the Notice to Proceed with design and construction of the Project pursuant to the Design-Build Contract*

While the Department is compliant with the terms of the contract, consistency of procedure is important to maintain common understanding between the Department and its 3<sup>rd</sup> party contractors. Consistency in the initiation of project construction can help prevent unscheduled or unauthorized commencement of work as well as scheduling delays or conflicts.

## **Background**

# Background

## Overview

The mission of the Prince William County Department of Transportation is to consistently improve the transportation network and meet the needs of its growing community. The Department's goals include easing the flow of traffic and improving travel within Prince William County; providing transportation options for residents and visitors and creating and maintaining safe traveling conditions. In order to meet these goals, the Department works with a wide variety of local, regional, state and federal partners. In addition, the Department manages Capital Improvement Projects and works with the Board of County Supervisors to find effective solutions that resolve transportation issues.

The DOT represents 2.7% of the overall FY14 budget. A specific expenditure and revenue summary for the last three fiscal years has been included below. Funds for the actual construction portion of capital projects are typically a pass-through and are not reflected in these totals.

## EXPENDITURE AND REVENUE SUMMARY

	FY 12 Approp	FY 12 Actual	FY 13 Adopted	FY 14 Adopted	% Change Adopt 13/ Adopted 14
<b>A. Expenditure by Program</b>					
1 Administration	\$447,576	\$361,661	\$80,596	\$80,136	-0.57%
2 Capital	\$344,402	\$255,849	\$460,822	\$409,074	-11.23%
3 Planning and Programming	\$4,376,029	\$4,180,849	\$4,124,492	\$4,252,188	3.10%
<b>Total Expenditures</b>	<b>\$5,168,007</b>	<b>\$4,798,359</b>	<b>\$4,665,910</b>	<b>\$4,741,399</b>	<b>1.62%</b>
<b>Total Designated Funding Sources</b>	<b>\$1,194,595</b>	<b>\$1,614,602</b>	<b>\$1,160,104</b>	<b>\$1,580,674</b>	<b>36.25%</b>
<b>Contribution To/(From) Reserves &amp; Retained Earnings</b>	<b>(\$1,315,493)</b>	<b>(\$1,000,069)</b>	<b>(\$1,099,746)</b>	<b>(\$514,675)</b>	<b>-53.20%</b>
<b>Net General Tax Support</b>	<b>\$2,938,851</b>	<b>\$2,464,621</b>	<b>\$2,690,884</b>	<b>\$2,987,873</b>	<b>11.04%</b>
<b>Net General Tax Support</b>	<b>56.87%</b>	<b>51.36%</b>	<b>57.67%</b>	<b>63.02%</b>	

**Source:** Prince William County Department of Transportation FY14 Budget

The DOT is composed of three primary programs: 1) Administration, 2) Capital, and 3) Planning and Programming.

**Administration** provides overall leadership and management oversight for all Department of Transportation activities. Additionally, Administration reviews all major policy issues, financial transactions, Board of County Supervisors (BOCS) reports, County Executive generated tracker reports and interfaces with executive management and the citizens of Prince William County on issues within the department.

**Capital** has 3 primary activities/services: 1) Transportation and Roadway Improvement Program ("TRIP"), 2) Right of Way Acquisition, and 3) Road Design and Construction.

1. The **TRIP** activity/service is responsible for the design and management for construction of small scale improvements to County roadways. Funds for the improvement projects are provided by the Capital Improvement Program and are divided equally between the seven magisterial districts.
2. The **Right of Way Acquisition** activity/service involves acquiring property for all road projects and provides assistance and support for other County land acquisitions as requested. Costs in this activity are fully recovered from capital projects.
3. The **Road Design and Construction** activity/service provides project management for all roadway projects and County/State agreement projects funded by the State. The service includes oversight of each project from its inception to its acceptance as a completed roadway into the Virginia Department of Transportation system. Costs in this activity are fully recovered from capital projects.

## Background - continued

**Planning and Programming** has 5 primary activities/services: 1) Plan Review, 2) Inspections, 3) Traffic Safety, 4) Street Lighting, and 5) Regional Planning.

1. The **Plan Review** activity/service is responsible for providing transportation planning, site review and geographic information system/plan review for project plan submissions. The funding for this activity is provided by development fees.
2. The **Inspection** activity/service is responsible for transportation inspection and material testing, enforcement of the transportation element of the Comprehensive Plan and section 600 of the Design & Construction Standards Manual, as well as comply with the comprehensive agreement with VDOT for road inspections. The funding for this activity is provided by development fees.
3. **Traffic Safety** provides traffic safety planning and site review for Prince William County.
4. Planning and Programming provides **Street Lighting** throughout the County, including coordination of streetlight installation and maintenance with citizens, members of the Board of County Supervisors (BOCS) and electric companies.
5. Planning and Development provides representation at the **Regional Planning** level for Prince William County.

The following full-time equivalent (FTE) information for the 3 programs is contained below:

### FTE BY PROGRAM

	FY 12 Adopted	FY 13 Adopted	FY 14 Adopted
1 Administration	0.40	0.40	0.40
2 Capital	33.07	30.57	30.57
3 Planning and Programming	19.33	19.83	19.83
<b>Full-Time Equivalent (FTE) Total</b>	<b>52.80</b>	<b>50.80</b>	<b>50.80</b>

**Source:** Prince William County Department of Transportation FY14 Budget

### Internal Work forces Projects

The Department of Transportation can make the decision to complete a project using the County's internal labor force rather than 3<sup>rd</sup> party contractors. The decision to execute a project in such a manner is predicated on a multitude of factors including, but not limited to:

