



Prince William County, Virginia

Internal Audit Report

Department of Development Services: Building Development Division

March 7, 2017



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TRANSMITTAL LETTER



March 7, 2017

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

RSM US LLP
1861 International Drive
Suite 400
McLean, VA 22102
O: 252.638.5154 F: 252.637.5383
www.rsmus.com

Pursuant to the internal audit plan for fiscal year (“FY”) 2016-17 for Prince William County, Virginia (“County”), approved by the Board of County Supervisors on July 12, 2016, we hereby present the internal audit of the County’s Department of Development Services, Building Development Division. We will be presenting this report to the Audit Committee of Prince William County at the next scheduled meeting on May 9, 2017.

Our report is organized into the following sections:

Executive Summary	This provides a summary of the results of the internal audit of the Department of Development Services, Building Development Division.
Background	This provides an overview of the Department of Development Services, Building Development Division.
Objectives and Approach	The internal audit objectives are expanded upon in this section as well as a review of the various phases of our approach.
Observation Matrix	This section gives a detailed description of the observations noted during our work and recommended actions, and Management’s response including responsible party and estimated completion date.

We would like to thank the staff and all those involved in assisting our firm in connection with the internal audit of the Building Development Division.

Respectfully Submitted,

RSM US LLP

INTERNAL AUDITORS



EXECUTIVE SUMMARY

Background

Prince William County's Building Development function is managed by the Department of Development Services ("DDS"). The Building Development Division ("BDD" or the "Division") falls under the County's Department of Development Services and was the primary focus of this internal audit.

BDD is responsible for enforcing the **Virginia Uniform Statewide Building Code** for structures constructed within the County. This is accomplished through a multi-faceted compliance workflow that includes the following key processes:

- Reviewing construction plans,
- Issuing construction permits,
- Conducting building construction inspections,
- Conducting special inspections, and
- Building code enforcement.

BDD utilizes EnerGov software to assist the Division with document workflow, review / approval, and record maintenance throughout all of the key processes noted above. EnerGov was implemented in November 2014. The use of EnerGov is critical to BDD operations for streamlining processes, and providing reporting data. EnerGov also contains a public-facing ePortal, from which customers can access information related to their permits, inspections, plans, requests, and code enforcement.

Observations

The observations identified during our assessment are detailed within the pages that follow. We have assigned relative risk or value factors to each observation identified. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. There are many areas of risk to consider in determining the relative risk rating of an observation, including financial, operational, and/or compliance, as well as public perception or 'brand' risk.

Objective and Scope

The objectives of this internal audit were to review and assess the County's Building Development function and provide recommendations to consider for process improvement. Areas of focus within the Building Development function included the following key processes:

- Building Plan Review,
- Permitting,
- Building and Special Inspections, and
- Building Code Enforcement.

For each of the key processes noted above, for the calendar year 2016, we reviewed populations, compiled analytics presented herein, selected a sample of transactions and performed testing in order to complete the procedures described within this report.

The first phase of our review consisted primarily of inquiry in an effort to obtain an understanding of the Division's structure and key process workflows in scope.

In the second phase of our review, we tested compliance and internal controls based on our understanding of the processes identified during the first phase.

In the third phase of our review, we performed analytical review of the populations noted above and contacted comparable Virginia government entities to obtain plan review timeline goals as presented in the Executive Summary below.

Summary of Observation Ratings

(See page 13 for risk rating definitions)

	High	Moderate	Low
Internal Audit of the Building Development Division	-	1	2



EXECUTIVE SUMMARY - CONTINUED

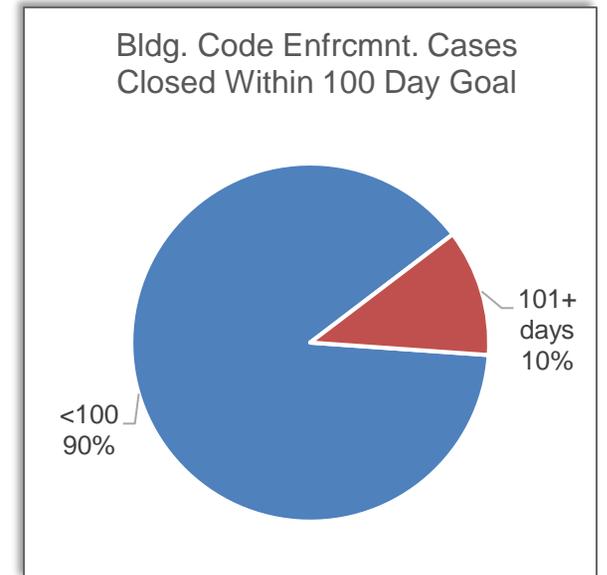
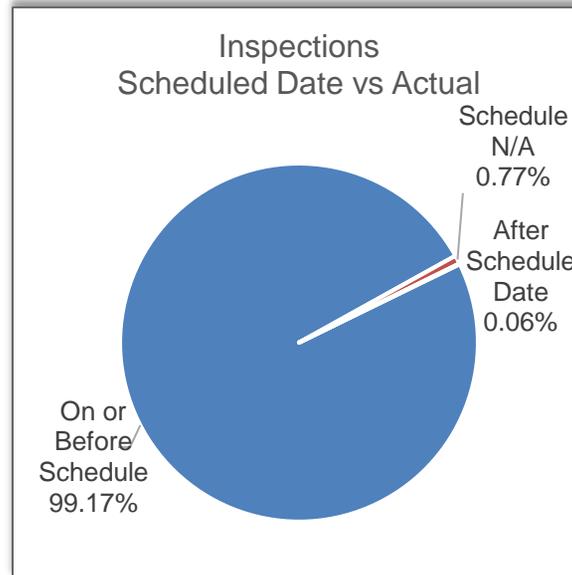
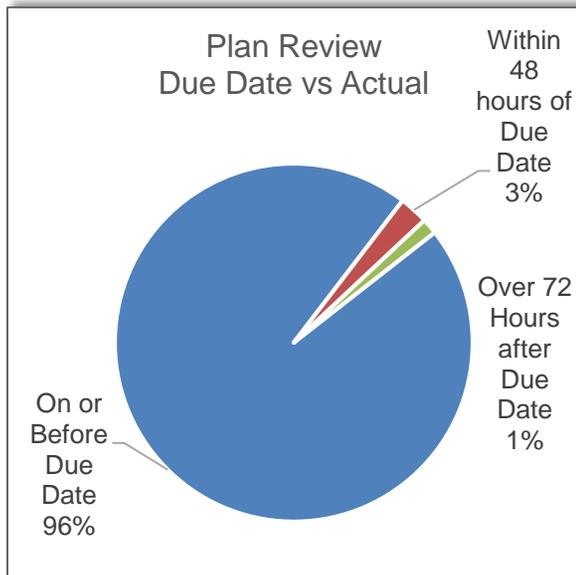
The BDD also includes a Commercial Project Management team, responsible for facilitating the transition between the compliance workflow touch points noted above. This team acts as a single point of contact through various project phases, in the interest of providing a seamless and positive customer experience.

