



PARTHENON

Prince George's County Public Schools Continuous Business Process Improvement Study: Final Report

April 2017



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Executive Summary

Background¹

Prince George's County Public Schools (PGCPS) is the nation's 19th largest school district and the second largest in the State of Maryland. The district serves a diverse student population from urban, suburban, and rural communities within Prince George's County, MD. PGCPS is home to 209 schools and centers, enrolls approximately 128,000 students, and employs over 19,000 individuals. The school system, headquartered in Upper Marlboro, MD is overseen by the Maryland State Department of Education, and is governed by a 14-member Board of Education.

The operating budget for the school system's general fund for FY16 was approximately \$1.8 billion. Local and state revenues provide the majority of support.

In April of 2015, Prince George's County released a Request for Proposals for a Continuous Business Process Improvement Study for Prince George's County Public Schools. This RFP represented a joint request from the Prince George's County Council, Prince George's County Board of Education and the Prince George's County Public Schools, to contract with an Independent Consultant for the purposes of assessing several divisions of PGCPS to identify areas of opportunity that would improve effectiveness and efficiency. Ultimately, stakeholders from Prince George's County selected a team led by Parthenon-EY for the study. The team also included Strategic Solutions Center and UPD Consulting. The team began our work in February 2016.

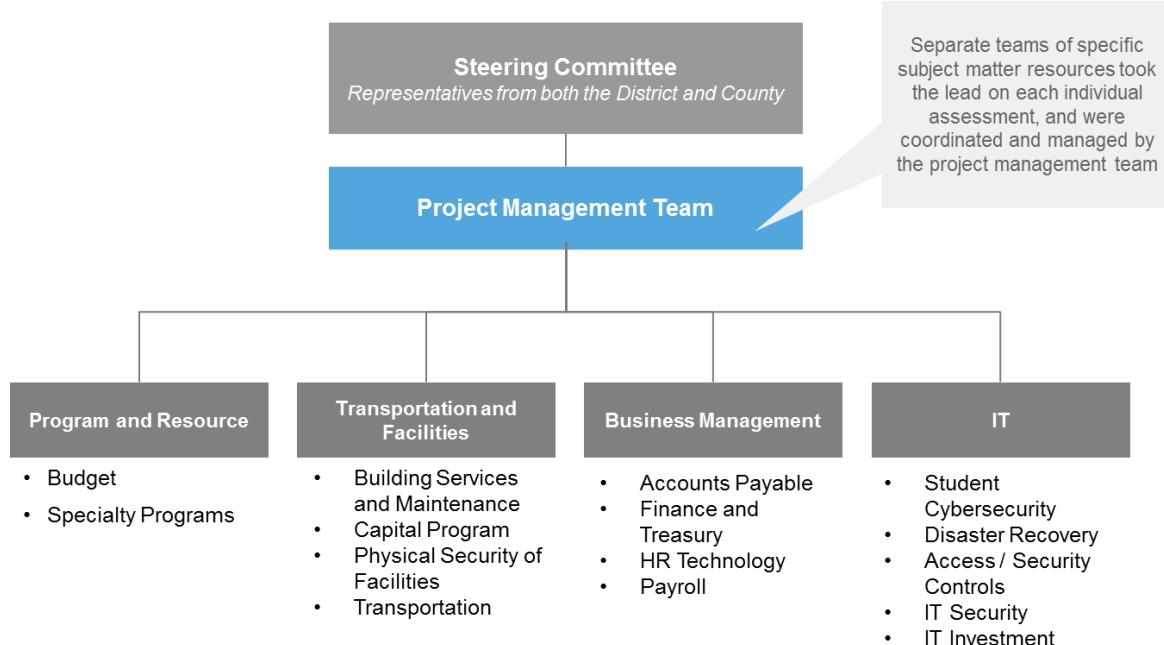
Overview of the Project Scope

The Request for Proposals (RFP) called for an analysis of business processes in fifteen different functional areas. The goals of the study were to:

- Conduct a performance assessment for each area relative to leading practice in the education sector (and beyond as applicable). Our analysis included observation of potential improvements that have already been made in recent years or that are in-progress today, compared current observations to leading practices, and identified potential opportunities for management to consider for further continuous improvement
- Within the context of a broad analysis that is focused on leading practices, our team was also asked to observe what level of leading practice appears to exist vs. specific findings, recommendations, and corrective actions included in the *Financial Management Practices Audit Report* prepared by the State Office of Legislative Audits and the *Great by Choice: Transition Team Report* prepared by the Prince George's County Public Schools. Wherever possible, we have linked our observations in these areas to the broader potential opportunities for continuous improvement that our team has identified.

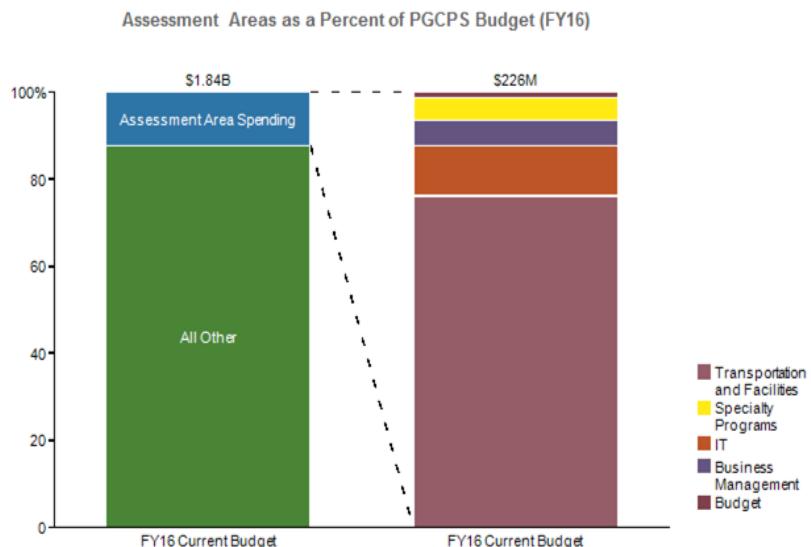
¹ Prince George's County, Maryland: Request for Proposals No S15-028, Continuous Business Process Improvement Study for Prince George's County Public Schools (Issue Date of April 7, 2015)

The structure of the project is laid out below:



The fifteen areas covered by the Project Management Office are key areas across the district as determined by management. They comprise around 12% of the PGCPS annual budget, with the largest portion going towards Transportation and Facilities. But while a small portion of the budget, these are areas with a large implication on students and families. 17% of all PGCPS students are enrolled in Specialty Programs, for example. Additionally, all students are affected by core operational systems such as transportation and building maintenance. Other areas such as cybersecurity are foundational systems that affect the district.

Below, we have provided a breakdown of the assessment areas as a percent of the total PGCPS budget:



Project Methodology

From February through July of 2016, each of the Project Teams were involved “on the ground” in Prince George’s County, utilizing a variety of methodologies to conduct their assessments within the context of a leading practices framework. Although methodologies differed from assessment to assessment, the below list represents the Key Activities performed:

- *Individual Interviews:* The teams interviewed **105** individual stakeholders across the district, with many individuals interviewed for multiple assessments.
- *Town Hall:* An April Town Hall was attended by **100+** community members who participated in focus groups on Facilities, Transportation, and Specialty Programs
- *Site Visits:* To gain deeper insights and put their findings in context, teams visited **55** schools across the district, as well as **15** non-school sites (including bus lots and administrative buildings)
- *Data Analysis:* In-depth data analysis was performed for almost every assessment. Teams collected datasets from the district (including Specialty Programs data, GPS data, invoice data, etc.) and performed analysis on the data to reveal insights for the district
- *Document Analysis:* Teams assessed over **3,500** pages of data, contracts, SOPs, etc. provided by the various Departments as part of document analyses across all assessments
- *Surveys:* Several teams conducted online surveys of principals and other staff members to gather feedback about particular issues.
- *Mapping to Leading Practices:* Teams conducted secondary research to evaluate leading practices in each individual assessment area, and then “mapped” their observations of the particular assessment area to leading practices to evaluate any potential gaps.
- *Technology Demonstrations:* Many of the teams engaged in technology demonstrations with the leaders in their particular assessment area in order to get a better understanding of how the department was utilizing technology and how it might be improved.

Overall, as a result of these methodologies, the teams were able to identify **89 potential** Key Opportunities for Further Continuous Improvement across all assessment areas.

Framework for Leading Practices Observations

This project called for an assessment of each individual area relative to “Leading Practices.” To establish a consistent approach to organizing our observations across different business processes, our team developed a Leading Practices framework. This framework looked at six categories: Systems and Workflow, People and Organization, Use of Data and Evaluation, Safety and Standards, Stakeholder Engagement, and Long Term Planning and Strategic Direction. Clearly, not every one of these categories was relevant for each assessment area. However, they provided a useful framework for thinking about what “Leading Practices” might look like and facilitating comparison of practices across otherwise disparate business processes. These categories are roughly defined below by way of a key question in each:

- **Systems and Workflow:** Do technology systems and underlying workflow potentially enable levels of efficiency and effectiveness?
- **People and Organization:** Are responsibilities within the department delineated, and does it appear able to attract quality individuals to key roles?
- **Use of Data and Evaluation:** Does the department appear to utilize data in a systematic way to identify proactive areas for improvement?
- **Safety and Standards:** Do plans/opportunities exist to anticipate, prevent, and reduce safety and standards violations that create risk for staff, students, and the district?
- **Stakeholder Engagement:** Does the department support a clear communication process with relevant stakeholders?
- **Long-Term Planning and Strategic Direction:** Does the department produce a long-term plan intended to give it a sense of strategic direction?

Additionally, certain teams, in conducting their analysis of different business procedures, relied on information and leading practice frameworks drawn from professional experience. These frameworks are more specific to the specific business area, and thus add more detail to the framework used above. In order to enable comparison across individual assessments, we then summarized our observations from all frameworks into four broad categories (Needs Significant Improvement, Needs Improvement, Approaching Leading Practices, and Reflective of Leading Practices), which reflect both the number and/or the severity/urgency of the opportunities for improvement that our teams identified.