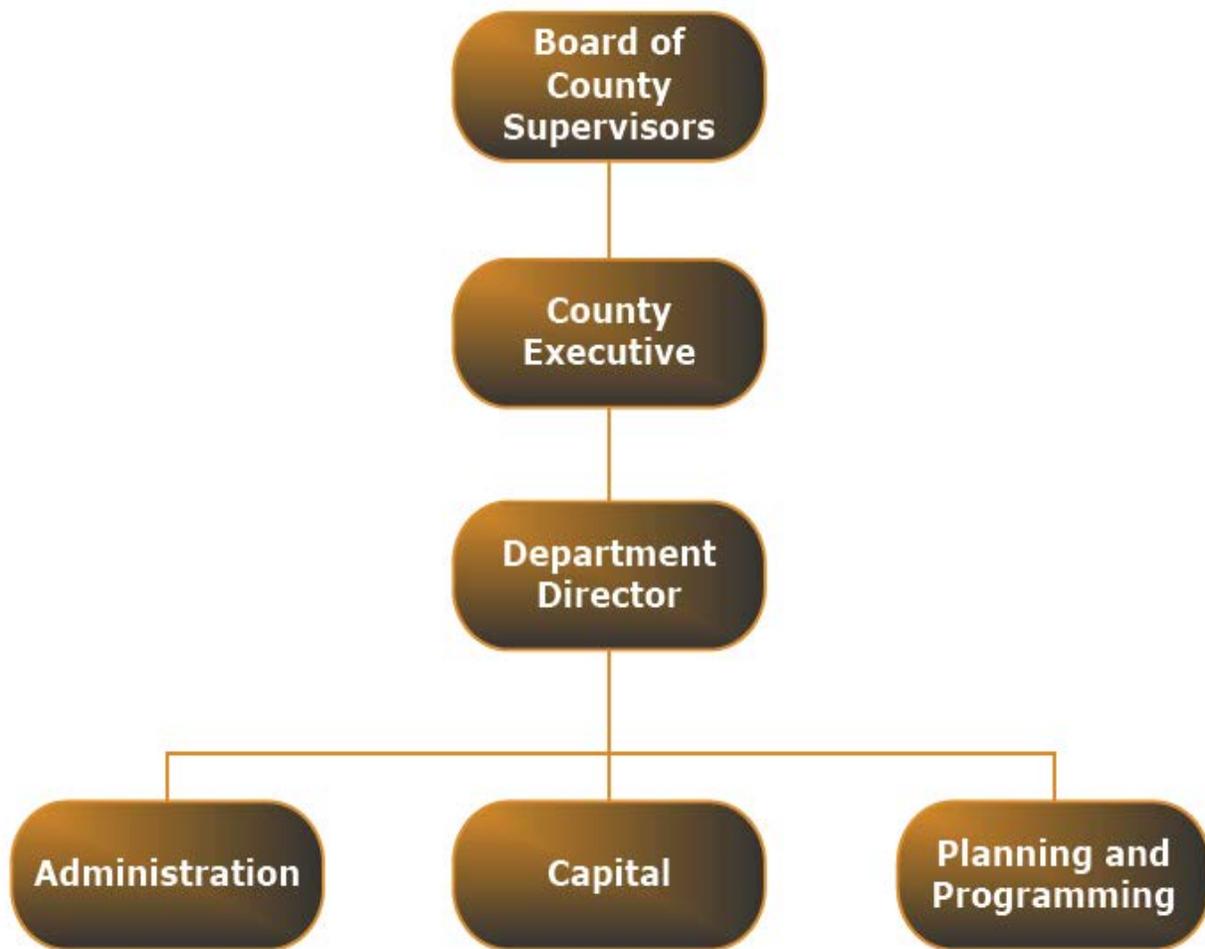
- Time constraints,
- Degree of difficulty, and
- Size/scope of the project.

The Capital Projects Division Chief and the Capital Projects Construction Manager are primarily responsible for determining whether a project is to be completed with internal work forces. The Department of Transportation utilizes Construction Services, a branch of Prince William County's Public Works department, to complete internal work forces projects. The Construction Services Branch Chief facilitates the performance of work on the internal work forces projects and the Department of Transportation oversees the overall management of the project to verify its successful completion.

## Background - continued

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### Department of Transportation – Organizational Chart



**Source:** Prince William County Department of Transportation FY12 Adopted Budget

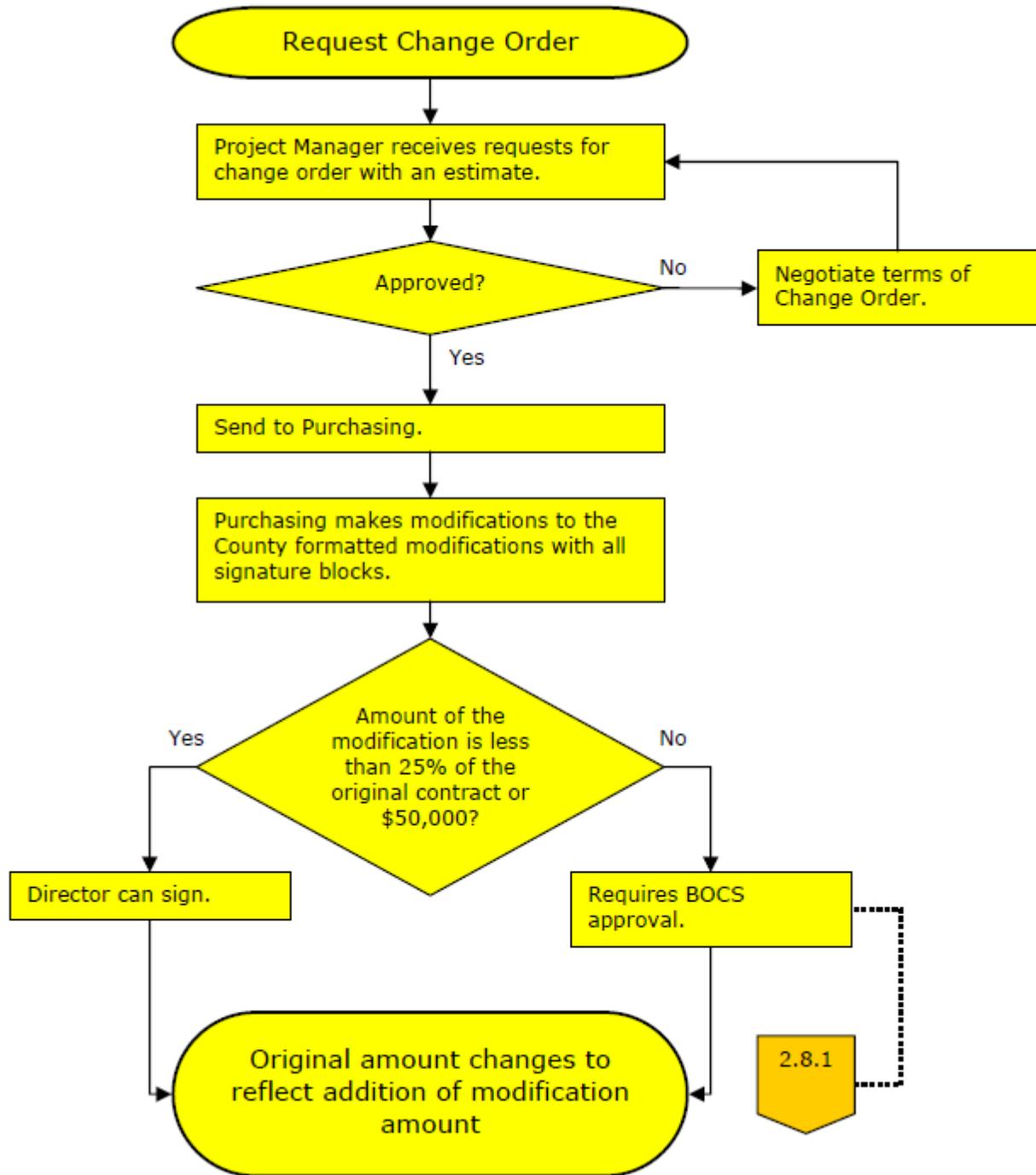
#### Sub Processes

The following section of our report includes flowcharts developed by the Department for each of the six sub processes within the scope of this review:

- Process 2.3.2 – Change Orders
- Process 2.3.3 – Request for Payment (Pay Applications)
- Process 2.3.5 – Withholding and Releasing Retainage
- Process 2.3.9 – Construction (Roads)
- Process 2.4.4 – Virginia Department of Transportation (VDOT) Acceptance – Close-Out
- Process 2.4.8 – Accounting Close-Out