Analytics

The following data includes the total number of transactions processed by the BDD team. Refer to the **Background** section below for a more in-depth explanation of each workflow, as well as additional data analytics.

Calendar Year 2016

Key Process	Plan Reviews	Permits Processed	Inspections Performed	Special Inspections	Enforcement Cases
Total	9,432	26,086	43,556	2,897	501





EXECUTIVE SUMMARY - CONTINUED

Plan Review Benchmarking

BDD has developed the timing matrix below, which reflects the County's due-date goals for completion of plan reviews by type. When benchmarked against other local jurisdictions, it appears that while the duration of these reviews are fairly consistent across the local market, the County has refined their goal setting process to a level of detail that is unmatched by those we contacted as a part of our procedures. By including goals at this level of detail, the County is uniquely positioned to track its progress against defined benchmarks for plan review, which provides an outstanding resource for planning, budgeting, and analysis. Plan review goals for Loudoun, Fairfax and Arlington Counties have been presented on the following page (pg. 5) of this report.

<i>Prince William County</i>			
Plan Type	Due-Date	Resubmittal Due-Date	
Non-Residential			
New Commercial	4 weeks (20 business days)	Half of initial review time, but not less than 1 week (5 business days)	
Tenant Layout	2 weeks (10 business days)		
Alteration and Repair	2 weeks (10 business days)		
Targeted Non-Residential			
New Commercial	2 weeks (10 business days)		
Tenant Layout	1 week (5 business days)		
Alteration and Repair	1 week (5 business days)		
Structures Other Than Buildings			
Retaining Walls, Ramps, Elevators, Site Lights, New Antenna Towers, etc.	2 weeks (10 business days)		
Signs, Antennas added to Existing Towers, etc.	1 week (5 business. days)		
Residential			
Single Family Dwelling (additions, etc.)	2 weeks (10 business days)		
Priority Reviews (waived plans)	1 week (5 business days)		



EXECUTIVE SUMMARY - CONTINUED

<i>Loudoun County</i>	
Plan Type	Due-Date
2 weeks, flat due-date	

<i>Fairfax County</i>	
Plan Type	Due-Date
No specified due-date	

<i>Arlington County</i>	
Plan Type	Due-Date
Commercial New Construction	15 business days
Commercial Addition	15 business days
Commercial Interior Alteration Route Through	10 business days
Commercial Interior Alteration Express	2 business days
Residential New Construction	10 business days
Residential Addition Route Through	10 business days
Residential Alteration Route Through	5 business days
Residential Addition Express	2 business days
Residential Alteration Express	2 business days



EXECUTIVE SUMMARY - CONTINUED

Observation Summary

There were three observations that were identified during our internal audit of the Building Development Division. Below includes a listing of the observations that were identified. Detailed observations are included in the observations matrix section of the report.

Summary of Observations	
Observations	Rating
1. Documentation of Inspection Quality Control Inspection Reports	Moderate
2. Plan Review Quality Control	Low
3. Performance Metrics / Key Performance Indicators	Low



BACKGROUND

DDS Mission Statement

The Department of Development Services promotes a culture where staff and customers work in partnership to create and sustain a better quality of life and environment in which to live, work, and play.

Our development services are designed to be effective and efficient, and ensure compliance with federal, state, and local regulations.

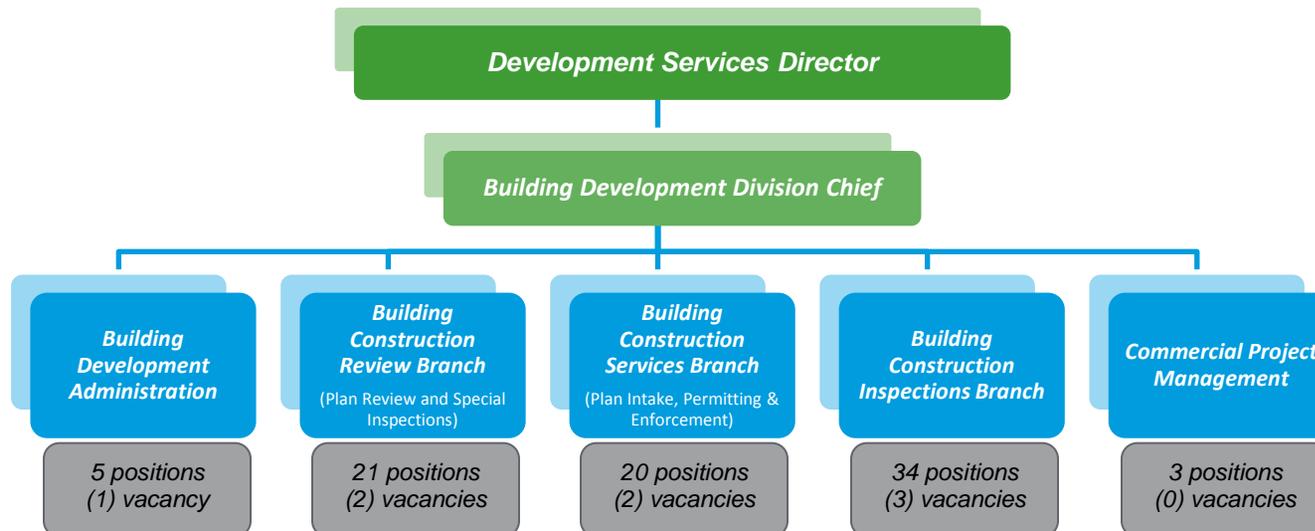
We support economic development, revitalization, infrastructure improvements, and the protection of natural resources.

Our staff provides customers the highest quality of service and respect.

We supply the public with development information through effective communication and education.