Observation of Leading Practices Framework						
	Systems and Workflow	Safety and standards	Use of data and evaluation	People and organization	Stakeholder engagement	Long-term planning and strategic direction
Reflective of leading practices	Generally mirrors systems and processes of leading large public and private sector organizations	No safety and standards issues observed; plans noted to anticipate any future issues, and to address them before they arise	Data is aggregated in such a way that the department can self-assess, and leadership frequently uses data to make better decisions. The department appears to have a plan for consistent, formal evaluation of spending and decisions	Management indicates that a governance structure exists and is adhered to. Department is reported as "place to work" in the district and is thus able to recruit high quality individuals to fit open roles	Communication processes with stakeholders appear to be established and adhered to. Stakeholders demonstrate an understanding of what is happening in the department and in what direction the department is headed	The department produces a long-term plan explicitly tied to budget decisions that provides a sense of strategic direction. Leadership frequently appears to evaluate the plan and revise as needed
Approaching leading practices	Some systems and technology appear to exist to reduce manual processes and improve effectiveness, though observations suggest opportunities versus other large public and private sector organizations	No safety and standards issues observed, with a plan in place to address any that do arise	Data is aggregated in such a way that the department can self-assess, and leadership can make decisions about what is or is not working. Evaluations appear to happen on a periodic basis but not as a result of consistent proactive processes	Management indicates that a governance structure exists, with individuals generally adhering to the structure. There is little to no difficulty recruiting individuals to fit roles	Communication processes with stakeholders appear to be established, but not strictly adhered to. Stakeholders generally feel engaged but could have a better understanding of what leadership is doing and in what direction the department is headed	The department produces a long-term plan that gives it a sense of strategic direction. However, funding for parts of the plan may be unclear, and decisions do not always align with the plan.
Needs improvement	Systems and processes appear to exist, but are largely manual. Time spent on reactive and manual work swamps proactive and strategic efforts	Few safety and standards issues observed; processes are in place to reduce any potential issues	Data is captured in various systems (or spread across various departments), and is not consistently managed. Data-driven evaluation of spending and decisions appears to occur infrequently and inconsistently	Governance structure appears to be in place, but often not adhered to, with individuals performing responsibilities ad hoc. While there is some difficulty in recruiting, the department can generally fill positions	Communication processes with stakeholders appear to occur, but are not formally established. Stakeholders feel "in the dark" and do not have a good sense about how leadership is making decisions	The department produces some long-term plans, but they are not fully funded, are not adhered to, and are often not used to make decisions. There appears to be no process in place to reevaluate the strategy or plan when needed
Needs significant improvement	Systems and processes appear to not be defined, are administered incorrectly, or are frequently not adhered to. System compromise risks data breach or system failure	Multiple safety or standards issues observed that could result in fines or risks for the district; issues appear to have gone unaddressed	Data is stored in paper format or on individual computers rather than aggregated in a system, making data-driven evaluation difficult or impossible; no plan observed for formal evaluation of spending and decisions	Governance structure appears to be unclear, with duties unassigned to particular roles. There is severe difficulty in recruiting for roles, resulting in unfilled positions	No formal processes appear to be established for engaging stakeholders, resulting in inconsistent engagement and stakeholders who have little knowledge about what is going on in the department	The department does not appear to engage in long term planning, and there is little sense of the department's strategic direction

Leading Practices Assessment

Our assessments span the leading practices framework, but most are clustered in “Needs Improvement” or “Approaching Leading Practices.” *Note: Specialty Programs is not a “business process” and therefore does not fit this framework. Our Summary Findings on Specialty Programs are shared later in this Report.*

Focus Area	Assessment Area	Summary of Leading Practice	
Program and Resources	Specialty Programs	N/A	
	Budget	Needs improvement	See Specific Opportunities for Improvement 1.1-1.6
Transportation and Facilities	Building Services and Maintenance	Needs improvement	See Specific Opportunities for Improvement 2.1-2.9
	Physical Security of Facilities	Approaching leading practices	See Specific Opportunities for Improvement 3.1-3.10
	Capital Program	Approaching leading practices	See Specific Opportunities for Improvement 4.1-4.6
	Transportation: Routing and Efficiency	Approaching leading practices	See Specific Opportunities for Improvement 5.1-5.2
	Transportation: Pedestrian and Bus Lot Safety	Needs significant improvement	See Specific Opportunities for Improvement 6.1-6.3
	Transportation: Record Keeping and Salary Payments	Needs improvement	See Specific Opportunities for Improvement 7.1-7.4
Business Management	Accounts Payable	Needs improvement	See Specific Opportunities for Improvement 8.1-8.4
	Finance and Treasury	Approaching leading practices	See Specific Opportunities for Improvement 9.1-9.5
	HR Technology	Approaching leading practices	See Specific Opportunities for Improvement 10.1-10.3
	Payroll	Needs improvement	See Specific Opportunities for Improvement 11.1-11.7
IT	Access/Security Controls	Needs improvement	See Specific Opportunities for Improvement 12.1-12.12
	Disaster Recovery	Needs improvement	See Specific Opportunities for Improvement 13.1-13.8
	IT Security	Approaching leading practices	See Specific Opportunities for Improvement 14.1-14.5
	Student Cybersecurity	Reflective of Leading Practices	See Specific Opportunities for Improvement 14.1-14.5
	IT Investment	Approaching leading practices	See Specific Opportunities for Improvement 15.1-15.5

Assessment of Transition Team and OLA Report Items

As we were conducting our broader assessment of continuous improvement opportunities, management also asked us to analyze recommendations from the *Transition Team Report* and the Office of Legislative Audit's *Financial Management Practices Audit Report*.

Throughout our engagement, we spoke to a wide variety of stakeholders to discuss the items from these two reports, and where possible noted places where our research and data analysis shed light on the level of progress the school system has made in implementing those recommendations. Overall, PGCPS has made progress in many of the areas highlighted by the Transition Team and OLA, but the level of progress is inconsistent, and further progress is possible in a number of areas. These observations are summarized in greater detail in individual tables specific to the functional area throughout the report.

Assessment of Specialty Programs

Part of the scope of this engagement included an assessment of the Prince George's County Specialty Program offerings – an analysis that had a different framework and approach since Specialty Programs are not a “business process” in the same way as the other areas of the project. Our analysis was focused around assessing whether or not existing specialty programs appear aligned with the current demand of students and parents for quality programs, whether programs appear equitably distributed across the County, and the potential feasibility and/or need to expand specialty programs. To answer these questions, the Parthenon-EY team spent several months conducting an assessment of Specialty Programs based on available district data, and conducting interviews with Program Directors and some school principals. The core piece of the work was data analysis regarding supply and demand of programs, with a focus on potential equity and access across the County. The key findings from the work are described below:

- Program Offerings: PGCPS offers an array of Specialty Programs, the scale and diversity of which appears comparable to benchmark districts regionally and nationally.
- Demand: Despite rapid growth in the number of Specialty Programs, demand remains uneven. Certain programs appear heavily over-subscribed, while a number of others have excess capacity.
- Equity/Access: Access to and participation in Specialty Programs varies widely across the County. In areas with the greatest participation, the share of students enrolled is 3-4x (or more) than in the areas with the least participation.
 - Among programs that require lottery or selective admission, participation is correlated with both student race and neighborhood income
 - New Specialty Programs launched by the current administration are potentially helping to reduce inequity geographically and by race, though participation in new programs continues to be higher in middle and higher income neighborhoods
- Quality/Return on Investment: PGCPS does not appear to have systematic procedures in place for assessing the impact of Specialty Programs on student outcomes, and comparing these outcomes to the additional cost required (ROI). In some cases, data is not yet available as programs are in their first years of operation and/or are focused on early grades
- Overall
 - New programs launched in recent years come with a “tail” of new spending, as those programs scale up grade by grade. The multi-year nature of these commitments should be transparent to all stakeholders, as completing these investments provides continuity for students and parents in their academic experience
 - Further investment in new programs could be targeted to improve outreach and access in under-enrolled parts of the County. PGCPS could also consider a more gradual pace of expansion and/or to reallocate investment from low-demand to high-demand programs, until the quality and ROI of existing programs is better understood

This report delves into each of these areas individually, and provides data and analysis to support our findings. To supplement the information provided here, additional detail can be found in a separate PowerPoint presentation submitted alongside this report.

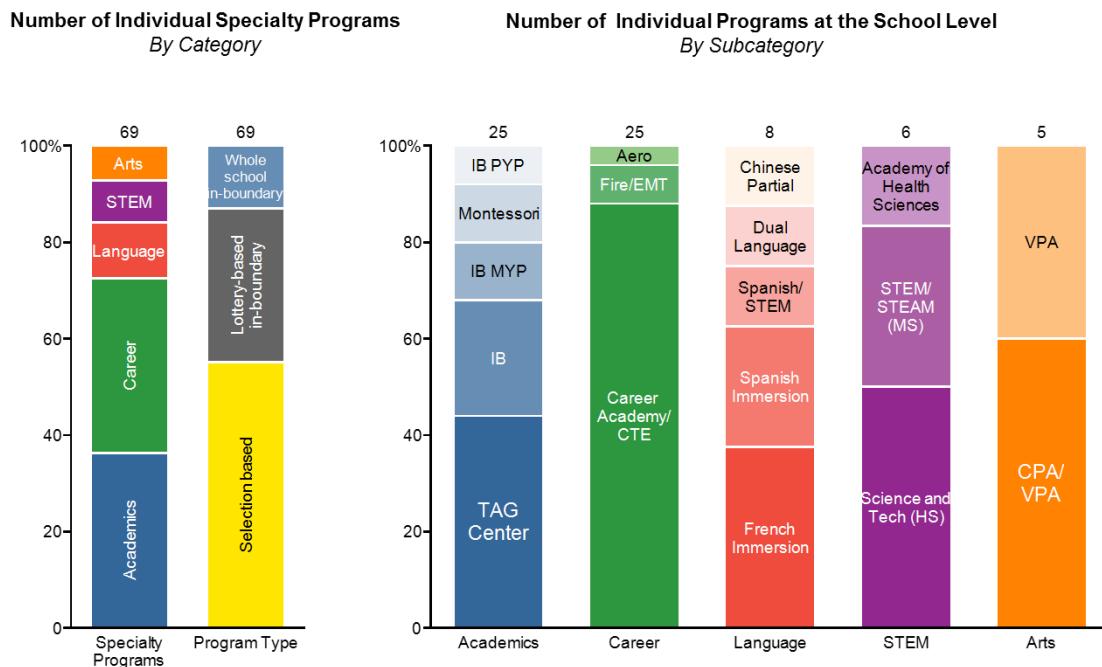
Program Offerings

Specialty Programs in Prince George's County are a defined, specific set of instructional programs. This category does not include special education services received by students with IEPs, nor does it refer to advanced courses such as AP classes that are available in many schools. However, the wide range of Specialty Programs available can be broadly classified into career, academic, language, STEM, and the arts:

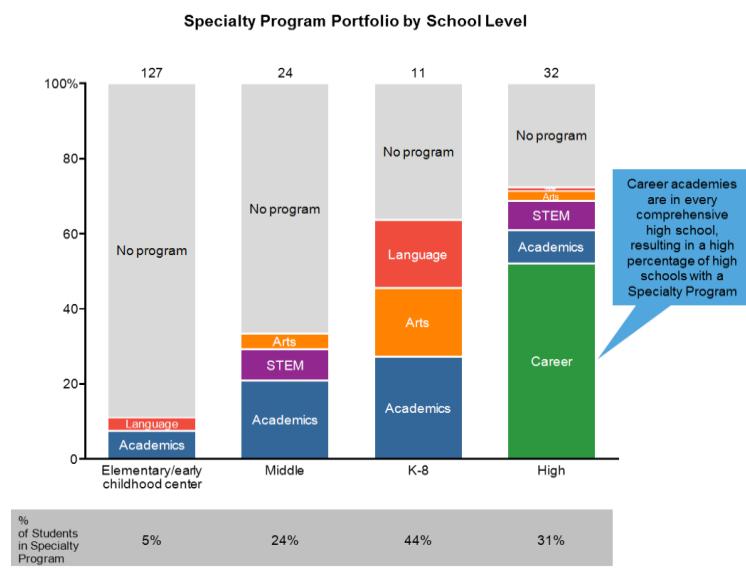
	Description	Grade level	Program type
Career	<ul style="list-style-type: none"> Programs that offer students opportunity to focus on a specialized career-related program, including the opportunity to earn industry certification in some cases Includes Career Academies, CTE, Fire/EMT program, and the Aerospace program at DuVal High School 	9-12	<ul style="list-style-type: none"> In-boundary at all 22 comprehensive high schools, but lottery-based on interest
Academics	<ul style="list-style-type: none"> Programs that typically offer academic acceleration opportunities, including Talented and Gifted, Montessori, and International Baccalaureate at all levels, from primary years to high school Talented and Gifted consists of TAG Centers, full service TAG instruction through the lottery 	<ul style="list-style-type: none"> IB: 9-12 IB PYP/MYP: K-8 TAG: 2-8 Montessori: K-8 	<ul style="list-style-type: none"> IB: Application Based IB MYP and PYP: in-boundary TAG: lottery Montessori: lottery
Language	<ul style="list-style-type: none"> Programs where content is delivered through the target language, aiming to develop students who are highly proficient in a second language Includes French Immersion, Spanish Immersion, and a partial Chinese Immersion program 	<ul style="list-style-type: none"> French: K-8, 9-12 Spanish: K-1 (new program) Chinese: K-1 (new program) 	<ul style="list-style-type: none"> French: lottery Spanish: lottery Chinese: in-boundary Spanish/STEM: in-boundary
STEM	<ul style="list-style-type: none"> Programs that are explicitly focused on STEM, including the 3 Science and Tech high schools, 2 STEM/STEAM middle schools, and the Academy of Health Sciences at Prince George's Community College Programs focus instruction in four disciplines, science, technology, engineering and math, and in the case of STEAM, the arts The Academy of Health Sciences offers students a dual enrollment program that enables them to earn a HS diploma and a college associate's degree in health sciences 	<ul style="list-style-type: none"> Science & Tech: 9-12 Academy of Health Sciences: 9-12 STEAM: 6-8 	<ul style="list-style-type: none"> Science and Tech: application based Academy of Health Sciences: application-based STEM/STEAM: in-boundary
Arts	<ul style="list-style-type: none"> Programs that provide students educational opportunities designed to prepare them artistically for college, professional study, or career options in the arts Includes the 2 Visual Performing Arts schools at the high school level as well as the 3 Creative Performing Arts schools at the middle school level 	<ul style="list-style-type: none"> CPA: K-8 VPA: 9-12 	<ul style="list-style-type: none"> CPA: Lottery VPA: lottery (Suitland) and in-boundary (Northwestern)

These programs are spread across 69 individual Specialty Program sites in Prince George's County. Roughly 36% of these programs fall into the Academic category, with another 36% categorized as Career. Language programs make up another 12%, while STEM and Arts programs make up for the remainder at ~9% and 7% respectively. Just under 60% of these programs are "selection-based," meaning students must either apply to the program or enter a lottery. Another ~20% of programs are "lottery in boundary," which means that students enter a lottery to attend, but only if they live within the boundaries of the program. The remainder of programs are "Whole School in Boundary," which means all of the students who attend that school (because it is their in-boundary school) attend that Specialty Program, without having to apply.

Each type of program has a number different programs within it—for instance, Academic programs are split across TAG (Talented and Gifted), International Baccalaureate (including a Middle Years Program), and Montessori. These splits are depicted below:



At this point, a majority of PGCPS' high schools have Specialty Programs, largely because of the Career Academies. K-8 schools have the second highest concentration of Specialty Programs, although the percentage of K-8 students in Specialty Programs is higher than the percentage of high school students enrolled in Specialty Programs.



According to our analysis, at present, **17%** of students in the 2015-2016 school year have access to a Specialty Program. However, many of these programs have not yet reached scale, as they were started within the past few years (i.e., many of the language immersion programs only have a kindergarten and first grade class, but the plan is to scale up the eighth grade, adding many more students). If current programs are scaled across grade levels, **21%** of students will have access to a Specialty Program (in approximately SY2021-2022).

If PGCPS were to grow the recently launched programs to full scale, we estimate that the implied expenditure would be \$19M annually at scale. A little over 40% of this money would go to pay for the expansion of Career Academies, while ~25% would pay for the expansion of Spanish Immersion programs. The rest of the funds would need to be split between Chinese Partial Immersion programs, Dual Language programs, the Spanish/STEM program, and Visual and Performing Arts. This estimate illustrates an important point: new programs launched in recent years come with a “tail” of new spending, as those programs scale up grade by grade. The multi-year nature of these commitments should be transparent to all stakeholders, as completing these investments helps to provide continuity for students and parents in their academic experience.

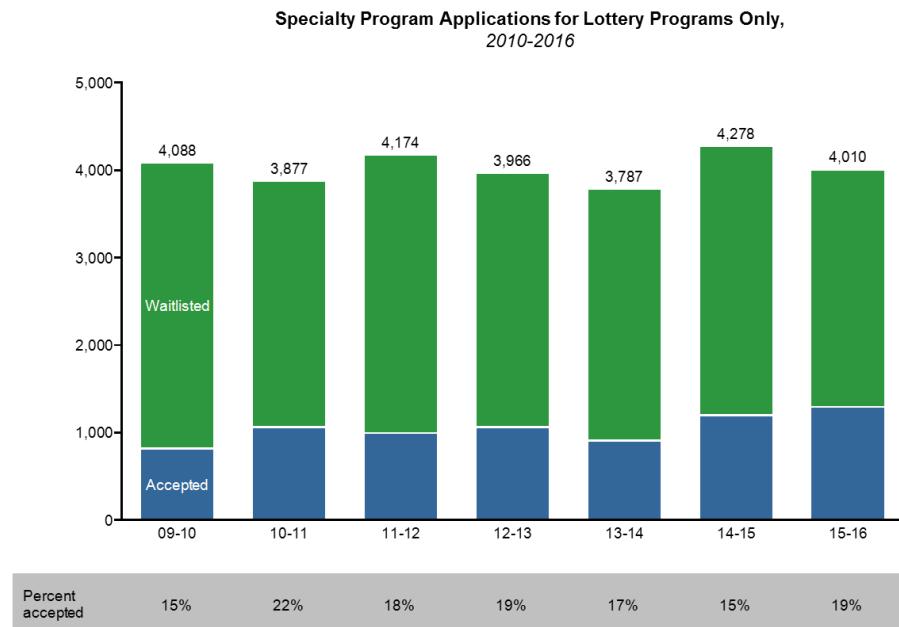
Finally, another way to think about PGCPS’ offering of Specialty Programs is to benchmark the existing offerings against those offered by “benchmark” districts. Our team analyzed PGCPS’ offerings against five other districts, and found that PGCPS’ offerings are broadly in line with the benchmark districts (career related programs have been excluded given that, similar to PGCPS, some districts offer them in every high school):

- **PGCPS:** Enrolls between 12%-17% of students, depending on whether or not career programs are included.
- **Hartford** (national leading practice model)²: Enrolls 38% of students in Specialty Programs, excluding career-related programs.
- **Miami Dade County** (national leading practice model): Enrolls 17% of students in Specialty Programs, including career-related programs
- **Montgomery County** (similarly sized district and neighboring county): 14.5% of students are enrolled in programs, including career programs
- **Duval County, FL** (similarly sized district, national leading practice model): 15.5% of students are enrolled in programs, including career programs

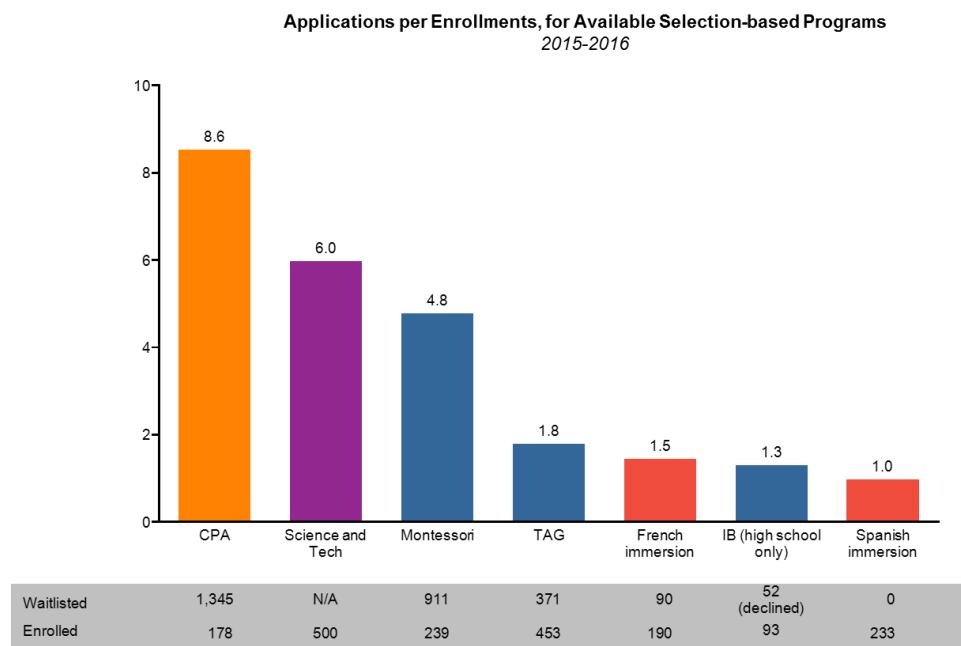
Demand

Our work also involved analyzing PGCPS’ available lottery data to assess demand for current programs. Overall, we found that demand for lottery-based Specialty Programs has consistently exceeded supply, and has been stable over time. As the chart below indicates, the presence of a consistent waitlist (green) means that there is demand for lottery programs as a whole.

² Identified as a leading practice model by the Magnet Schools of America Association

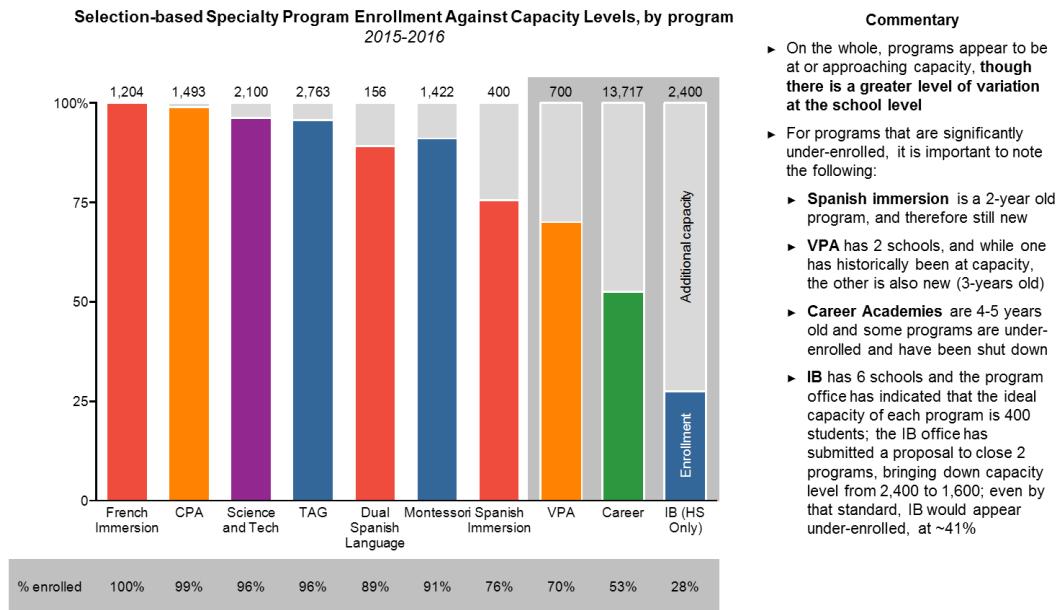


However, at a more detailed level, some programs are over-subscribed, while others have a closer balance between supply and demand. This can be seen when looking at the number of applications per enrollment—i.e., how many students applied for a particular seat, as well as the size of the waitlist for each particular type of program. Looking at this view, it is possible to see that there is significant demand for Career and Performing Arts programs, Science and Tech programs, and Montessori programs, and comparatively less demand for the language immersion programs. TAG also has a smaller waitlist, but fewer students are eligible to apply in the first place.