# Background - continued

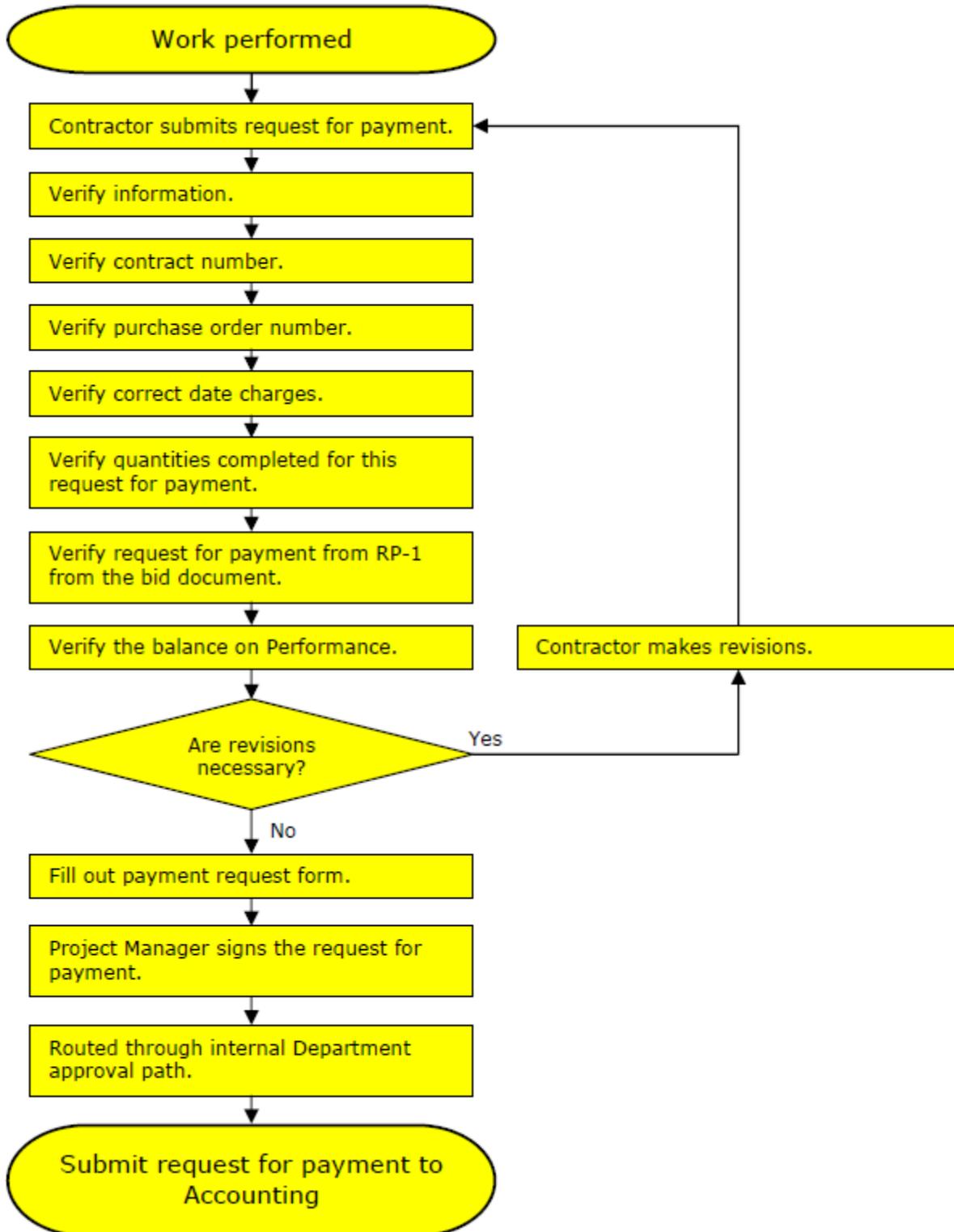
## Department of Transportation – Process 2.3.2 – Change Orders



Source: Prince William County Project Administrators Handbook (January 28, 2008)

# Background - continued

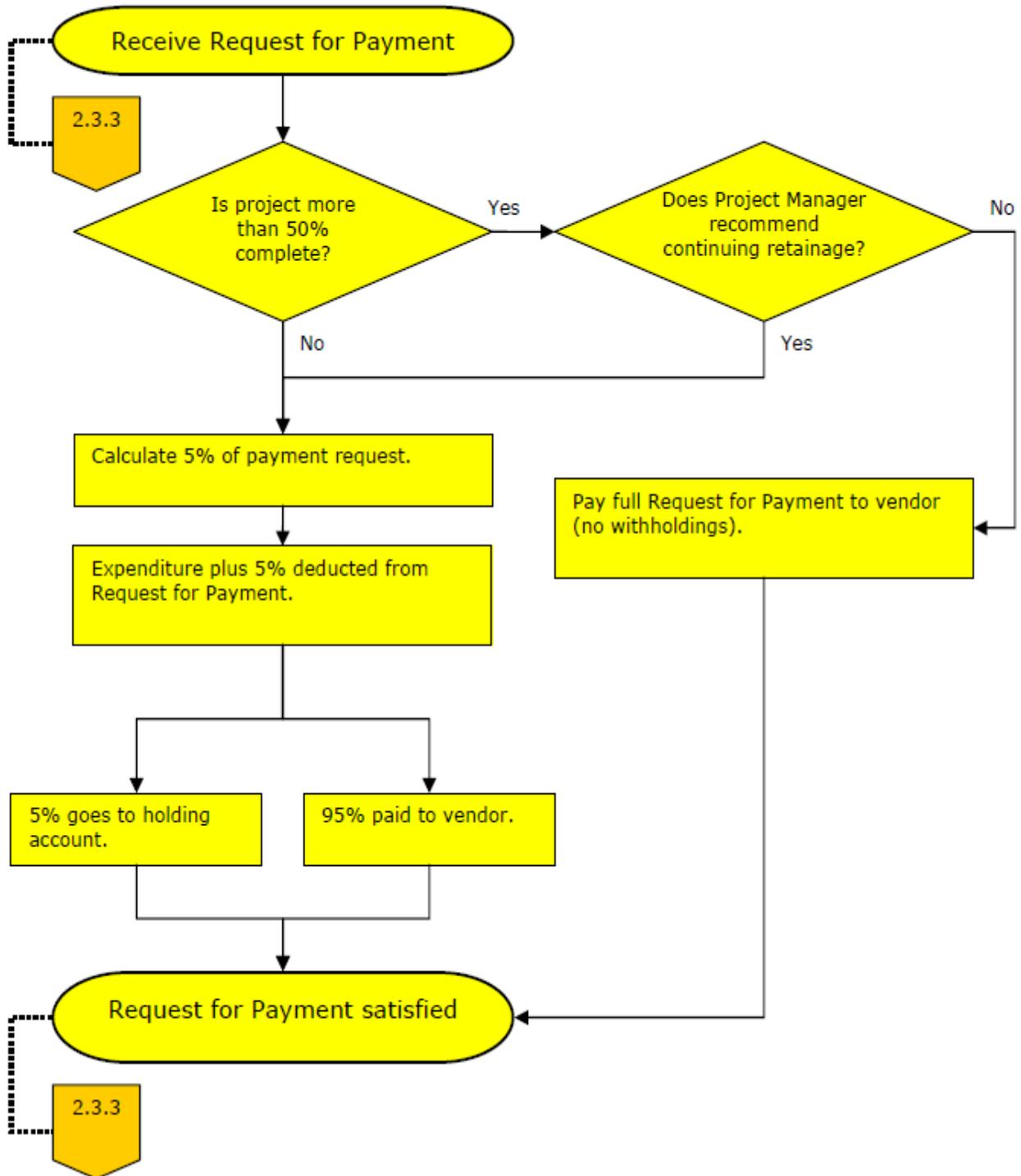
## Department of Transportation – Process 2.3.3 – Request for Payment