Building Development Division Overview

The BDD consists of eighty-four (84) total positions, with eight (8) currently vacant, and is organized among the following branches:





BACKGROUND - CONTINUED

Building Development Division Overview - continued

Construction Plan Review

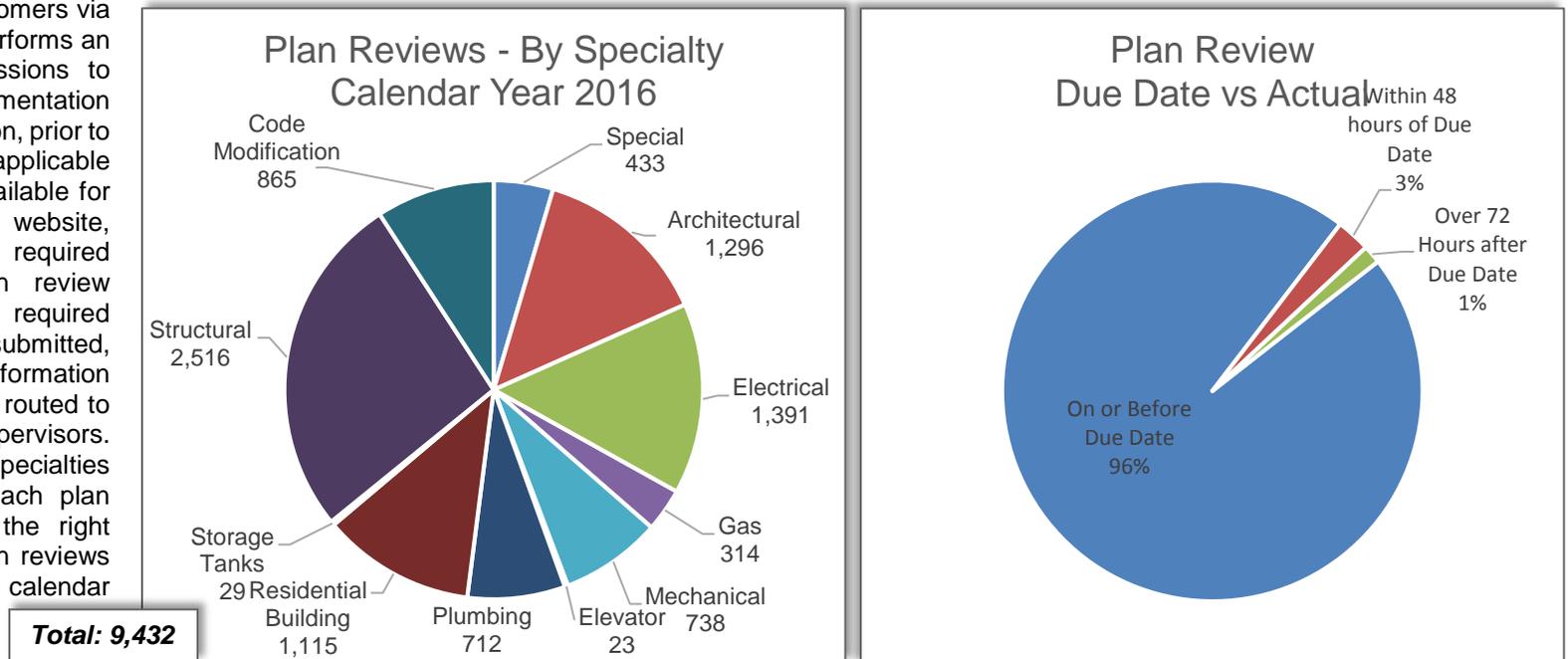
Plan reviews are completed for commercial projects prior to construction. The purpose of the plan review is to verify compliance of planned construction with applicable federal, state, and county regulations. Depending upon the type of construction, plans are categorized by the following types:

- Building Plan
- Code Mod Request
- Electrical
- Gas
- Master Building
- Mechanical
- Storage Tank
- Plumbing

The team dedicated to the plan review process consists of trained engineers and plan reviewers with specialties in one of more of the following areas:

- Architectural
- Electrical
- Elevator
- Gas
- Mechanical
- Plumbing
- Residential Building
- Storage Tank
- Code Mod
- Structural

Plans are submitted by customers via the intake counter, which performs an initial inspection of submissions to verify that all required documentation is included with the application, prior to assignment of the plan to applicable reviewers. A checklist is available for customers on the County's website, which describes the required documentation for a plan review application. If all required documentation has been submitted, the intake counter enters information into EnerGov, which is then routed to the plan review supervisors. Supervisors then assign to specialties based on the nature of each plan submitted. The charts to the right show the breakdown of plan reviews by type and specialty for the calendar year 2016:





BACKGROUND - CONTINUED

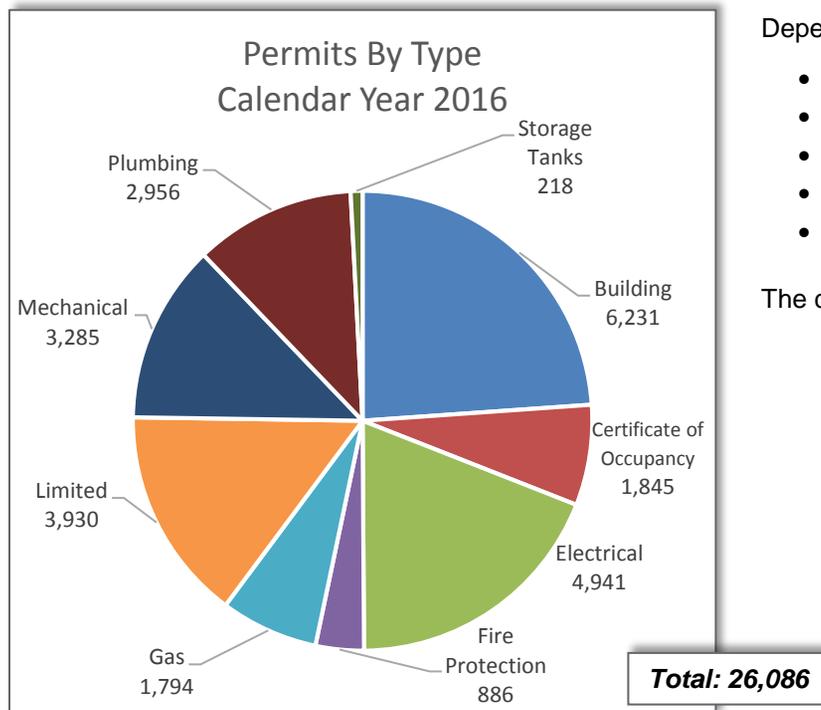
Building Development Division Overview - continued

Construction Permitting

Permits are issued as a means of tracking all ongoing projects within the County's jurisdiction and are issued for both commercial and residential projects. The issuance of permits for all projects allows the County to monitor those projects that require inspections, and helps verify that all necessary inspections will / have occurred. Permits are issued to permit holders, who must be one of the following:

- The contractor performing the work, and licensed to perform such work in the Commonwealth of Virginia; or
- An owner self-performing the work, with a signed *Affidavit of Owner*

Applications for permits are submitted by customers at the permit counter, where either contractor licenses are verified current/active, or an affidavit is collected from a self-performing owner. The staff at the permit counter review all necessary information for completeness. Customers are provided a listing of documentation required for various types of permits via the County's website. If all information is provided, the staff at the permit counter enter appropriate information into EnerGov, collect associated fees, and issue required permits.