Further digging into the data, it is also true that there are certain Specialty Programs with excess capacity based on current enrollment levels. What this means is that, while the overall demand for Specialty Programs exceeds the overall supply, this

supply/demand imbalance is not consistent across programs. Instead, there are some programs with more demand than supply, and other programs where there is more supply than demand.



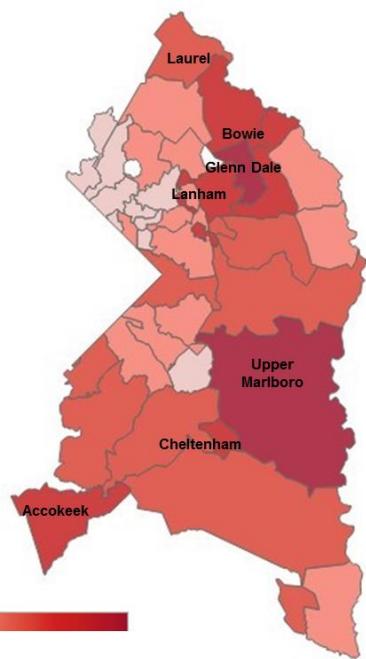
Additionally, the supply/demand imbalance is inconsistent with the Career Academies. Career Academies fall into six different buckets: Business/finance, Design/media, Consumer services, STEM, Humanities, and Municipal Services. The STEM Career Academies all have 80% of more of their seats filled, while the Municipal Services Career Academies hover above 60% of seats filled. However, for the other types of Career Academies, enrollment percentages range from 29% (Architecture and Design, a Design/media program) to 52% for Business and finance. Ultimately, this means that there is an opportunity, as PGCPS considers expansion of Career Academies, to focus on the types of Career Academies that are in greatest demand from students and families.

Equity and Access

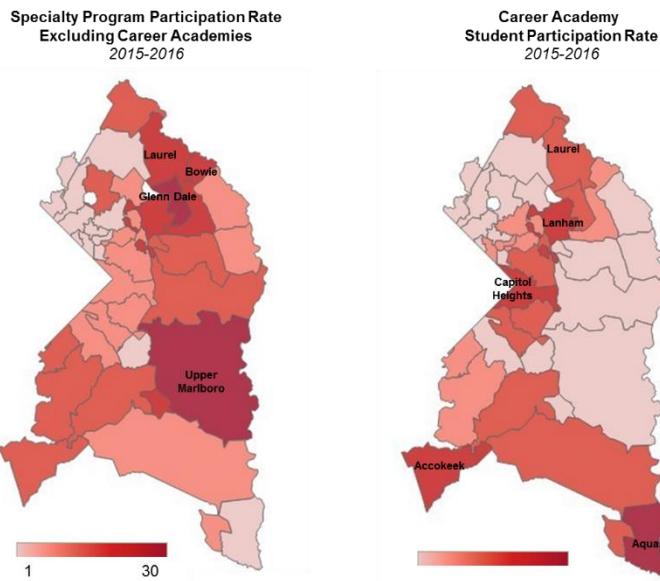
In order to analyze the extent to which PGCPS students have equitable access to Specialty Programs, our team looked at student enrollment in programs by zip code, and found that participation rates in Specialty Programs vary widely across the county. In some parts of the county, particularly Glenn Dale and Upper Marlboro, participation rates are as high as 38%. But there are other parts of the county where less than 10% of students participate in programs. In particular, the northwest part of the county is relatively underrepresented in Specialty Programs. Ultimately, the difference between the areas with the greatest participation levels and those with the lowest levels is stark: the share of students enrolled in the highest participation areas is 3-4x (or more) than the participation rates in the areas with the least access. These “high participation” areas have nearly double the rate of students participating than the average PGCPS participation rate, and there are over 15 towns in the county where the participation rate is below the PGCPS average.

The data also reveals a pattern in which participation rates in high school Career Academies have a very different geographic profile than participation in all other, more selective Specialty Programs. Career

Specialty Program student participation rate, by residence Zip Code 2015-2016

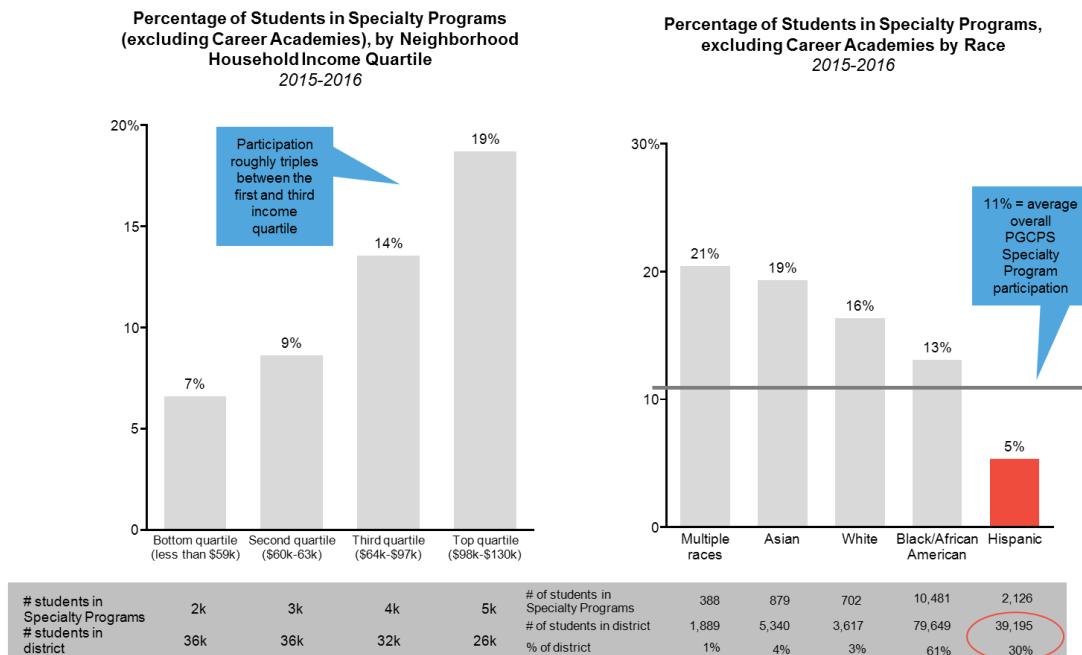


Academies are open to all students in high school, and are spread across high schools in the County.



These side-by-side maps show that the geographic distribution of participation in Specialty Programs is nearly opposite for Career Academies as compared to other, predominantly lottery-based programs.

Segmenting all Specialty Programs into Career Academies vs. other more selective programs allowed us to identify other trends related to equity and access. In particular (and linked with the geographic differences above), when we exclude Career Academies, the data shows that participation rates in Specialty Programs appears to correlate with neighborhood household income quartile and by race.



The greatest disparity identified above is for Hispanic students, which are the fastest growing ethnic demographic in PGCPS.

To understand what may be driving these trends and to help highlight potential responses for the County to consider, our team conducted additional analysis. First of all, the data suggests that the disparity in participation rates is a function of differences in application rates across the County; by and large, the picture of “applications by zip code” mirrors the image of participation rates. Students from neighborhoods with lower participation are not entering the lottery and applying to Specialty Programs at the same rate as students from other areas.

One potential implication of this finding is that increasing equity in Specialty Programs participation could benefit from greater outreach efforts to encourage students and families to apply. The district is already engaging in a number of activities to conduct outreach related to Specialty Programs. For example:

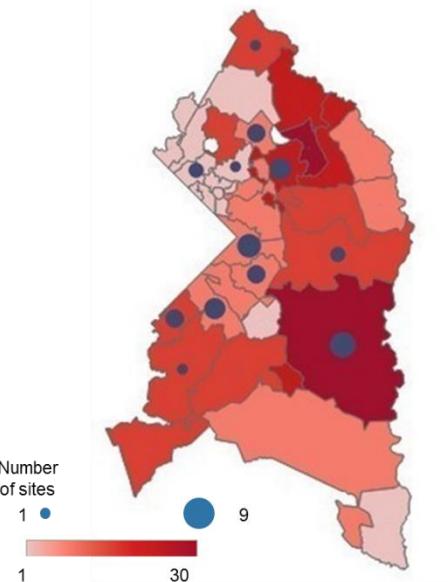
- All-district academic fairs, in three different geographies in the district
- Advertising through Head Start programs and other early childhood centers
- Robo-calls to all homes informing them of application deadlines and processes
- Promotion on the website

Certain programs have also engaged in targeted outreach, including:

- Door-to-door visits (Cesar Chavez has employed this tactic, most notably, to fill its Spanish half of its Dual Language program)
- Advertisements on Spanish radio to promote the Spanish immersion program
- Presentations to specific community groups (e.g., the Bowie Moms Association)

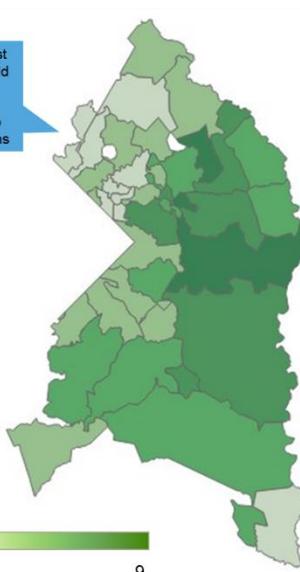
However, based on the findings of this analysis, the district and County may consider whether there are additional steps that could be taken in the communities with the lowest participation rates.