Source: Prince William County Project Administrators Handbook (January 28, 2008)

# Background - continued

## Withholding Retainage

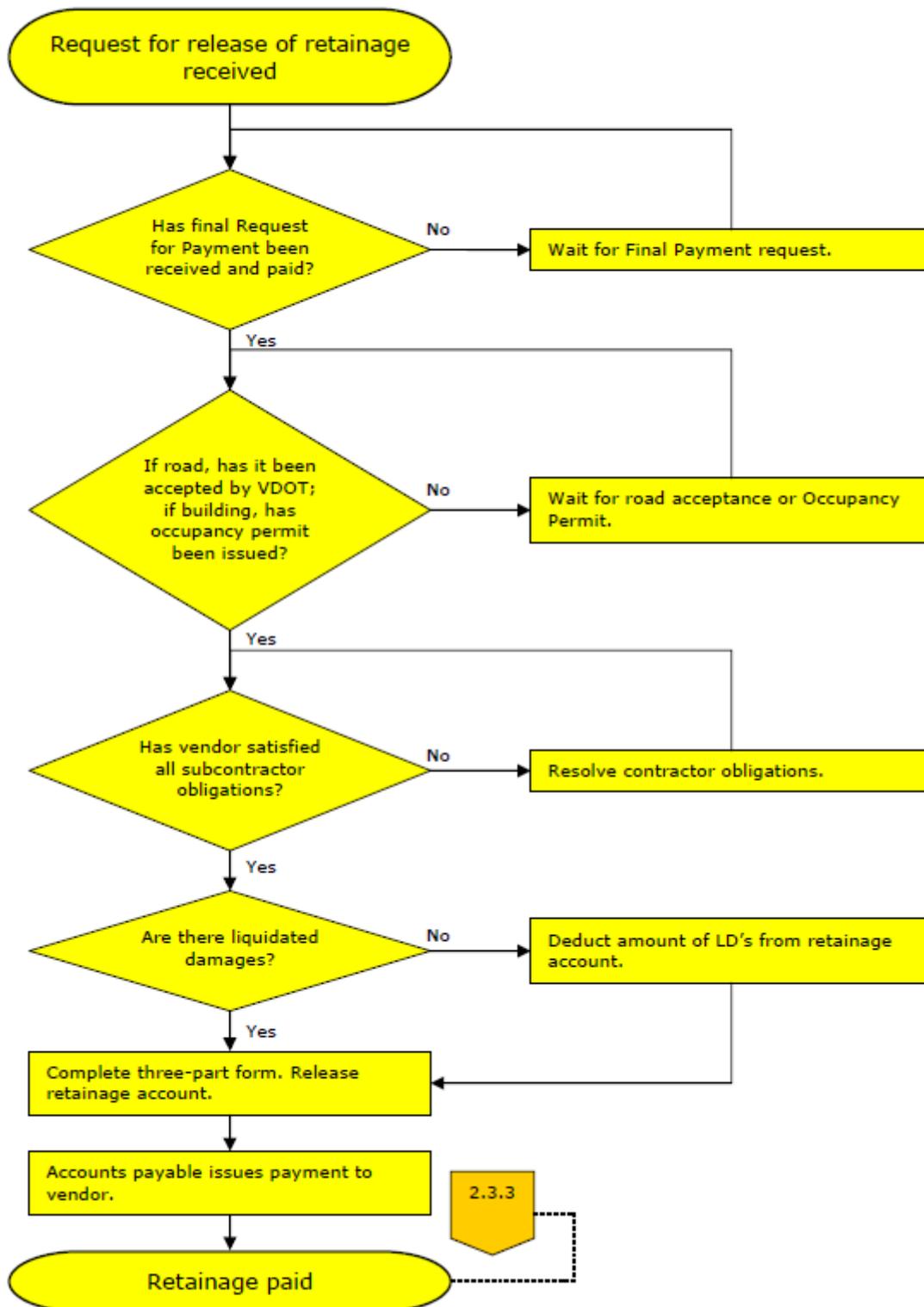


Source: Prince William County Project Administrators Handbook (January 28, 2008)

# Background - continued

## Department of Transportation – Process 2.3.5 – Withholding and Releasing Retainage

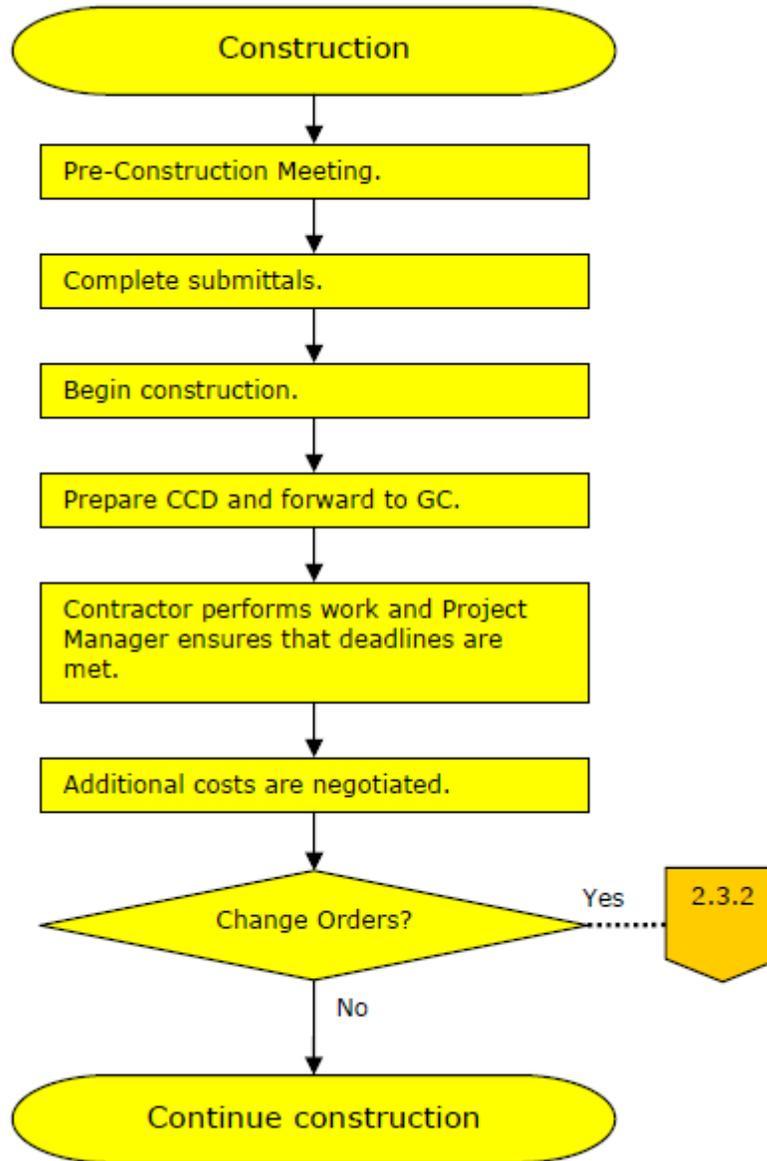
### Releasing Retainage



Source: Prince William County Project Administrators Handbook (January 28, 2008)