Depending upon the type of work to be performed, permits are categorized by the following types:

- Building
- Mechanical
- Storage Tank
- Gas
- Limited
- Fire Protection
- Plumbing
- Certificate of Occupancy
- Electrical

The chart to the left shows the breakdown of permits by type for the calendar year 2016:



BACKGROUND - CONTINUED

Building Development Division Overview - continued

Construction Inspections

Construction inspections are conducted after issuance of a permit to verify that construction, as performed, is in compliance with applicable federal, state, and county regulations. Depending upon the type of construction, plans are categorized by the following types:

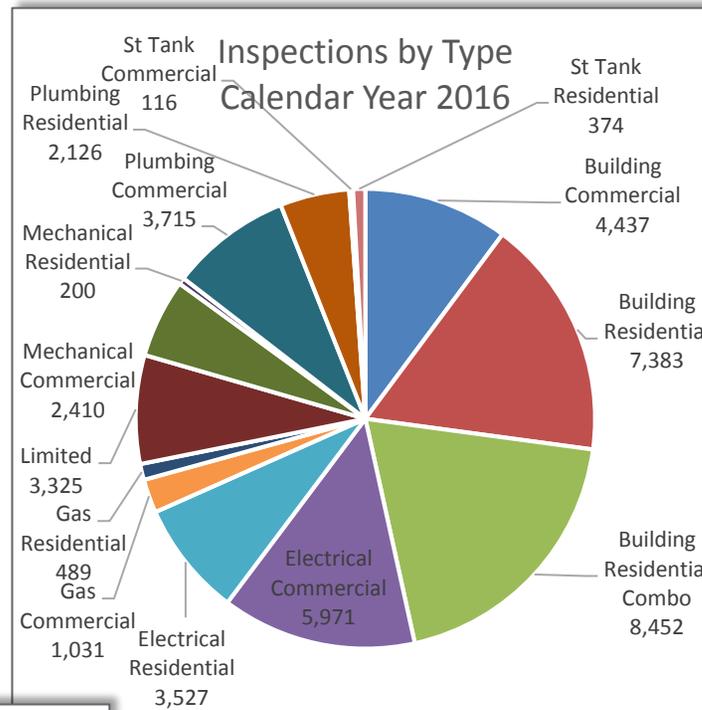
- Building Commercial
- Gas Commercial
- Plumbing Commercial
- Building Residential
- Gas Residential
- Plumbing Residential
- Building Res Combo
- Limited
- Storage Tank Commercial
- Electrical Commercial
- Mechanical Commercial
- Storage Tank Residential
- Electrical Residential
- Mechanical Residential

The team dedicated to the inspections process consists of trained inspectors with specialties in one of more of the following areas:

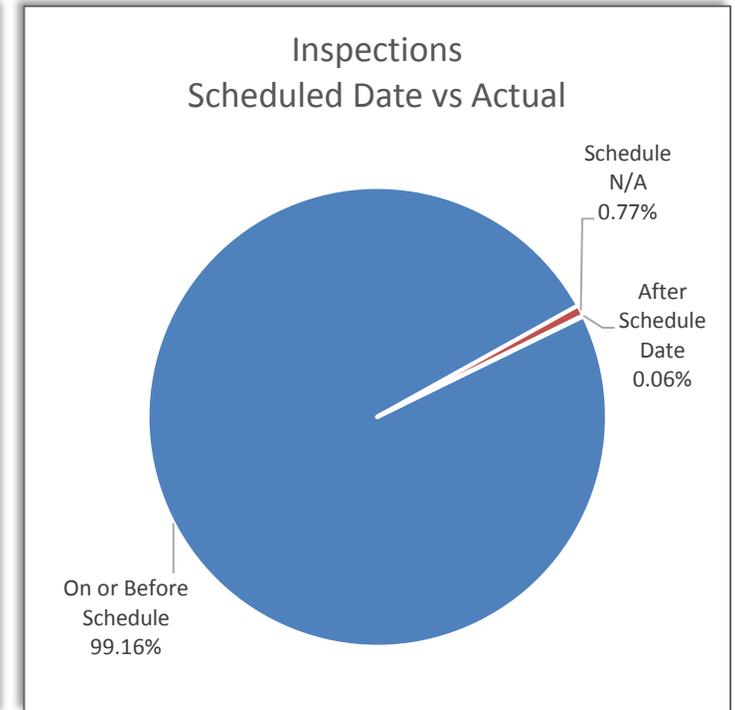
- Building
- Mechanical
- Residential (combination)
- Electrical
- Plumbing

Construction permits issued contain inspection requirements. When customers are in the process of construction, and are ready for inspection, they can request inspections through an automated system via the EnerGov ePortal, or by calling a toll-free number. Customer requests for inspection are scheduled on a first-come-first-served basis. Daily maximum inspections, by type, are contained within EnerGov, to avoid overscheduling. Each night inspections for the following day are automatically assigned to inspectors by EnerGov based on inspection type, inspector specialty, and geographical location.

The charts to the right show the breakdown of permits by type for the calendar year 2016:



Total: 43,556





BACKGROUND - CONTINUED

Building Development Division Overview - continued

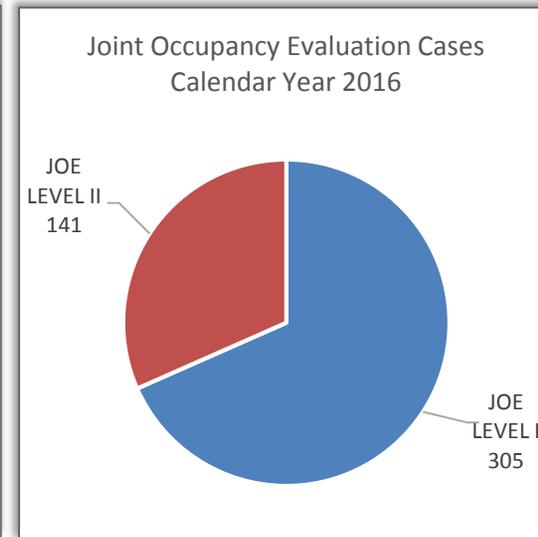
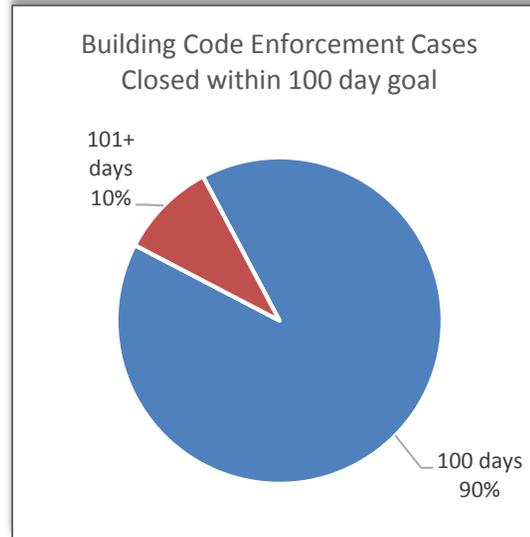
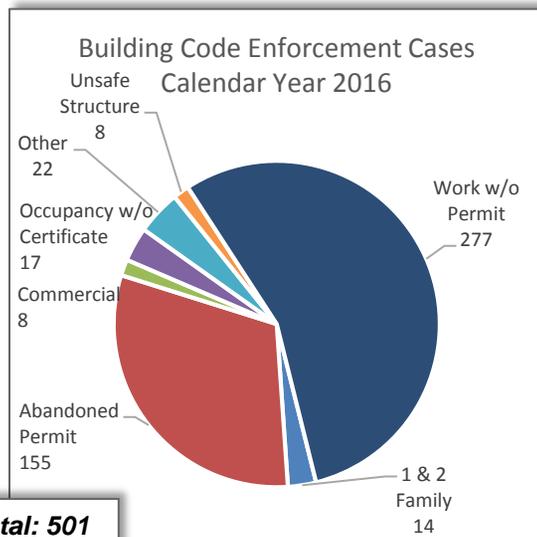
Building Code Enforcement