Specialty Program Participation Rate by Residence Zip Code, Overlaid with Program Sites excluding Career Academies 2015-2016



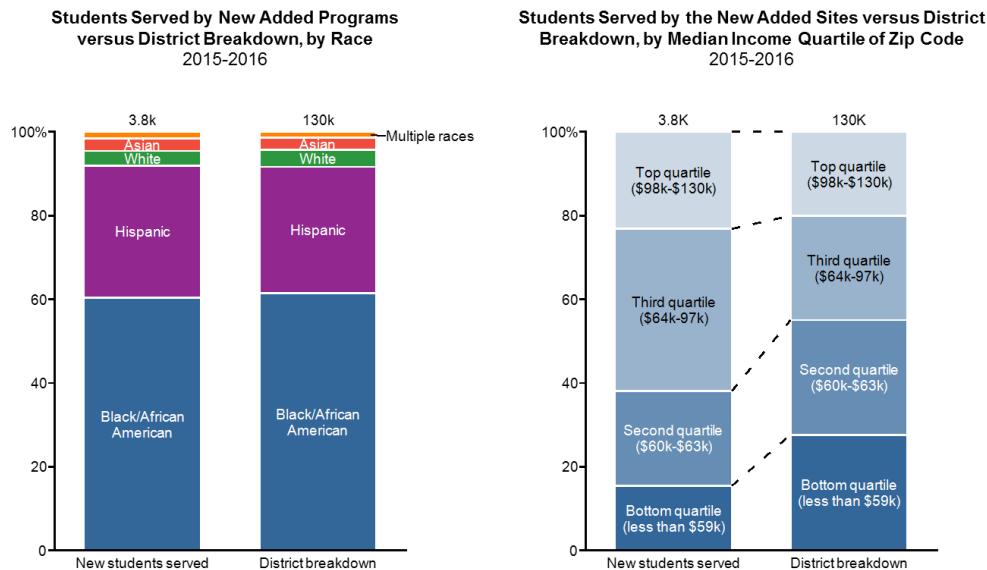
Application Rate by Zip Code
Selection-based Specialty Programs
2015-2016

Areas in the northwest (e.g., Hyattsville) could benefit from more targeted Specialty Program outreach to encourage applications



Another way to increase equity is to locate new program capacity in areas that would make it more geographically convenient for students and families to apply. Specifically, the district can target sites in neighborhoods that lack options today. At present, the Specialty Program sites are not distributed evenly, as there are areas without sites and others where sites are clustered. It is worth noting that PGCPS does have some sites placed in lower access neighborhoods, but that these sites might not be enough to equalize participation in their boundary zones. It is evident that students from other areas are sometimes willing to travel to attend Specialty Programs, so students in lower access neighborhoods end up competing with students from other neighborhoods.

With that said, the district is already making some progress to narrow the inequities that the analysis has spotlighted. Participation in the newest Specialty Programs (added within the past few years) is well-balanced by race, although there is still work to be done in terms of more equitable participation for lower income students.



Ultimately, increasing equity could involve a range of strategies including siting decisions, targeted outreach, as well as use of in-boundary Specialty Program placement in locations that are designed to give access to all students in the zone. Some stakeholders also suggested that another method to increase access could be a lottery where all students are entered at the entry grade, and parents have to opt out of the lottery instead of opting in. This approach could be worth exploring as part of a package of actions.

Leading Practices Recommendations Summary

The final report which follows this summary contains the details for 89 different Key Opportunities for Improvement for the district. These individual recommendations could be considered and potentially adopted by the leadership of individual departments within the school system. For members of the Board, County Council, and public at-large, we note that many of these opportunities tend to fall into some common themes, and reflect some overall trends in our observations and analysis. As a result, this section summarizes our overall findings from the report, and also buckets some of the major categories of recommendations.

First, throughout this project, we saw indicators of leading practices and observed continuous improvement opportunities throughout the district. This was evident throughout all areas, many of which had, for example, recognized the need to adopt new technology and were making active efforts to do so. Similarly, other areas were beginning to pilot efforts to more effectively evaluate internal initiatives. In completing our assessments, we were able to work very closely with a variety of key district leaders in every area, each of whom gave us access to the people and the data. This was helpful in facilitating a smooth assessment process, and we were ultimately able to go over all findings with key leaders.

In terms of an overall message from our assessment, we would note that, in general, our assessment did not include interviews or observations indicating spending levels that are dramatically out of line with comparable organizations. On the other hand, what we did find is an organization where many departments are caught in cycles of work that are manual and reactive (potentially not efficient and strategic), and where high turnover has made it difficult for management to undertake long-term planning and investment.

The opportunities for continuous improvement with the highest potential implications appear related to this finding. In general, these opportunities fall into a few key themes:

- **Development of long-term financial and evaluation plans**
 - The lack of a long-term financial plan for the district as a whole has consequences for the budget process and for the organization as a whole. Key stakeholders appear uncertain about how the district's priorities align to its spending, and about the potential feasibility of undertaking long-term investments
 - Similarly, many of the other departments assessed lack some elements of leading practices for utilizing data to evaluate spending effectiveness and determine where efficiencies can be realized.
- **Upfront investments to create later savings**
 - There is potential opportunity for efficiencies across many PGCPS departments, but many of these opportunities will require an upfront investment.
 - For example, Capital Programs could potentially identify significant savings by hiring an individual with construction-related expertise. However, this could require an upfront investment in the position, at least initially. Similarly, the Transportation department could launch a program to pilot bus driver position changes and to pilot incentives to increase the number of drivers available. However, this would require an upfront investment that may take time to generate benefits.
- **Outdated technology systems**
 - Many of the systems used across PGCPS appear outdated, including in key areas such as Budget, and Accounts Payable and Payroll.
 - These outdated systems could generate inefficiencies across the district by increasing workloads and the number of processes that need to be performed manually.
- **Existing systems undermined by lack of training**
 - PGCPS has invested in new systems in a variety of areas, such as Building Services and Maintenance, Security, and Capital Programs. These systems could be consistent with leading practices in these particular areas if used properly.
 - However, many of these systems are significantly underutilized, largely due to a lack of training. This could prevent PGCPS from accessing the efficiencies and service improvements these systems could generate.
- **Limited access to data for management purposes**
 - Throughout the assessment, it was observed that data is not centralized in easily accessible systems for each department. For example, to conduct an assessment of Specialty Programs required gathering data from 4-5 different places.
 - Developing a plan to proactively assess data to identify areas for improvement would help to highlight which data systems should be unified to ease access for particular departments.

Format of the Report

This final report contains a separate assessment for each business process (excluding Specialty Programs, which is covered in a separate document). Each assessment is divided into the following four sections:

Section 1: Overview of the Scope of Work

This section describes the questions that were asked in the RFP (including any individual *OLA* or *Transition Team Report* items), as well as any other specific questions or issues that were addressed beyond what was identified in the RFP. In this section, we also provide a summary of activities undertaken to address these questions around leading practices (methodology).

Section 2: Summary Perspectives

This section covers three main areas:

- *Current Situation Assessment*: Here, we describe our overall impression of the leading practices observed in the area that was evaluated. This is done not in a way that is limited to the specific questions in the *OLA* and *Transition Team Report*, but in a broader context, based on professional experience and understanding of leading practice. Here, we also use a Leading Practices framework to contextualize our findings (Reflective of Leading Practice, Approaching Leading Practice, Need for Improvement, and Significant Need for Improvement).
- *Assessment of Continuous Improvement*: Here, we describe what interviews and analysis indicate the district has been doing over the last two years in this area, and potential constraints the district is currently facing that might prevent further continuous improvement. We also provide our assessment of how well the district appears to be progressing toward leading practices, and the potential implications of the activities of the past two years.
- *Key Opportunities for Further Continuous Improvement*: Here, we identify top findings of areas that the particular department and district could focus on for further continuous improvement going forward.

Section 3: OLA and Transition Team Recommendations

Nearly every area of the project RFP requested analysis of PGCPS efforts in connection with recommendations identified in the *OLA* or *Transition Team* reports. In this section, we outline these recommendations, and comment on our observations of leading practices in the various areas associated with the *OLA* or *Transition Team* Recommendations.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

This section includes the same opportunities that are listed at the end of Section 2, and then goes into more detail in describing findings. For each of the opportunities identified, we have tried to outline the following (where applicable) based on procedures performed and primary/secondary research involving leading practices:

- Background/Rationale
- Supporting Data (if applicable)
- Implementation Strategy
- Potential Fiscal Implications (if applicable)

Summary List of Key Opportunities for Improvement

Report Section	Key Opportunity Title	Page Number
Budget	Key Opportunity 1.1: Produce a 3-5 Year Financial Plan Aligned to District Strategy	34
Budget	Key Opportunity 1.2: Establish further evaluative tools to track return on investment for new programs	35
Budget	Key Opportunity 1.3: Assess opportunities for reallocation	36
Budget	Key Opportunity 1.4: Build Capacity for rigorous budget analysis across departments	36
Budget	Key Opportunity 1.5: Work with Program Managers to facilitate the shift away from multiple Financial Review Processes	37
Budget	Key Opportunity 1.6: Consider adoption of more user friendly budget visualization systems	38
Building Services and Maintenance	Key Opportunity 2.1: Expand the training and broaden use of cloud-based maintenance and facilities management software	42
Building Services and Maintenance	Key Opportunity 2.2: Develop and implement a more robust preventative maintenance program	43
Building Services and Maintenance	Key Opportunity 2.3: Reevaluate, re-implement, and expand the Maintenance Medic Training that was dissolved (or a similar type of training)	44
Building Services and Maintenance	Key Opportunity 2.4: Expand current maintenance training programs with Prince George's Community College	44
Building Services and Maintenance	Key Opportunity 2.5: Increase night shift maintenance staff or shifts completed after hours	45
Building Services and Maintenance	Key Opportunity 2.6: Increase the investment in Chief Building Supervisors and Facility Coordinator positions	45
Building Services and Maintenance	Key Opportunity 2.7: Continue a collaborative relationship with the department of Capital Programs	46
Building Services and Maintenance	Key Opportunity 2.8: Revise written job descriptions for custodial and maintenance staff that clearly delineates duties and responsibilities	46
Building Services and Maintenance	Key Opportunity 2.9: Collaborate with peer or feeder schools	47
Physical Security of Facilities	Key Opportunity 3.1: Enforce a 100% Raptor screening policy for all visitors to all schools	51
Physical Security of Facilities	Key Opportunity 3.2: Replace all analog cameras with digital cameras connected to the central system, and add new cameras to provide coverage of interior and exterior blind spots	52
Physical Security of Facilities	Key Opportunity 3.3: Revisit security staffing allocations across high schools and middle schools	53
Physical Security of Facilities	Key Opportunity 3.4: Establish, communicate, and enforce a clear, district-wide protocol for covering windows on classroom doors	53
Physical Security of Facilities	Key Opportunity 3.5: Investigate policy and technology options for teachers to be able to lock their classrooms from the interior in case of a lockdown situation	54
Physical Security of Facilities	Key Opportunity 3.6: Replace broken or missing boundary fencing in key locations in wooded areas at the rear of school buildings	55
Physical Security of Facilities	Key Opportunity 3.7: Properly secure all temporary classrooms, at elementary and K-8 schools, according to PGCPS guidelines	56
Physical Security of Facilities	Key Opportunity 3.8: Define and prioritize security-related building work orders	56