## Background - continued

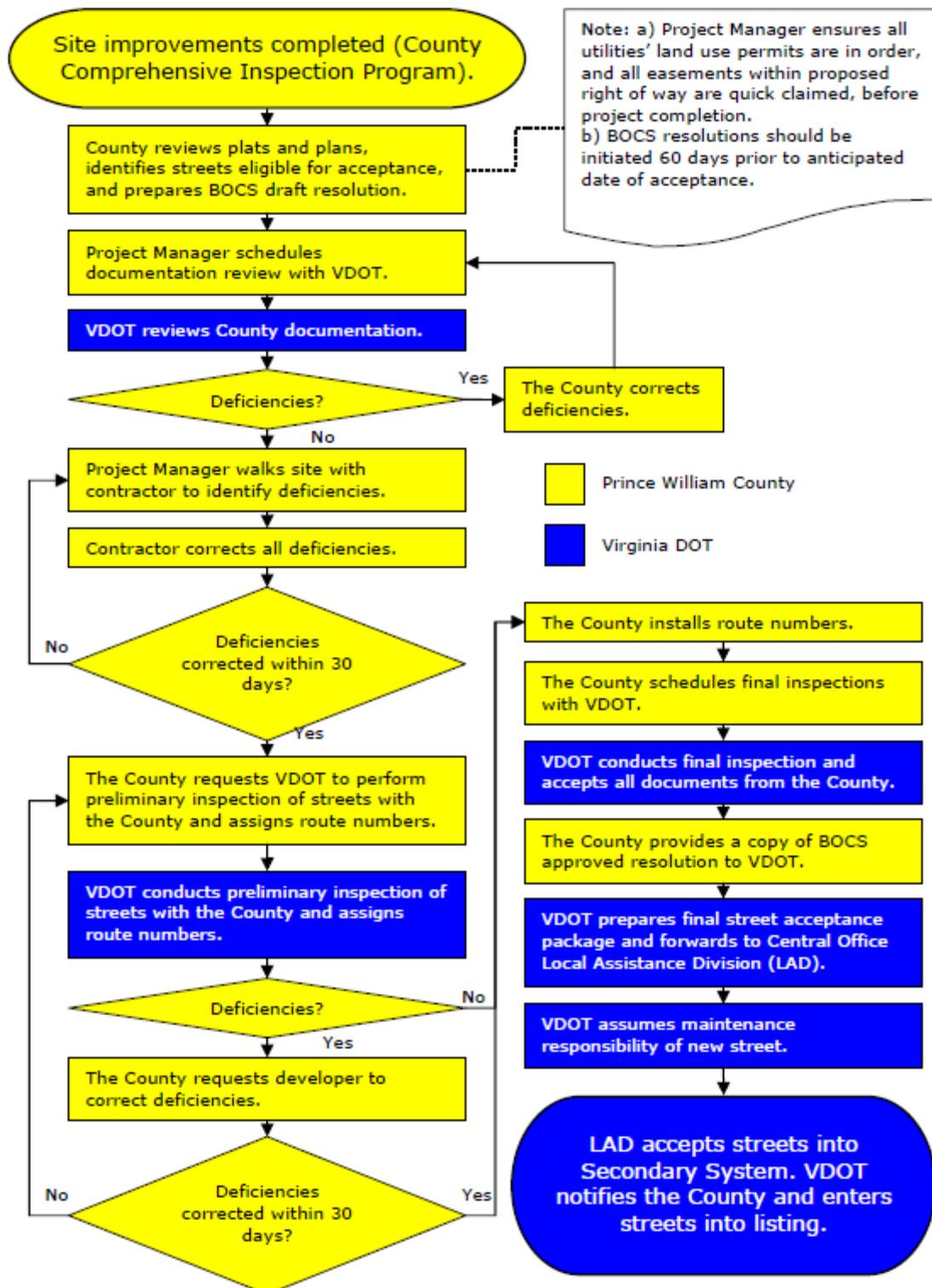
### Department of Transportation – Process 2.3.9 – Construction (Roads)



**Source:** Prince William County Project Administrators Handbook (January 28, 2008)

# Background - continued

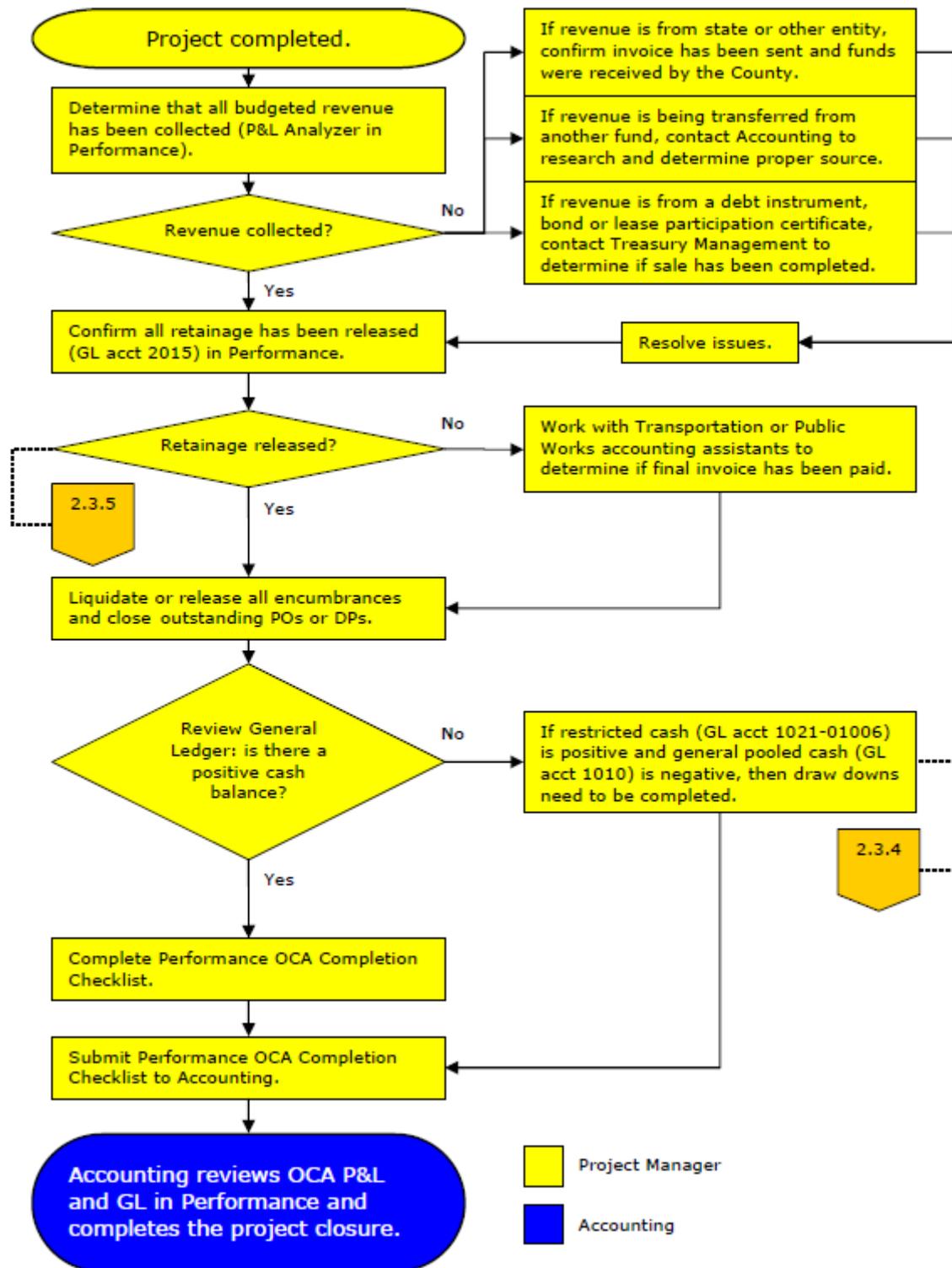
## Department of Transportation – Process 2.4.4 – VDOT Acceptance