Building code enforcement inspections are conducted in response to concerns raised by citizens and businesses of the County. Depending upon the type of complaint, cases are categorized by the following types:

- 1 & 2 Family
- Commercial
- Occupancy W/O Certificate
- Other
- Unsafe Structure
- Work W/O Permit
- Abandoned Permit

Customer complaints can be made through various means. The administrative staff conduct an initial investigation to verify that the complaint is valid and within the County's jurisdiction. Administrative staff then enter information into EnerGov, and forward to the Building Code Enforcement Branch. Code enforcement inspectors follow up with the complainant and conduct an onsite inspection of the potential infraction. If necessary, a violation notice letter is provided to the applicable property owner. After notification, the property owner is given a timeframe to remediate the issue(s). Code enforcement inspectors conduct follow-up inspections to verify the status, either completed, or not completed. If appropriate action is not taken by the responsible party, within the specified timeframe, the enforcement case is forwarded to the Commonwealth's Attorney's Office for legal action.

The Building Code Enforcement Branch also administers the Joint Evaluation (JOE) Program, which is available to facilitate transition of tenancy/occupancy in existing commercial spaces where there is no change in application of technical code requirements. JOE level I facilitates applications where no change in the purpose or use of the space is proposed. The County provides a letter verifying the existing Certificate of Occupancy is valid for continued occupancy. JOE level II facilitates applications for a change of purpose or use of the space from a more restrictive to a lesser restrictive building use classification. For these cases, inspections under the Virginia Maintenance Code and Statewide Fire Prevention Code are required, as well as issuance of a new Certificate of Occupancy to record



the change. The JOE level II is also utilized for any request for a new Certificate of Occupancy to change the name and for special occupancies such as, but not limited to, factory or motor vehicle repair facilities that involve inherent elevated hazardous materials and/or conditions.



OBJECTIVES AND APPROACH

Objectives

The objectives of this internal audit were to review and assess the County's Building Development function and provide recommendations to consider for process improvement. Areas of focus within the Building Development function included the following key processes:

- Building Plan Review;
- Permitting;
- Building and Special Inspections; and
- Building Code Enforcement.

Key objectives related to each of the areas above included:

- Identify key controls and assess design effectiveness of key controls within the process;
- Assess operating effectiveness of the key controls identified;
- Identify control gaps and potential opportunities for process improvement;
- Using data analytics and relevant performance measures, assess key processes / controls; and
- Benchmark certain metrics with comparable Virginia government entities.

Approach

Our approach consisted of the following phases:

Phase One - Understanding and Documentation of the Process

The first phase of our review consisted primarily of inquiry in an effort to obtain an understanding of the Division's structure and key process workflows in scope. The following procedures were conducted as a part of this phase of our review:

- Conducted interviews with Management personnel to discuss the scope and objectives of the audit work, request relevant documentation, determine key departmental contacts and establish working arrangements.
- Reviewed available County policies and procedures related to the overall function or the specific processes noted above.
- Conducted follow-up interviews with key process owners in order to obtain a detailed understanding of each area's operating policies and procedures, key controls, and key performance indicators.
- Based on the information obtained through the procedures above, we developed a detailed testing, risk-based Phase Two work plan.

Phase Two - Evaluation of Process and Controls

The purpose of this phase was to test compliance and internal controls based on our understanding of the processes obtained during the first phase. The following procedures were conducted as a part of this phase of our review:

- Obtained transaction populations for each in-scope process noted above - calendar year 2016.
- Selected a sample of transactions from each population for detailed testing.
- Tested sampled transactions for conformance to the defined processes noted above, and verified that key identified controls were operating as described.
- For a sample of months, reviewed key reports utilized by Management for ongoing monitoring and evaluation of the workflows noted above.



OBJECTIVES AND APPROACH - CONTINUED

Approach - continued

Phase Three – Data Analytics and Benchmarking to Comparable Virginia Government Entities

- Performed analytical review of each population.
- Contacted comparable Virginia Government Entities and obtained comparable plan review goals as presented in the Executive Summary section of this report.

Reporting

At the conclusion of our procedures, we summarized our findings into this report. We have reviewed the results with the appropriate persons in Management, and have incorporated Management's response into the report.

Provided below is the observation risk rating definitions for the detailed observations starting on the following page.

Observation Risk Rating Definitions	
Rating	Explanation
Low	Observation presents a low risk (i.e., impact on financial statements, internal control environment, brand, or business operations) to the organization for the topic reviewed and/or is of low importance to business success/achievement of goals.
Moderate	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment, brand, or business operations) to the organization for the topic reviewed and/or is of moderate importance to business success/achievement of goals. Action should be in the near term.
High	Observation presents a high risk (i.e., impact on financial statements, internal control environment, brand, or business operations) to the organization for the topic reviewed and/or is of high importance to business success/achievement of goals. Action should be taken immediately.



OBSERVATIONS MATRIX

Observation	1. Documentation of Inspection QCI Reports
<p>Moderate</p>	<p>During our testing of Inspection Supervisors' Quality Control Inspection ("QCI") reports, we noted that QCIs are inconsistently completed and retained for historical reference. Specifically, we noted that 17 of the 28 QCI reports RSM selected for testing were not available for review. Further, we noted that some supervisors completed fewer than the 8 required QCI for 2 of the 4 months RSM selected for testing.</p> <p>As a means of ensuring that inspections are performed to an acceptable standard of quality, Inspection Supervisors are required to complete a minimum of eight QCI reports per month. During the QCI process, Supervisors re-perform previously completed inspections, and verify that Inspectors have accurately and adequately performed and documented their work. Inspection supervisors complete QCI reports on a monthly basis and provide a summary of results to the Branch Chief for compilation into a monthly report, but are responsible for maintaining the completed QCI reports individually. The results of each QCI is considered during employee performance evaluations.</p> <p>By not retaining all completed QCI reports Management may be unable to effectively recall an inspector's performance during the annual evaluation process. In addition, Management may be unable to determine whether supervisors actually completed the required number of monthly QCI reports, a key control in the current inspection process.</p>
<p>Recommendation</p>	<p>We recommend BDD maintain all completed QCI in a centralized location to allow for historical reference. In conjunction with Observation #2 above, we recommend this requirement be included in the Policy manual. This will allow for ease of retrieval in the event more detailed information is required during Management review of monthly reports and/or performance evaluations.</p>
<p>Management's Action Plan</p>	<p>Response: DDS agrees with the recommendation and will be forming a process action team to review the QCI process. This process action team will be tasked with revamping the QCI process to achieve the recommendations outlined above.</p> <p>Responsible Party: Building Construction Inspections Branch Chief, Construction Inspector Supervisors (All Trades)</p> <p>Estimated Completion Date: July 2018</p>