Report Section	Key Opportunity Title	Page Number
Physical Security of Facilities	Key Opportunity 3.9: Add or improve directional and informational signage in school building interior and exterior	57
Physical Security of Facilities	Key Opportunity 3.10: Institute and communicate a policy and procedure for testing panic buttons	58
Capital Program	Key Opportunity 4.1: Expand the implementation and utilization of ERP Software	61
Capital Program	Key Opportunity 4.2: Create full time or dedicated Information Technology (IT) support position for the ERP Software	62
Capital Program	Key Opportunity 4.3: Create a full time or dedicated purchasing person who has expertise in the specific area of construction related procurement	62
Capital Program	Key Opportunity 4.4: Increase the change order threshold consistent with other school systems	63
Capital Programs	Key Opportunity 4.5: Provide additional resources for project managers to handle open capital projects	63
Capital Program	Key Opportunity 4.6: Continue a collaborative relationship with the Department of Building Services and Maintenance	64
Transportation: Routing and Efficiency	Key Opportunity 5.1: Create a plan to routinely collect, analyze, review, and make decisions based on data	69
Transportation: Routing and Efficiency	Key Opportunity 5.2: Increase the number of budgeted bus driver positions and pilot incentives to increase driver recruitment and retention	72
Transportation: Pedestrian and Bus Lot Safety	Key Opportunity 6.1: Improve bus lot restroom facilities to accommodate minimum number of bathroom facilities requirements	81
Transportation: Pedestrian and Bus Lot Safety	Key Opportunity 6.2: Develop a plan for all mechanics to work in an indoor garage	82
Transportation: Pedestrian and Bus Lot Safety	Key Opportunity 6.3: Make improvements to facilities and grounds for operational staff and bus drivers	84
Transportation: Inadequate Records for Time Reporting/Salary Payments	Key Opportunity 7.1: Standardize timekeeping and tracking forms across all bus lots	90
Transportation: Inadequate Records for Time Reporting/Salary Payments	Key Opportunity 7.2: Improve reporting capability to increase efficiency and reduce excess paperwork	92
Transportation: Inadequate Records for Time Reporting/Salary Payments	Key Opportunity 7.3: Revise the role of Payroll Clerks to reduce duplication of work	93
Transportation: Inadequate Records for Time Reporting/Salary Payments	Key Opportunity 7.4: Explore the use of technology to streamline the bus lot timekeeping process	93
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Accounts Payable	Key Opportunity 8.2: Establish tracking of metrics around business and production support (Customer Relationship Management)	105
Accounts Payable	Key Opportunity 8.3: Explore centralization of transactional activities in order to enable efficiencies and free up resources to focus more on value-add activities	106
Accounts Payable	Key Opportunity 8.4: Look for opportunities to leverage newer technologies to implement new and improved functionalities and more electronic solutions to automate business processes	106
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Report Section	Key Opportunity Title	Page Number
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Finance and Treasury	Key Opportunity 9.3: Evaluate opportunities for supplier collaboration in tagging and managing assets (non-IT assets)	113
Finance and Treasury	Key Opportunity 9.4: Evaluate opportunity to leverage existing or third party asset management software	113
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HR Technology	Key Opportunity 10.1: Continue upgrades to the ERP system with automation of 1) applicant interviewing process and 2) tracking vacancies	118
HR Technology	Key Opportunity 10.2: Improve access to data and reports and build capacity for data-driven decision making	119
HR Technology	Key Opportunity 10.3: Implement Administrative Evaluation within the new recruitment system	121
Payroll	Key Opportunity 11.1: Review ERP System Contract and determine if existing tools could be leveraged to support employee communications. If not, research acquiring a capability of this nature	131
Payroll	Key Opportunity 11.2: Invest in a Customer Relationship Management (CRM) capability to track employee inquiries received	131
Payroll	Key Opportunity 11.3: Conduct a feasibility assessment to determine the value of moving to a shared service structure	132
Payroll	Key Opportunity 11.4: Conduct a network assessment on both local area network and wide area networks	133
Payroll	Key Opportunity 11.5: Conduct a technology assessment	133
Payroll	Key Opportunity 11.6: Perform Payroll Analytics to analyze payouts	134
Payroll	Key Opportunity 11.7: Improve practices to discern validity of sick leave requests	135
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Access and Security Controls	Key Opportunity 12.7: Develop a consistent Role Management framework	155
Access and Security Controls	Key Opportunity 12.8: Develop and implement Access Certification Framework	156
Access and Security Controls	Key Opportunity 12.9: Develop and implement a framework for privileged identity management	157
Access and Security Controls	Key Opportunity 12.10: Implement IAM future state processes	158

Report Section	Key Opportunity Title	Page Number
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Access and Security Controls	Key Opportunity 12.12: Develop an IAM reporting and intelligence program	159
Disaster Recovery	Key Opportunity 13.1: Develop DR program metrics and scorecards to measure risks and overall progress of DR program initiatives	164
Disaster Recovery	Key Opportunity 13.2: Establish reporting communication and accountability protocols among DR team members (this could be in conjunction with IT Governance Committee initiatives)	164
Disaster Recovery	Key Opportunity 13.3: PCGPS needs to conduct a formal BIA for critical business functions	164
Disaster Recovery	Key Opportunity 13.4: Leveraging output from the BIA, PGCPS should conduct a thorough dependency analysis	165
Disaster Recovery	Key Opportunity 13.5: Leveraging BIA output to define process/application RTOs, RPOs, and Service Level Agreements (SLAs) (both internal and external)	165
Disaster Recovery	Key Opportunity 13.6: Conduct annual integrated DR plan exercises/tests in order to ensure that they meet business requirements	166
Disaster Recovery	Key Opportunity 13.7: Develop exercise/test processes	166
Disaster Recovery	Key Opportunity 13.8: Perform maintenance activities to the DR program lifecycle (plans and policy) to improve the effectiveness of the DR program	167
IT Security and Student Cybersecurity	Key Opportunity 14.1: Implement a formal policy review process to update and sign off on all IT policies each year	170
IT Security and Student Cybersecurity	Key Opportunity 14.2: Define strategies and policies surrounding the secure use of mobile, cloud, and social media	171
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IT Security and Student Cybersecurity	Key Opportunity 14.4: Mandate IT Security awareness training for all PGCPS employees	171
IT Security and Student Cybersecurity	Key Opportunity 14.5: Amend the Acceptable Use Policy to include provisions around the monitoring of internet use	172
IT Investment	Key Opportunity 15.1: Develop a standardized and comprehensive IT investment portfolio selection that directly aligns to strategy and delivers the most value	176
IT Investment	Key Opportunity 15.2: Regularly review and utilize the IT Governance Framework	176
IT Investment	Key Opportunity 15.3: Work closely with HR to develop necessary justification for resource funding, and ensure sourcing of the right capabilities	177
IT Investment	Key Opportunity 15.4: Develop and utilize one template for reporting on the status of IT projects	177
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1. Budget

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of the district budget process. The objectives for this portion of the study were defined in the RFP.

First, the team was asked by Management to assess five *OLA Report* and *Transition Team Report* Corrective Actions/Recommendations, and provide observations on progress made in implementing the recommendations. These recommendations are listed below.

Second, the team was asked to assess, as a result of their observations, how the Department appeared to be utilizing existing practices that reflect current known leading practices. Finally, the team undertook an assessment of the holistic budget process to identify potential key areas of continuous improvement that would help the budget process reflect more consistency with leading practices.

OLA Report/Transition Team Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #21 Corrective Action	Evaluate cost savings measures; develop standards/guidelines to inform which types of initiatives require evaluation and how results of these evaluations should be shared
<i>Transition Team Report</i> Operations and Finance Recommendation #13	Use the financial review process to redirect funds to support instructional outcomes
<i>Transition Team Report</i> Operations and Finance Recommendation #14	Institute technology improvements in the budget planning module to increase financial reporting capability and improve budget decision making
<i>Transition Team Report</i> Operations and Finance Recommendation #15	Institute cost savings initiatives and actively challenge account managers to revise spending approaches; consider implementing "lean" organization systems
<i>Transition Team Report</i> Operations and Finance Recommendation #16	Increase staff training in the ERP system modules, especially in financial report writing, use of data warehouse, document management, and Student Based Budgeting (SBB)

Methodology

During the months of March and April, the Parthenon-EY team met with a broad list of stakeholders in the Budget process (see **Appendix A-1**). The team started with an introductory meeting with the CFO, and followed it up with several meetings with the Budget Director to better understand the budget process as a whole. We then began meeting with Program Managers from both the Academics and Operations side, as well as with several other staff members in the Budget Office (Budget Analysts, etc.).

In these meetings, our goal was threefold: 1) to better understand the budget process, and how it affected the individual stakeholder we were meeting with; 2) to better understand the stakeholders' take on whether progress had been made towards the *OLA Report* findings and *Transition Team Report* recommendations outlined above; and 3) to gather information about the budget process to be able to "map" PGCPS against leading practice models.

We coupled these interviews with analysis of the PGCPS budget allocations for the past several years (as well as the proposed FY17 budget). The goal of this analysis was to analyze whether or not PGCPS was distributing funds in ways that aligned with the district's stated instructional priorities. Finally, we also requested and analyzed several key budget documents, including the newly created Program Enhancement Form, as well as the Financial Review process documents.

Finally, in April of 2016, the District and County Council held a joint Town Hall for members of the Prince George's County Community regarding the Continuous Business Process Improvement project. Although most of the feedback that the community shared that evening focused on other areas within the project scope, we did incorporate any feedback that was offered regarding the budget process.

Our team then focused on analyzing the PGCPS Budget Process against our "Leading Practices" framework outlined in the Executive Summary, which contains six major categories (Systems and Processes, Safety and Standards, Use of Data and Evaluation, People and Organization, Stakeholder Engagement, and Long-Term Planning and Strategic Direction). To better inform our understanding of budget leading practices within the context of a large school district, we also relied on our team's extensive knowledge and background of working in other districts.

To supplement the framework, we also consulted resources from leading experts in the field of district budgeting, such as Education Resource Strategies (ERS). ERS has produced a "Checklist for Strategic Budgeting Process," which argues that, although the budgeting process for many districts begins with reviewing the prior year's budget and making incremental changes, transformational change in district spending only happens if the budget process can evolve and be integrated into the district's strategic development over time. This likely means starting with the strategic plan, rather than with the previous year's budget, and by having decision makers align first on priorities and tradeoffs, using a "Return on Investment" mindset.

Ultimately, the goal of utilizing these resources was to "map" PGCPS' budget process at every step of the framework or checklist to assess whether or not PGCPS is in alignment with leading practices, and where there are areas for improvement.

Section 2: Summary Perspectives:

Current Situation Assessment

The PGCPS Budget Office has become well-known for its turnover, having been led by several different CFOs and Budget Directors before the arrival of the current CFO in 2014 (and subsequent arrival of a new Budget Director). This turnover³ provides a backdrop through which any analysis of the budget process at Prince George's County Public Schools must be understood. Without consistency in leadership, it has been difficult for any changes to take root, and for any long-term improvement plans to be effectively implemented. The high rate of turnover has also animated the way individual Program Managers experience the budget process. Program Managers often reported that there was no "one" budget process, because it changed with whoever happened to be in charge. As a result, Managers had a high degree of uncertainty regarding how they would be involved in the budget process and what outcomes to expect from it. Program Managers are therefore highly incentivized to request as much money as they can, because they have no real sense of what to expect at the end of the process. This makes it very difficult for any administration to encourage Program Managers to request "only what they need." The current CFO echoed this concern, noting that he understands that many Program Managers don't trust the process, and that they often express complaints based on things past administrations had done, rather than on his actions.