Source: Prince William County Project Administrators Handbook (January 28, 2008)

# Background - continued

## Department of Transportation – Process 2.4.8 – Accounting Close-Out



Source: Prince William County Project Administrators Handbook (January 28, 2008)

## **Objectives and Approach**

# Objectives and Approach

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## Objectives

The objectives of this audit were to assess whether the system of internal controls over select Department of Transportation processes is adequate and appropriate for promoting and encouraging the achievement of management's objectives, identify opportunities for process and internal control improvement and identify and recommend areas for best practice. In addition to evaluating the Department's approach and policies, the internal audit and testing focused on the following sub processes:

- Process 2.3.2 – Change Orders
- Process 2.3.3 – Request for Payment (Pay Applications)
- Process 2.3.5 – Withholding and Releasing Retainage
- Process 2.3.9 – Construction (Roads)
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- Process 2.4.8 – Accounting Close-Out

## Approach

Our audit approach consisted of the following 3 phases:

### Understanding and Documentation of the Process

During this phase we conducted interviews with representatives from the Department to discuss the scope and objectives of the audit work, obtained preliminary data, and established working arrangements. We also obtained copies of standard operation procedures manuals and other documents deemed necessary. We reviewed the applicable State and County policies related to this internal audit. We then interviewed each individual process owner determined to be relevant to the Work Order process to obtain an understanding of their duties, identify risks, identify applicable controls, and develop our test plan.

### Detailed Testing

The purpose of this phase was to test compliance and internal controls based on our understanding of the processes selected for testing. Our fieldwork testing was conducted utilizing a sample of supporting documents for projects active in FY13 and other audit procedures to meet our audit objectives outlined above. Specific procedures performed include:

- Gained an understanding of the individual in-scope business processes and functions that are critical to the department. The team gained this understanding by conducting a facilitated session as well as individual interviews and process walkthroughs with key stakeholders.
- Review of the operations, processes and policies and procedures that govern the department.
- Selected a sample of projects to review supporting data in connection with the 6 sub processes within the scope of our review noted above. The projects selected and their contract delivery methods were as follows:
  - Route 1 North – Design-Build
  - University Boulevard Extension – Design-Build
  - Progress Court – Internal Work forces

Projects were selected for testing based upon their relative size, complexity, contract delivery method and duration.

- Performed detailed testing of a sample of source documents provided for the projects above including review of contracts (2), pay applications (6), change orders (6), withholding and release of retainage (6) and closeout support (2).
- Developed recommendations by jointly working with the Department around processes and the underlying control environment.

### Reporting

At the conclusion of this audit, we summarized our findings related to the Department of Transportation into this report. We have reviewed the results of our testing with the Director of Transportation.

**Issues Matrix**

# Issues Matrix - continued

## Process 2.3.2 – Change Orders

Rating	Issues								
<b>Moderate</b>	<b>1. Change Order – Internal Estimation Acceptable Variance</b>								
	<p>During our review of change orders, we noted that as a part of the evaluation / review process, the Department's Project Manager/Engineer compares the contractor's cost estimate to an independent cost estimate he / she prepares utilizing RS Means. RS Means is a commonly used industry benchmarking resource that provides cost data on construction materials, equipment, and labor by utilizing local market resources and national averages. This process provides the Project Manager with a useful benchmark to evaluate the contractor's proposed costs for accuracy and reasonableness.</p> <p>For 1 of 6 change orders tested (Change Order #5 for the Route 1 North), we noted the following:</p> <ul style="list-style-type: none"> <li>In the Notes section of the Internal Estimation Comparison sheet, we noted the following comment, "The Engineer estimate is higher than the contractor, therefore the contractor request is acceptable =7% higher than the contractor estimate." However, Change Order #5 was a deductive change order for which the inverse relationship should apply (Department's Engineer estimate should be less than the contractor estimate). Amounts are as follows:</li> </ul> <table border="1" data-bbox="467 873 1179 1003"> <thead> <tr> <th>Description</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Contractor's (Lane) Estimate</td> <td>\$ (1,468,701)</td> </tr> <tr> <td>Department's PM / Engineer Estimate</td> <td>(1,564,365)</td> </tr> <tr> <td>Difference</td> <td>\$ 95,663</td> </tr> </tbody> </table> <p>As result, the Department approved the contractor's proposed change order, despite the Department's Engineer / Project Manager's estimated credit to the County being \$95,663 higher than the contractor's estimated credit.</p> <p>Based upon interviews with Project Management, review of policies and procedures, and review of change order documentation, we were unable to determine if a formalized policy existed outlining an acceptable tolerable variance between the Project Manager's RS Means estimate and that of the Contractors. We also were unable to identify if there was a formal process for approval of these internal estimation differences above an acceptable tolerable variance.</p>	Description	Amount	Contractor's (Lane) Estimate	\$ (1,468,701)	Department's PM / Engineer Estimate	(1,564,365)	Difference	\$ 95,663
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Department's PM / Engineer Estimate	(1,564,365)								
Difference	\$ 95,663								
	<b>Recommendation</b>								
	<p>We recommend the Department develop and formally document policies and procedures that limit the acceptable tolerable variance between the Project Manager's cost estimate and the contractor's cost estimate. Specifically, the Department may consider the application of a dollar or percentage threshold to such variances. For example, any variance benefiting the contractor of greater than \$25,000 requires the approval of the Department Director.</p>								
	<b>Management's Response</b>								
	<p><b>Response:</b> The DOT agrees with the recommendation and currently follows the VDOT and FHWA guidelines from the Construction Directive Memorandum CD-2006-2 regarding change orders analysis. If the contractor's proposed price is no more than 10% of the submitted cost estimate it is acceptable per CD-2006-2. And if the contractor's proposed price is greater than 110% of the County's estimate the price will not be accepted without justification per CD-2006-2 (attached).</p>								

## Issues Matrix - continued

### Process 2.3.2 – Change Orders - continued

Rating	Issues
Moderate	<b>1. Change Order – Internal Estimation Acceptable Variance - continued</b>
	<p>In response to this recommendation, the DOT will prepare a flow chart document for estimation and change order analysis, in line with the state and federal guidelines, to be added to the Project Administrators Handbook.</p> <p><b>Responsible Party:</b> Capital Projects Division Chief, Khattab Shammout, PE</p> <p><b>ECD:</b> July1, 2014</p>