OBSERVATIONS MATRIX - CONTINUED

Observation	2. Plan Review Quality Control
<p style="text-align: center;">Low</p>	<p>Through discussion with Management and key process owners, we noted the following with respect to the quality control (QC) process for plan reviews:</p> <ul style="list-style-type: none"> • A quality control process is performed by the final plan reviewer, who utilizes a QC checklist developed by BDD. However, the final plan reviewer does not formally document the details or specific procedures performed during his / her review by completing and signing the checklist, or uploading the document to EnerGov. • Supervisors are responsible for assigning plan reviews to specific trades and work with reviewers to address questions as they arise; however a systematic and regularly recurring supervisory level quality control of plan reviews is not performed. <p>A robust quality control process is critical to maintain accountability and to reinforce the importance that the County's expectations of quality during the plan review process are achieved on a continuing basis.</p>
<p>Recommendation</p>	<p>We recommend the following:</p> <ul style="list-style-type: none"> • Convert the current final plan review quality control reference list to a formal checklist, complete for each case, and upload to EnerGov. All items on the checklist should be marked as either completed or not applicable, and initialed/signed by the final reviewer. • Implementation of a supervisory level quality control process. An example may include documented spot checks performed by supervisors on a recurring basis. <p>Implementation of the above will help increase accountability and reiterate the County's and Management's dedication to the overall quality of the plan review process.</p>
<p>Management's Action Plan</p>	<p>Response:</p> <p><u>Quality Control Checklist:</u> DDS agrees with the recommendation and is currently in the process of developing a QC checklist within the EnerGov application which will be electronically completed by the QC reviewer.</p> <p><u>Supervisory Quality Control:</u> DDS agrees with the recommendation and will develop a process to conduct and document supervisory quality control reviews.</p> <p>Responsible Party: Building Construction Review Branch Chief, Construction Plan Review Supervisors</p> <p>Estimated Completion Date: <u>Quality Control Checklist:</u> July 2017 / <u>Supervisory Quality Control:</u> January 2018</p>



OBSERVATIONS MATRIX - CONTINUED

Observation	3. Performance Metrics / Key Performance Indicators
<p style="text-align: center;">Low</p>	<p>We noted that there is currently not a recurring, documented process in place for Management level review of BDD performance metrics and key performance indicators (KPI). A few examples of KPIs identified during our discussions are listed below:</p> <p><u>Plan Review</u></p> <ul style="list-style-type: none"> • Total plan reviews completed each month, per FTE • Time to complete vs. goals <p><u>Permitting</u></p> <ul style="list-style-type: none"> • Permits issued each month, per FTE <p><u>Inspections</u></p> <ul style="list-style-type: none"> • Inspections completed each month, per FTE • Percent of inspections completed vs. scheduled <p><u>Code Enforcement</u></p> <ul style="list-style-type: none"> • Investigations entered / completed each month • Percent of cases closed or moved to court within 100 days <p>Although we noted that daily and weekly reports are available to supervisors for many of the metrics noted above, these metrics are not currently aggregated and utilized by Management for tracking Division-wide performance against KPI on a regular recurring basis.</p> <p>Through further discussions with Management we noted the following:</p> <ul style="list-style-type: none"> • A monthly report was previously utilized that contained many of the metrics noted above, but staffing challenges have prevented that report from being generated in recent months. • Staff are currently in the process of developing a dashboard within EnerGov that will allow Management the ability to view real-time tracking of critical KPI. <p>Consistent, documented and timely review of performance metrics and KPI is essential to give management the ability to identify trends, assess performance and progress against goals, and identify areas requiring more in-depth review.</p>