This is important and helpful context when considering the current PGCPS budget process. It is also important to note that the CFO and the Budget Director appear to have implemented a number of changes to the process (many of which are described in the next section), but that these changes are still very much unproven, given their recent implementation. As a result, at this current stage, we would describe the budget process as "***In Need of Improvement,***" in accordance with our overall assessment framework:

³ Although there is not a strict leading practice in terms of continuity of leadership, consistent turnover (every 1-2 years) presents challenges for almost any organization

Systems and Workflow

From a technological systems standpoint, there appears to be clear room for improvement at PGCPS. For the past several years, PGCPS has relied on budget module that was created from a customized version of the existing product already in use (a large enterprise budget system). However, this system is extremely time consuming, largely because it is 100% maintained by PGCPS (which means that the technology group has to update the edit the software themselves, rather than calling in operators who produce the existing budget system for assistance). The inefficiencies in the program force everyone participating in the budget process to move back and forth between Excel and the budget system. In the most extreme instances, there are significant amounts of manual “keying” of inputs that has to occur. For example, in order to produce the PDF version of the annual budget book, the reports are done in the budget system, and then manually keyed into Excel (to then produce a PDF). Several Budget Analysts reported that they frequently spend time manually keying entries from the budget system into Excel so that they can do various levels of analyses. The Budget Module is a clearly observed instance where the manual nature of systems and processes swamps proactive and strategic efforts.

However, PGCPS has recently committed to a new Budget Module, so we anticipate that the situation concerning the Budget Module should improve (more details to follow in the next section). That said, the district still faces some reported challenges from the budget system, primarily in the separate portion of the system where individual Program Managers actually track their spending. While all Program Managers are required to undergo training in the budget system before receiving access, the training is largely basic and does not cover advanced uses of the system. As a result, many users report that they “learn by doing” or from their predecessors.

Furthermore, the current iteration of the budget system makes tracking cost savings difficult. Program Managers reported that it is difficult, and in some instances impossible (likely due to their level of permissioning in the system) to drill down to the level of detail that would allow one to track cost savings over time.

From a workflow standpoint, like many other districts, there appears to be a strong culture of “roll-over” in PGCPS. Prior to the arrival of the new Budget Director and CFO, many Program Managers budgeted by looking at the previous year’s budget and then requesting the same amount of money for the following year, in addition to increases anticipated for new or growing programs. Generally speaking, Program Managers then received the same amount of money, in the same budget categories. Although there have certainly been instances in which Program Managers have been asked to cut funds, there has not been an effort directed towards asking Program Managers to build their budgets from the bottom-up, a process that would allow for a more honest assessment of where resources are truly needed. Instead, by “rolling over,” Program Managers often wound up with more money than needed in particular categories, and less money than needed in others. One Program Manager even reported that he had funds that continued to be in his department’s budget year after year, even though the individuals in his department no longer understood what the money was supposed to be used for. Funds like these wind up effectively serving as a pool of flexible funds that Program Managers then use at their discretion.

Of course, Program Managers did encounter instances where more money was needed, or where it needed to shift to a particular category to spend properly. In these circumstances, prior to the arrival of the new CFO and Budget Director, interviews indicated that Program Managers grew reliant on some flexibility offered by the budget office. This is because salaries were budgeted at 100%, even though some positions went unfilled due to turnover. These “excess” funds were then used to fulfill ad hoc requests by Program Managers through multiple Financial Review Processes (a process of “trueing” up funds that often results in the District requesting permission from the Board of Education and the County Council to shift funds from one state mandated category to another). This provided an extra layer of flexibility to Program Managers, but did not encourage best-practice budgeting. Instead, the added flexibility provided further disincentive to apply a truly critical eye to budgeting.

Since the arrival of the new Budget Director and CFO, some of the processes appear to have changed, but the cultural shift required to move away from “roll-over” budgeting is incomplete. Most notably, the new CFO has decided to move to just one Financial Review Process per year. This shift, which garnered some criticism from Program Managers during our interviews, removes the layer of flexibility previously described, and is meant to force individuals to shift money to the correct categories at the beginning of the budget process, rather than after it closes. Additionally, the new CFO made the decision to estimate staff turnover (and the resulting salary decrease) upfront, and allocate the resulting \$35M (for fiscal

years 2016 and 2017) at the *beginning* of the budget process, so that it could be allocated towards strategic priorities. This means that Program Managers no longer have the ability to make ad hoc requests throughout the year and outside of the regular budget process.

Despite these changes and several others, however, the Leadership Team believes that the culture of “roll-over” remains strong. Over time, this culture weakens the alignment between budgeting and instructional priorities, and likely creates numerous opportunities for more effective reallocation of funds.

Safety and Standards

This piece of the framework is largely irrelevant to the Budget Process, as there are no significant safety or standards violations to be considered.

Use of Data and Evaluation

From a data standpoint, the Budget Director and CFO have attempted to ensure that everything can be largely tracked in Excel, which is important given some of the limitations in the budget system. However, interviews with Budget Analysts indicated that it was often difficult to utilize the budget data to make assessments about initiatives by the district given how particular costs are categorized and labeled. For example, in our assessment of the Specialty Programs landscape, it was often difficult to identify the costs associated with individual Specialty Programs because they were not consistently tracked or labeled in the system (although Budget Analysts indicated in interviews that, as the Specialty Programs evolve, these issues will be resolved).

This difficulty speaks to a somewhat larger issue: Program Evaluation. At present, efforts to evaluate the return on investment of programs and initiatives in PGCPS appear to be nascent and largely concentrated at the Leadership Team level. Interviews with Leadership Team members indicated that regular meetings do take place, in which team members look at data and make decisions about the future of programs based on how well they are serving students relative to the funds spent on the programs. Similarly, the Budget Director indicated that a joint committee between the Budget Office and Testing, Research, and Evaluation, was recently formed to standardize program evaluation across the district (beginning with math and reading initiatives).

However, this culture of data-driven evaluation remains largely ad hoc, is unproven within the district, and does not appear to have filtered down to the level of Program Managers. Individual Managers, particularly of the Specialty Programs, gave varying accounts of evaluation efforts. For example, the College and Career Readiness Office, which manages the Career Academies, indicated that they look at demand for particular Academies and make efforts to close down particular programs that are not in high demand (though this process lacks, for example, a rigorous analysis of the “return” of these programs as measured by student outcomes). However, some Specialty Programs indicated that they did not make decisions about closing programs.

People and Organization

Historically, there appear to have been significant issues with retention in the district, particularly when it comes to individuals involved in the budget process. As previously noted, the high level of turnover appears to have led to inconsistent budgeting processes and significant distrust among Program Managers. While the new Chief Executive did bring on two strong members of the team in the new CFO and Budget Director, this change was relatively recent, making it difficult to assess whether or not the new Chief Executive’s administration has brought greater stability to the crucial positions in the budget process.

The broader Budget Office appears to have no meaningful issues with recruiting or role responsibility, but it is worth noting that most Budget Analysts are primarily tasked with providing information to Program Managers and analyzing budget system data while putting together the broader budget. These individuals are not responsible (nor do they have the bandwidth) for assessing the return on investment for particular programs. Although this should be a crucial part of the budget process, the resources allocated to understanding costs and ROI for academic programs are currently limited.

Addressing this gap would require not just examining issues of organizational design but also considering whether the skill sets of existing Budget Analysts are adequate to take on a more sophisticated analytical responsibility.

Stakeholder Engagement

The Budget Office is beholden to both internal stakeholders (e.g., Senior Leadership and Program Managers) and external stakeholders (e.g., Board Members, County government, and community members). For both groups, there appears to be room for improvement in this category.

Interviews with individual Program Managers indicated that, despite the presence of procedures for communication, many still felt unsure about how budget decisions were made, and in what direction the Leadership Team was trying to head. This sentiment was particularly emphasized by Specialty Program managers, who reported high levels of uncertainty around whether or not their programs would be funded for another year, leading to reduced planning time. Other Program Managers reported that they often had funds cut in places where commitments to pay for something had already been made, and blamed a lack of communication from the Budget Office. From our perspective, we recognize that the Budget Office itself may not be fully at fault, as they manage ongoing uncertainty in the decision making process as the budget goes through various stages of internal and external review.

While we did not interview a significant number of community members as part of the scope of this work, we did analyze the publicly available materials on the PGCPS budget website. PGCPS makes various stages of the budget available for the public, and also holds three separate public hearings. However, having a defined process and posting materials publicly is not necessarily enough if the materials are difficult for the community members to penetrate and assess. In this circumstance, although PGCPS aligns new expenditures to “focus areas” (that align with the strategy map), there is little discussion of key trends and how these new programs (on which taxpayer dollars are being spent) are performing over time, or how they will be assessed. Some of the Strategy Map goals are broad enough that a community member might be unclear on what the appropriate metric for evaluating ROI would be (i.e., does achieving “Extend Specialty Programs” simply require more students enrolled, or making sure to determine which Specialty Programs are of high quality, and then extending accordingly?). The Budget Materials available for community members are also challenging to comprehend (at over 300 pages long), making it difficult to easily grasp how funds are being spent and how decisions are being made. That all said, it is commendable that PGCPS is fully transparent about this information, and also posts summaries of meetings and full Q&A documents explaining questions asked at Board of Education meetings regarding the budget, on its webpage.

Long-Term Planning and Strategic Direction

For FY16, PGCPS laid out a “strategy map,” which identified a vision, mission, and five “pillars” through which to achieve the goal of outstanding academic achievement for all students. The strategic direction of the district has been communicated to stakeholders through public presentations and documents. Anecdotally, we observed that, when making difficult decisions about the budget, the Leadership Team refers to the “strategy map” as its way of understanding the instructional priorities of the district.

However, when it comes to long-term planning, PGCPS appears in need of improvement. PGCPS does not publish a long-term, publicly available budget plan (although the current CFO has said that he is considering putting one together in 2018). This makes it difficult for stakeholders to know what the district’s instructional priorities truly are, as there is no understanding of what will be funded in the future and what might have to be cut to be able to make this happen. Leadership Team members reported that it would be difficult to come up with a true long-term vision given the volatility in what the district receives in funding from the County (and State). However, a long-term plan that at least attempts to approximate the yearly allocation in the future and plans accordingly would be better than no sense of the future for stakeholders.

The lack of long-term planning can lead to some difficult consequences when the district launches initiatives that have multi-year spending implications. A good example is Specialty Programs, which tend to have a significant “tail” of spending, as they open grade-by-grade as the years go on. As a result, a decision to open a program in 2014 does not just have an implication on that year’s budget, but rather on every budget until the program is fully grown. However, interviews with the Leadership Team indicated that most felt as if the magnitude of these implied budget needs were not broadly understood,

even at the level of the Board of Education. Specialty Program Managers echoed this concern, stating again that they were often unsure about whether or not the funding would be found for another year of their program. Many of these Program Managers have mapped out long-term plans for their programs, but these plans do not appear to have been shared with the Budget Office, or integrated into any type of overall plan, limiting the utility of the individual plans.

In sum, without a shared understanding of the district's multi-year financial plans to achieve its strategic goals, the strategy map likely fails to keep stakeholders fully informed of the true direction of the district.