# Issues Matrix - continued

## Process 2.3.2 – Change Orders

Rating	Issues																										
<b>Moderate</b>	<p><b>2. Change Order – Cost Proposal Breakouts</b></p> <p>During our review of change orders for the University Boulevard Extension project, we noted there were certain categories of cost for which a sufficient breakdown of the proposed charges was not obtained. Detailed cost proposal breakdowns were obtained for the total change order amount; however, certain attributes within those breakdowns were not sufficiently detailed. For example:</p> <ol style="list-style-type: none"> <li>Change Order #22 - On the Cost Proposal Summary provided by Shirley Design/Build, LLC, the following categories of proposed cost contained descriptions only: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">Description</th> <th style="background-color: #4F81BD; color: white;">Amount</th> </tr> </thead> <tbody> <tr> <td colspan="2"><u>Utility Allowance - Subcontracted Work</u></td> </tr> <tr> <td>Design</td> <td style="text-align: right;">\$ 21,500</td> </tr> <tr> <td>QA/QC</td> <td style="text-align: right;">15,000</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right; border-top: 1px solid black;">\$ 36,500</td> </tr> </tbody> </table> </li> <li>Change Order #22 - On the Cost Estimate Summary provided by Colonial Pipeline, the following categories of proposed cost contained descriptions only: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">Description</th> <th style="background-color: #4F81BD; color: white;">Amount</th> </tr> </thead> <tbody> <tr> <td colspan="2"><u>Engineering/Surveying</u></td> </tr> <tr> <td>Plan and estimate phase engineering support services</td> <td style="text-align: right;">\$ 61,500</td> </tr> <tr> <td colspan="2"><u>Colonial Internal Costs</u></td> </tr> <tr> <td>Expenses</td> <td style="text-align: right;">15,000</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: right; border-top: 1px solid black;">\$ 76,500</td> </tr> </tbody> </table> </li> </ol> <p>A detailed breakdown of proposed change order costs is considered necessary for the proper evaluation of proposed costs such as detailed hourly rates, unit prices, hours and quantities. Obtaining this breakdown enhances the reviewer / approver the ability to identify contractually disallowable, unnecessary, or unreasonable costs.</p> <table border="1" style="width: 100%; background-color: #4F81BD; color: white;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">Recommendation</th> </tr> </thead> <tbody> <tr> <td>We recommend that as a part of its change order proposal review process, the Department require contractors to provide a detailed breakout of each cost category. This documentation should include detailed hourly rates, unit prices, hours and quantities for each category of proposed cost. Obtaining such documentation will provide the Department with the ability to scrutinize each proposed cost for reasonableness before approval.</td> </tr> </tbody> </table> <table border="1" style="width: 100%; background-color: #4F81BD; color: white;"> <thead> <tr> <th style="background-color: #4F81BD; color: white;">Management's Response</th> </tr> </thead> <tbody> <tr> <td><b>Response:</b> In response to this recommendation, in the future when working with an outside utility company not fully familiar with the local process, we will provide them with a copy of a previously prepared estimate for use as a guideline. Providing this documentation will help to facilitate obtaining the detailed breakout noted in the recommendation.</td> </tr> </tbody> </table>	Description	Amount	<u>Utility Allowance - Subcontracted Work</u>		Design	\$ 21,500	QA/QC	15,000	Total	\$ 36,500	Description	Amount	<u>Engineering/Surveying</u>		Plan and estimate phase engineering support services	\$ 61,500	<u>Colonial Internal Costs</u>		Expenses	15,000	Total	\$ 76,500	Recommendation	We recommend that as a part of its change order proposal review process, the Department require contractors to provide a detailed breakout of each cost category. This documentation should include detailed hourly rates, unit prices, hours and quantities for each category of proposed cost. Obtaining such documentation will provide the Department with the ability to scrutinize each proposed cost for reasonableness before approval.	Management's Response	<b>Response:</b> In response to this recommendation, in the future when working with an outside utility company not fully familiar with the local process, we will provide them with a copy of a previously prepared estimate for use as a guideline. Providing this documentation will help to facilitate obtaining the detailed breakout noted in the recommendation.
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# Issues Matrix - continued

## Process 2.3.2 – Change Orders - continued

Rating	Issues
Moderate	<b>2. Change Order – Cost Proposal Breakouts - continued</b>
	<p><b>Response – continued:</b></p> <p>However, it needs to be understood that the County has no ability to competitively bid the work, as this company is the sole source provider.</p> <p>There is an established process and estimate preparation guidelines by VDOT for the relocation of local utilities on all DOT projects in terms of cost responsibility and estimate preparation. Once the plan and estimate for relocation are prepared by the local utility company, they are submitted to the county project manager for review and approval before a purchase order is established. The estimates are typically detailed and thorough. The utility estimate cited in the audit report was for the relocation of impacted pipelines for a company that is not fully familiar with the local process, as they do not deal with it on a regular basis. As the sole source company for this relocation work, they prepared and submitted their estimate to the design-builder for approval. As time was of the essence, a project change order was approved for relocation.</p> <p><b>Responsible Party:</b> Capital Projects Division Chief, Khattab Shammout, PE</p> <p><b>ECD:</b> At the onset of every new project and especially during utility field inspection meeting, clear instructions will be provided to all utility companies relating to preparation of estimates and the detailed breakdown of cost required for approval. Additional language will be added to the 2.5.5 Utility relocation section. July 1, 2014.</p>

## Issues Matrix - continued

### Process 2.3.9 – Construction (Roads)

Rating	Issues
Low	<b>3. Formalization of Internal Work forces Projects</b>
	<p>The Department of Transportation utilizes Construction Services, a branch of Prince William County's Public Works department, to complete internal work forces projects. The Construction Services Branch Chief facilitates the performance of work on such projects and the Department of Transportation oversees the management of the project to verify its successful completion. The process for determining the scope, cost and schedule for these projects is currently performed through email and phone communications between the relevant Departmental personnel. During our review of the University at Progress Court project, we noted the following:</p> <ul style="list-style-type: none"> <li>• A formal Agreement or Scope of Services document was not executed between the parties.</li> <li>• While Department Project Management indicates they received and reviewed a detailed cost estimate from the Construction Services Branch Chief, a formally documented proposal including approval of the proposed costs was not developed.</li> <li>• A formal Notice to Proceed (NTP) or other initiation document was not issued.</li> </ul> <p>A formal, documented understanding of the project between parties (even those internal to the County), will assist the Department in avoiding miscommunications, errors, omissions and overruns.</p>
	<p style="text-align: center;"><b>Recommendation</b></p>
	<p>We recommend that as a part of the internal work forces project process, the following items be considered:</p> <ul style="list-style-type: none"> <li>• An agreement or scope of services document be prepared for each internal work forces project stating any agreed-upon terms and conditions between the parties as well as an outline of the scope of work to be performed.</li> <li>• The cost estimate exchanged between parties should be formalized into a document that is reviewed and approved by the Department (i.e. signature lines be added and the document be retained for future reference).</li> <li>• The cost estimate document be modified to include language stating that approval of the estimate constitutes Notice to Proceed with the work.</li> </ul>
	<p style="text-align: center;"><b>Management's Response</b></p>
	<p><b>Response:</b> In response to this recommendation, a process will be added to the Project Administrators Handbook for use of internal work forces. It will include the submission of plans and quantities to internal work forces for estimation, once estimate is received, it will be compared with the design engineer's estimate, if within the 10%, it will be accepted and funds will be transferred to the proper OCA code and an NTP will be provided.</p> <p>The Director of Transportation can make the decision to use or consider using County internal work forces for completion of county projects when the following apply:</p> <ol style="list-style-type: none"> <li>1. Has a maximum construction estimate of \$2 million</li> <li>2. Completion time is of the essence</li> <li>3. Lower degree of project complexity (no bridges or major culverts)</li> <li>4. Funded through local funds and State revenue sharing funds only</li> </ol> <p><b>Responsible Party:</b> Director of Transportation, Tom Blaser</p> <p><b>ECD:</b> July 1, 2014</p>