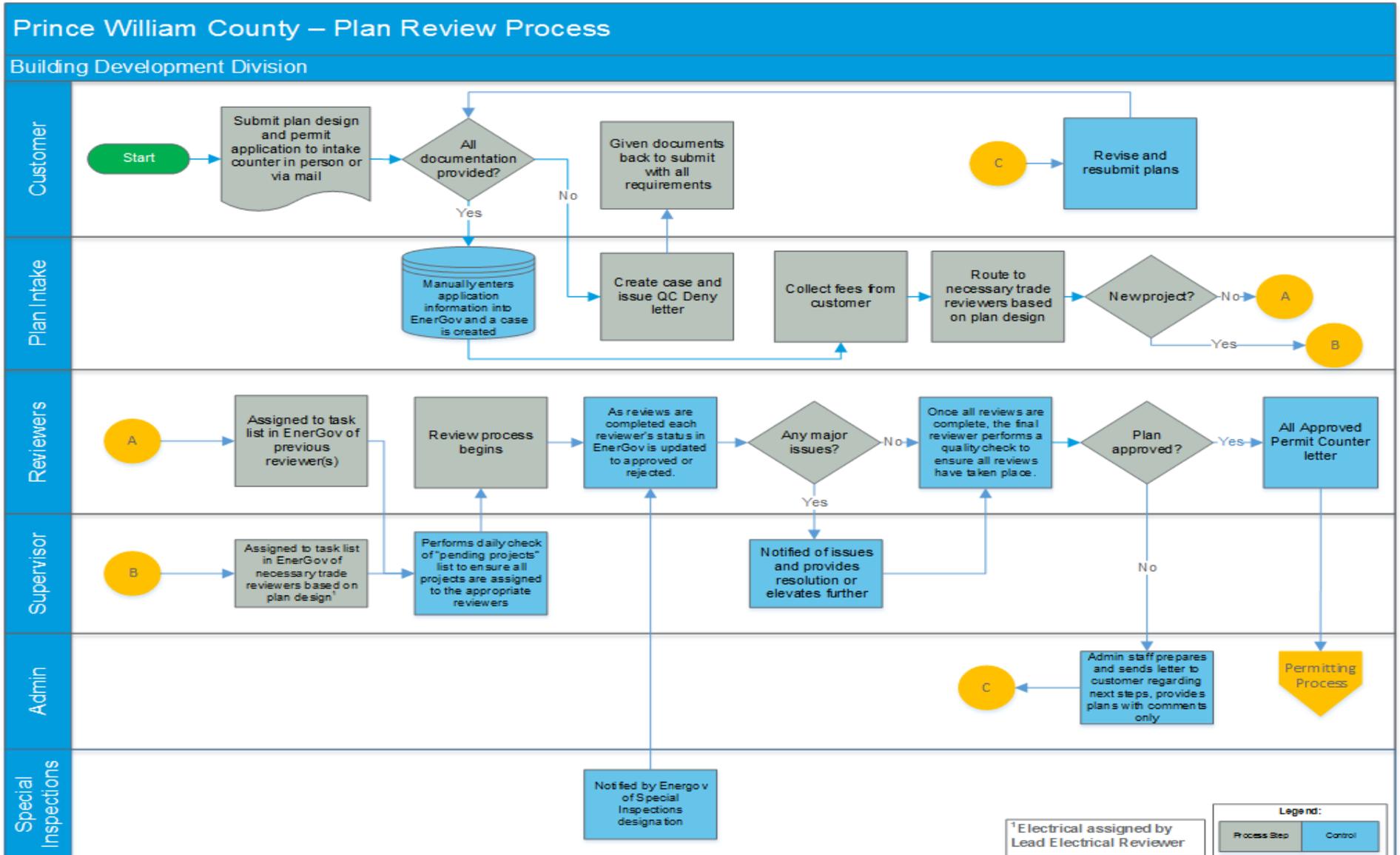


OBSERVATIONS MATRIX - CONTINUED

Observation	3. Performance Metrics / Key Performance Indicators - continued
Recommendation	As the Division continues to work toward development of an EnerGov dashboard, we recommend KPIs be identified and consistently tracked to monitor trends, assess performance, and identify potential areas of concern. Further, we recommend implementation of a process for monthly distribution of KPIs to relevant stakeholders as determined by Management. This will allow for a historical record of performance in addition to the real-time tracking available through the EnerGov dashboard.
Management's Action Plan	<p>Response: DDS agrees with the recommendation that KPIs should be consistently tracked to monitor trends, assess performance, identify potential areas of concern, and should be distributed to the relevant stakeholders. DDS staff has begun updating the previously distributed monthly report and continues to work on the development of a Dashboard using EnerGov data.</p> <p>Responsible Party: DDS Administrative Analyst</p> <p>Estimated Completion Date: : July 2017 (Monthly Report), July 2018 (Dashboard)</p>

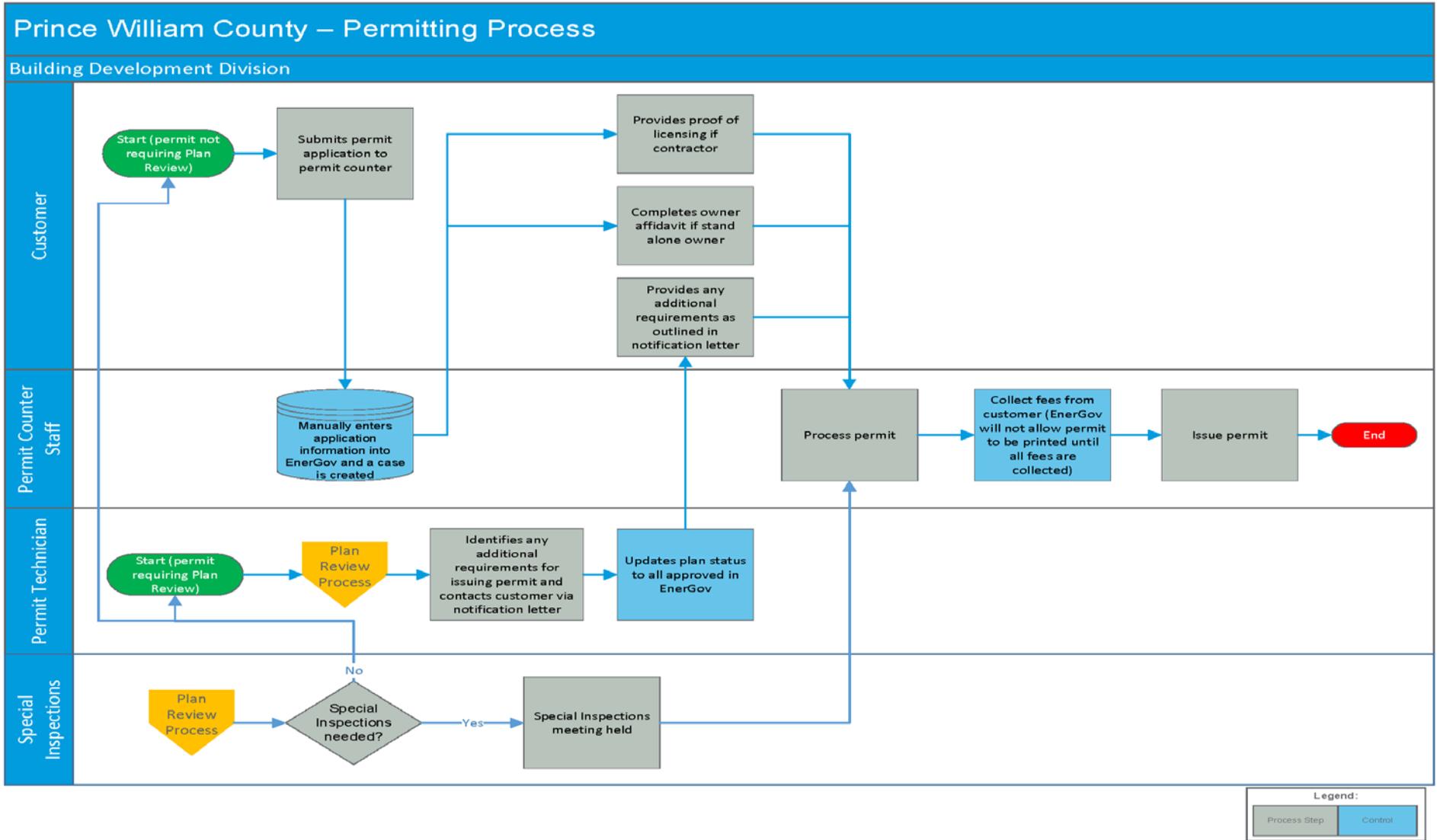


APPENDIX - FLOWCHARTS



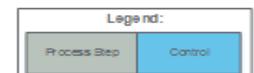
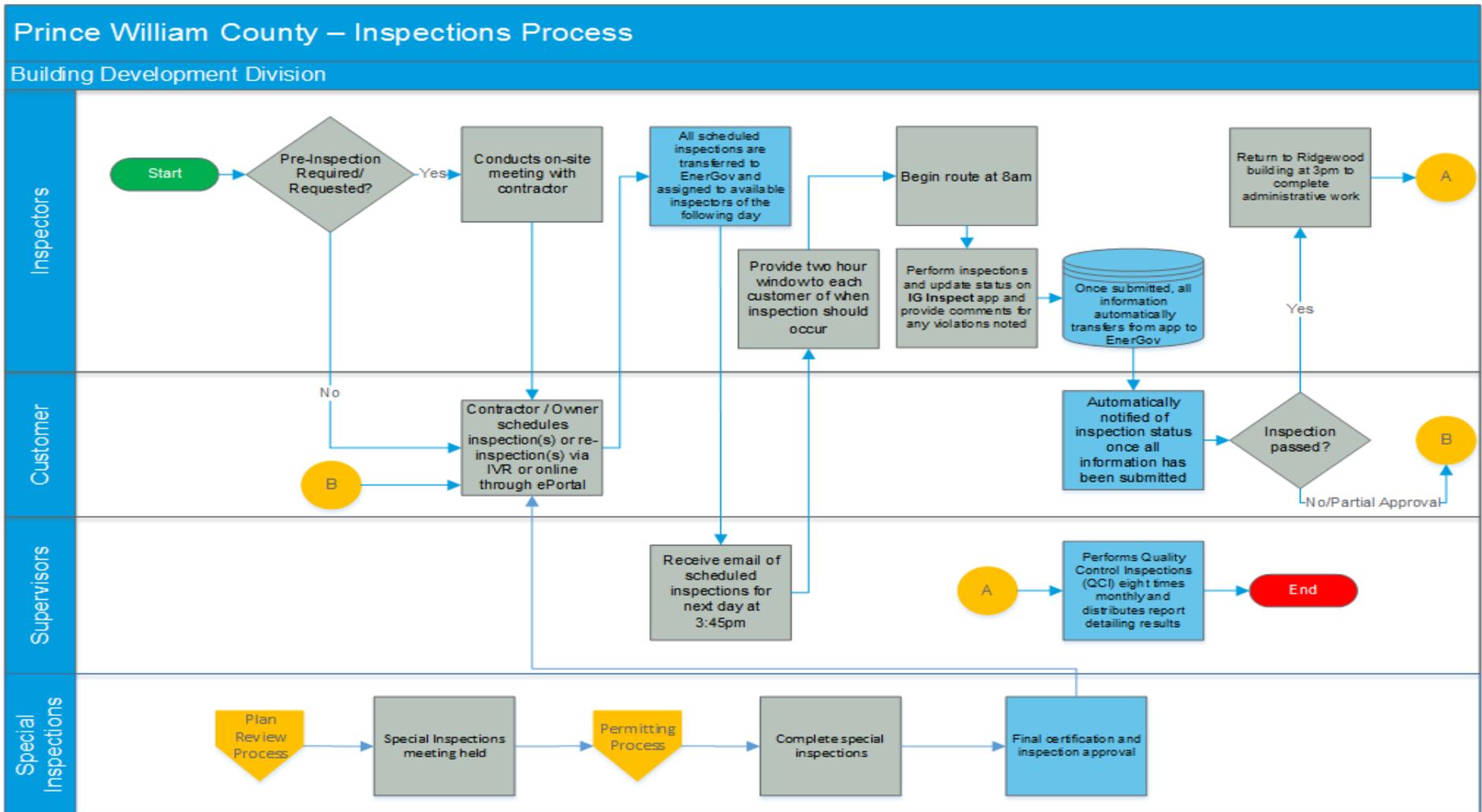


APPENDIX – FLOWCHARTS - CONTINUED



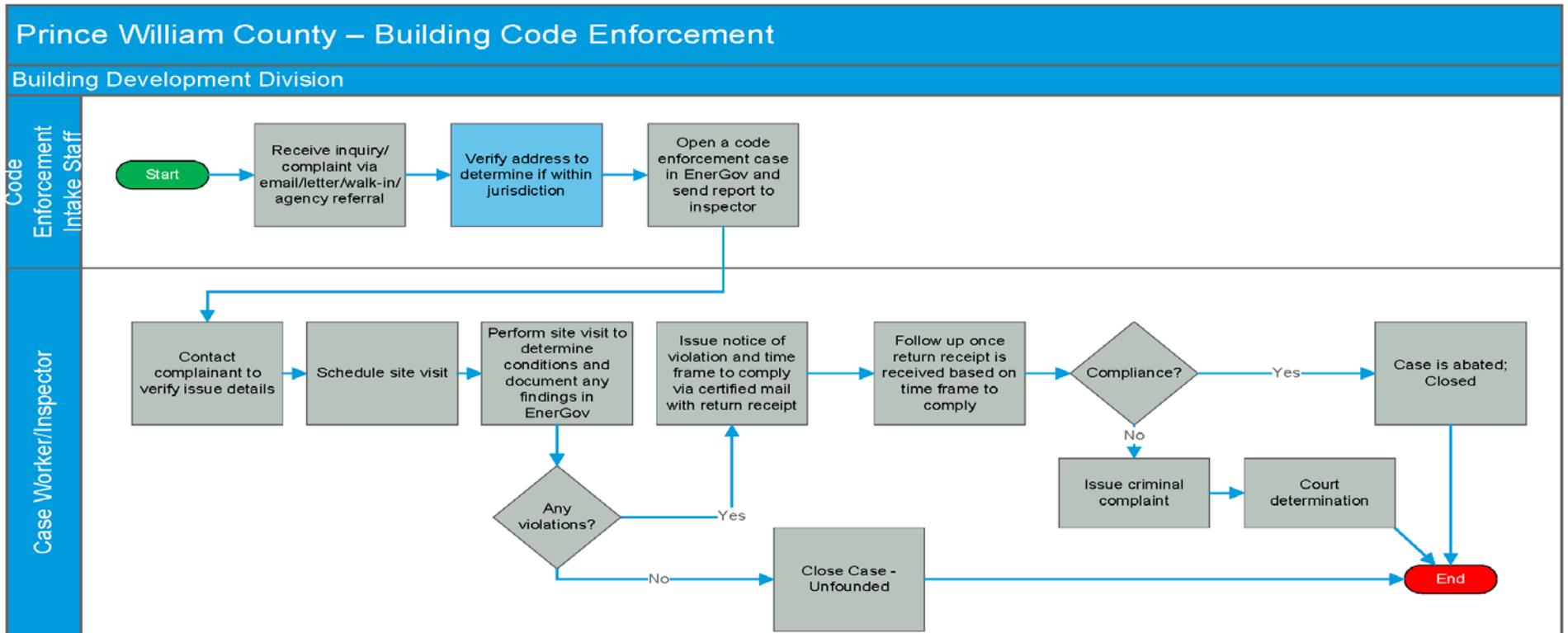


APPENDIX – FLOWCHARTS - CONTINUED





APPENDIX – FLOWCHARTS - CONTINUED





RSM US LLP
1861 International Drive
Suite 400
McLean, VA 22102
252.638.5154
www.rsmus.com

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