# Issues Matrix

## Process 2.3.5 – Withholding and Releasing Retainage

Rating	Issues
Low	<b>4. Retainage Withholding Policy</b>
	<p>During our review the Route 1 North and University Boulevard Extension projects, we noted that the Department is making progress payments in the amount earned by the contractor each month based upon the project's percentage of completion, without withholding any retainage. After the Department has paid 95% of the lump sum price, 5% of the lump sum is held as retainage, until the project reaches substantial completion and is reduced by 3% and then 2% more upon Final Acceptance, as outlined in Article 14.2.6 of their contract:</p> <p style="text-align: center;"><b><i>The County shall pay (the contractor) the first 95% of the Lump Sum Fixed Price when payment is due in accordance with Section 14.2.2. The County shall retain the remaining 5% of the Lump Sum Fixed Price until (the contractor) has obtained Substantial Completion. Upon (the contractor's) achievement of Substantial Completion the County shall increase payments to 98% of the Lump Sum Fixed Price following submission of a Draw Request in accordance with Article 14.2.2. The County shall retain the remaining 2% of the Lump Sum Fixed Price until (the contractor) has achieved Final Acceptance.</i></b></p> <p>We noted that this contractual guidance is in compliance with the Virginia Statutes §2.2-4333. However, the above contract language conflicts with the Department's procedural guidance outlined in the Process 2.3.5 flow chart which states that the Department is to deduct 5% retainage from each request for payment, subject to project manager recommendation subsequent to 50% completion. While current practice is compliant with the Department's contractual language; payment in full of the first 95% of the project is not compliant with the Department's procedural guidance. Further, lack of retainage throughout the duration of the project (up until 95% complete) reduces the Department's financial leverage against the Contractor in the event of a potential claim or disagreement (prior to the achievement of substantial completion). Withholding retainage from project inception provides the Department with financial leverage to help ensure the project is completed timely and according to plans and specs.</p>
	<b>Recommendation</b>
	<p>We recommend the Department consider modifying its construction contract template(s) to require 5% retainage to be withheld from amounts earned starting at the inception of the project, with the option to reduce retained funds via written approval from the Department. Based on our experience in the industry with comparable projects, we note that the practice of retaining 5% of the amount earned from each progress payment, starting at project inception provides the contract Owner with added financial leverage throughout the project. Finally, it should be noted that Virginia Statutes §2.2-4333 does provide for withholding retainage in this manner up to our recommended 5 %.</p>
	<b>Management's Response</b>
	<p><b>Response:</b> It is our position that current DOT practice as it relates to retainage withholding is sufficient to address McGladrey's recommended. As a result, we do not intend to modify our current practice to conform to this recommendation. The following mitigating factors are present within our current practice, and should be considered for the purposes of the evaluation of our response:</p>

# Issues Matrix - continued

## Process 2.3.5 – Withholding and Releasing Retainage - continued

Rating	Issues
Low	4. Retainage Withholding Policy - continued
	<p><b>Response - continued:</b></p> <ol style="list-style-type: none"> <li>1. Significant portions of the selection criteria of firms in innovative delivery processes such as PPTA and Design/Build are qualification based, thus, we are working with companies that are industry leaders, firms that are very low risk for default.</li> <li>2. Design-Build and PPTA contracts include the completion of multiple responsibilities such as right-of-way acquisition, utility relocations and the purchase of environmental credits, the majority of which are not directly performed by the contractor rather a payment to a third party, we felt it would be unfair to hold the traditional 5% retainage from such direct incurred costs</li> <li>3. Most importantly, all of our contracts are bonded at 100% value “performance bond” in the event of a default.</li> </ol> <p>However, we acknowledge that current practice does not follow process 2.3.5 for retainage withholding, as the arrangement for the retainage items was part of the final contract negotiations. The current Administrators Handbook process 2.3.5 “Retainage Withholding flow chart” was prepared for construction contracts awarded as the last step of project delivery using the traditional Design-Bid-Build method for delivering projects. This was the only delivery vehicle used by the county for project completions at the time the handbook was produced. The audited projects that varied from process 2.3.5 are being completed through either the Public-Private Transportation Act (PPTA) or design-build delivery process.</p> <p>We intend to update our Project Administrators Handbook to include new retainage flow chart for retainage of innovative delivery contracts to conform to our current practice. We will make certain to provide you a copy of the process as soon as it becomes available. We will endeavor to update the manual as soon as possible; however it does take coordination between multiple County agencies.</p> <p><b>Responsible Party:</b> Director of Transportation, Tom Blaser</p> <p><b>ECD:</b> As previously mentioned, the project administration handbook involves several departments in the County thus will require sometime for coordination before final adjustments to the handbook can be made. Transportation will take a lead role in coordinating this effort. In the meantime, Transportation will add language in the 2.3.5 section of the handbook for retainage associated with design-build and PPTA type delivery (Innovative delivery) projects. This can be achieved by May 1, 2014.</p>

## **Best Practices**

# Best Practices

Best Practices
<b>1. Comprehensive Close-Out Package</b>
<p>During our review of the Close-Out process for road construction projects, we noted that the Department is currently responsible for the execution / completion of two project closeout checklists; the VDOT <i>Check List for Street Acceptance Paper Review in Prince William County</i> and the Department's internal <i>Performance OCA Closure Checklist</i>.</p> <p>Additionally, we noted that supporting documentation evidencing the completion of certain tasks within the Department's <i>Performance OCA Closure Checklist</i> is not attached. (Example: final pay applications, VDOT acceptance forms, etc.)</p> <p>A comprehensive closeout package that includes all checklists and relevant supporting documents will assist the Department in ensuring all closeout procedures are completed and can help prevent inefficiencies in the closeout review process.</p>
<b>Recommendation</b>
<p>We recommend the Department consider the development of a comprehensive closeout package inclusive of OCA and VDOT closure checklist criteria as well as supporting documentation deemed relevant to support validation of the completion of the project. Upon its completion, this comprehensive package should be submitted to Department Management for review and filed for future reference.</p>
<b>2. Consistency in Notice to Proceed (NTP)</b>
<p>During our review of the Route 1 North and University Blvd Extension projects, we noted a lack of consistency with respect to the use of Notices to Proceed (NTP). The contractor for the Route 1 North project was issued a formal NTP document while the contractor for the University Boulevard Extension project was instructed to proceed on the basis of the executed construction contract with no formal NTP.</p> <p>Section 12.4(f) of both the University Boulevard Extension and Route 1 North contracts state:</p> <p style="padding-left: 40px;"><i>Execution of this Agreement by the County shall constitute the Notice to Proceed with design and construction of the Project pursuant to the Design-Build Contract</i></p> <p>While the Department is compliant with the terms of the contract, consistency of procedure is important to maintain common understanding between the Department and its 3<sup>rd</sup> party contractors. Consistency in the initiation of project construction can help prevent unscheduled or unauthorized commencement of work as well as scheduling delays or conflicts.</p>
<b>Recommendation</b>
<p>We recommend the Department consider requiring a separate NTP document be issued for all externally contracted projects going forward and that the Department's construction contract template be modified to reflect this requirement.</p>

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