Overall

Although the current CFO and Budget Director have made a number of changes to the PGCPS Budget Process since their arrival (to be covered in the following section), our assessment indicates that there is still appears to be a "culture of roll-over" present. This is likely due to many things, including high turnover, a lack of long term planning, and some lack of capacity at the Program Manager level. The issue is not that Program Managers are never asked to cut from their budgets—given that the district has been under budget pressure in the past, Program Managers do appear to have been asked to cut and rely on more limited resources. However, cutting is typically happening in a line item-by-line item fashion until the required cut amount is found, instead of building budgets from the ground up. As a result, potential efficiencies are missed if enough cuts were found elsewhere.

Similarly, there are many initiatives that seem to have been rolled over for several years without being subject to a proper evaluation that would determine return on investment. Clearly, there are certain academic programs that are in high demand from students and families and showing strong academic results, but there are others that have excess capacity and weaker outcomes for students. Yet, a process is not always in place to take a holistic look at this and make resource allocation decisions accordingly. This practice results in some funds being "rolled over" that could be spent more effectively.

Overall, our team observed that the budget process was "in need of improvement" primarily due to the lack of long-term planning, data driven evaluation (particularly at the Program Manager level), and inconsistent stakeholder engagement and training. Thinking about PGCPS in terms of leading practices, it does appear that PGCPS has defined instructional priorities—but it's less clear that the district is forcing the tough decisions and tradeoffs necessary to always keep these priorities first in line with budgeting. Additionally, the sustainability of these priorities is potentially undermined by a lack of long term planning.

Assessment of Continuous Improvement

The current CFO and Budget Director have implemented a number of new initiatives since their arrival, and have plans for several more.

Recently implemented initiatives include:

- Line Item Justifications: For this year's budget cycle, the Budget Office required Program Managers to justify every line item, with the intent of allowing the Budget Office to make more specific cuts. The Budget Director also hoped that this would help Program Managers to approach their budgets with a more critical eye. At the end of the budget cycle, the Budget Director reported that this effort was a limited success. Not all Program Managers provided the justifications, and others did not provide adequate detail (which may be due to a lack of guidance). Additionally, Program Managers spend roughly 80% of their money on positions—and most Program Managers are unlikely to scrutinize positions in their departments to determine whether or not they are needed. However, this effort appears to be a step in the right direction, and the justifications reportedly did give the Budget Director's team some insight into how money is being spent. The Budget Director plans to continue asking for line item justifications and expects the process to become more effective with a new budget system.
- 3-Year Prior Expenditure Template: Also for this year's budget cycle, the Budget Office replaced the previous template that Program Managers were asked to fill in with one that listed the previous expenditures in each category for the previous three years. The stated intent of this change was to show Program Managers which categories were over and under budgeted, and to encourage them to conduct a "bottoms –up" assessment of their

funding needs. However, while this change provides Program Managers with the data needed to make changes, it's unclear whether or not the Program Managers have the capacity to truly analyze this data.

- Program Enhancement Form: The Budget Director also recently introduced the Program Enhancement form, which is a required form for Program Managers requesting either a new program, or an expansion of an existing program. The form requires a cost breakdown and includes a section for long term planning, with the intent to help the Budget Office understand how these programs plan to expand. While the forms provide a potentially easier way for the Budget Office to aggregate data on new requests (which were previously not tracked), there are still significant limitations, namely that the form does not ask Program Managers to provide an evaluation of the program. As a result, the team is not armed with any data when discussing priorities.
- Quarterly Budget Reviews: For next year's budget cycle, the CFO has expressed a desire to do Quarterly Budget Reviews with Program Managers. He noted that this effort is directed at helping Program Managers to have a deeper understanding of where their budget is at a given point in time, potentially reducing the number of one-off requests for information directed at Budget Analysts. He also indicated that it could give Program Managers a more tangible connection to the budget process, and could function as a method of training and supporting Program Managers to approach their budgets with a more critical eye.
- Shift to Single Financial Review and Budgeting Salary Lapses Upfront: For this year's budget cycle, the CFO shifted away from the multiple financial review procedures that the district had previously engaged in. Similarly, he budgeted funds from unused salaries upfront (in accordance with strategic priorities) rather than leave a pool of funds that could be requested ad hoc through the Financial Review process. These appear to be important steps, because they essentially function as a way to remove some of the flexibility that has allowed Program Managers to (in many instances) avoid budgeting for exactly what they will need upfront.
- Cost Avoidance Initiatives (Benefits): In FY16, the new CFO initiated a comprehensive review of PGCPS benefits programs. This review included a dependent eligibility verification audit, which resulted in approximated \$7 million of cost avoidance annually (and also represented a first step in an ongoing dependent verification process to ensure that only eligible dependents are covered). PGCPS also performed claims audits of medical, dental, and flexible spending, and performed a market check of the prescription drug provider. Additionally, PGCPS had an independent review of benefits cost projections completed, shifted to a calendar year for all benefits programs, and negotiated contract terms with medical, dental, and prescription providers that the Budget Office felt were an improvement on previous terms.
- Leadership Team Meetings: During our meeting with the COO, the team learned that the Leadership Team (the COO, Deputy Superintendent, and Superintendent for Teaching and Learning) meet frequently to review programs and determine whether the district is spending money on programs in the most efficient manner. The CFO is frequently included in these meetings. The COO indicated the Team frequently looks at data to make decisions about what is and is not working, and what needs to be changed. We observed that a more data-driven mindset has taken hold amongst these individuals. However, the rest of our interviews indicated that this data-driven mindset has yet to filter down to the individuals who are actually submitting individual budgets.
- New Budget Module: After an extensive search process, PGCPS recently committed to a new budget module. As outlined in the previous section, the existing budget module appeared to be an enormous drain on resources, given the amount of manual processing and updating that it forced. The Budget Office has now decided to purchase a new cloud based system. After asking for comparative quotes from several other systems, the team decided that this system would provide the functionality needed to solve many of the issues previously outlined. PGCPS hopes to start testing next spring and implement in the Fall of 2017.

Overall, the current CFO and Budget Director have made important initial strides in the time since their arrival to Prince George's County Public Schools, though their work remains nascent. Both agree that the problems with the budget process are largely due to deeply engrained cultural issues that are unlikely to be resolved with any single initiative. Regardless, these steps are important ones to move the district towards the goal of more effective budgeting. All of these initiatives will likely take time to be truly effective, and should be examined regularly to look for improvements. Additionally, many of these initiatives will likely require increased training at the level of the Program Managers to be fully effective.

Still, after many years of turnover, there is possibility for improvement in the budget process through these initiatives provided that they are improved upon, consistently carried through, and coupled with true stakeholder engagement.

Key Opportunities for Further Continuous Improvement in Leading Practices

The issues that we have observed are areas of weakness for nearly every large district in the country. A culture of “roll-over” is not unusual, but it does often lead to ineffective spending, and can be potentially mitigated through data-driven strategies and, ultimately, long-term cultural shifts. Viewing the drive for further continuous improvement through this lens, our team would recommend the following as key recommendations for improvement towards leading practice:

- Key Opportunity 1.1: Produce a 3-5 year financial plan aligned to district strategy
- Key Opportunity 1.2: Establish further evaluative tools to track return on investment for new programs
- Key Opportunity 1.3: Assess opportunities for reallocation
- Key Opportunity 1.4: Build capacity for rigorous budget analysis across departments
- Key Opportunity 1.5: Work with Program Managers to facilitate the shift away from multiple Financial Review processes
- Key Opportunity 1.6: Consider adoption of more user friendly budget visualization systems

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Report #21: Evaluate cost savings measures; develop standards/guidelines to inform which types of initiatives require evaluation and how results of the evaluation should be shared	<ul style="list-style-type: none"> • Observations suggest progress made against OLA Report • Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> • Cost initiatives of any form appear to be difficult to track centrally at this point, due to inadequate detail in the ERP system. Individual initiatives are sometimes tracked, but most Program Managers do not have the comfort level with the ERP system or the incentives to do this • Program Evaluation methods appear to vary widely and many are internal to programs. The Leadership Team has implemented a process of meeting weekly to discuss program evaluation. However, many of the individual programs reportedly do not understand how these decisions are being made. Overall, there is no standardized way of evaluating programs or initiatives in order to produce cost savings • There is evidence of incremental improvement; a joint Committee was recently formed to standardize program evaluation • PGCPS should continue with this effort and roll out standardized guidelines for program evaluation and ultimately use this information in the budget development process • PGCPS should also use the opportunity of a new Budget Module to further increase training in the ERP system, so that individuals can potentially develop the capability to actually track cost savings in the system and can evaluate any cost savings initiatives that are undertaken • Please refer to Key Opportunities 1.1, 1.2, and 1.3

Transition Team Report Items	Summary of Observations	Commentary
Transition Team Report #13: Use the financial review process to redirect funds to support instructional outcomes	N/A	<ul style="list-style-type: none"> In some ways, this recommendation is difficult to ever fully implement, because our interviews indicated that funds from the Financial Review process can only be spent on “one time” expenditures that may not always line up precisely with district instructional priorities However, the district has established a set of Instructional Priorities in its Strategy Map, and we observed that these factor into the discussion of how to spend funds from the Financial Review The current CFO has made the decision to move the district towards doing just one Financial Review process per year, which, while an admirable goal, will require a cultural shift of moving program managers away from the dependence of being able to shift funds throughout the year, and towards budgeting correctly up front Please refer to Key Opportunity 1.5
Transition Team Report #14: Institute technology improvements in the budget planning module to increase financial reporting capability and improve budget decision making	<ul style="list-style-type: none"> Observations suggest Transition Team recommendation has been addressed 	<ul style="list-style-type: none"> Although it was not possible to institute technology improvements in the existing budget module, PGCPS recently committed to a new system (Hyperion), after an extensive search that include demoing several other modules PGCPS technically already had access to the Hyperion system, but did not yet have the cloud-based system that the district will now purchase The Hyperion system should allow the district to correct many of the issues with the existing module and should facilitate the capture of data in one system, rather than across the budget module and Excel (although some budget owners will continue to use Excel ‘templates’ that will later be uploaded into Hyperion) Going forward, PGCPS should facilitate training sessions throughout the Hyperion testing process, and should encourage Program Managers to make the switch to the new system. Program Managers are reportedly quite reliant on Excel at present, and on their Budget Analysts. This period is an excellent time to message the importance of learning the new system Please refer to Key Opportunity 1.6
Transition Team Report #15: Institute cost savings initiatives and actively challenge account managers to revise spending approaches; consider implementing lean organization systems	<ul style="list-style-type: none"> Observations suggest progress made against Transition Team Report Further progress possible to fully address Transition Team Report 	<ul style="list-style-type: none"> PGCPS has implemented various cost savings initiatives, including centralized printing, cooperative purchase agreements, and a dependent care audit, among other initiatives. As previously mentioned, the results of many of these initiatives are reportedly difficult to track due to the limitations of the ERP system (at least for those who do not have the proper permissioning) However, at this time, it appears that individual account managers are not challenged to revise their spending approaches. Instead, Program Managers are provided with historical expenditures to build their budgets and are given broad directives about whether the budget will stay flat, be cut, or grow However, even when asked to cut, the Program Managers are not given the tools or challenged to truly figure out where cost savings might lie. Program Managers are more likely to cut small, incremental items, rather than examine positions and determine

Transition Team Report Items	Summary of Observations	Commentary
		<p>whether or not they can be cut or combined (which constitutes the vast majority of spending)</p> <ul style="list-style-type: none"> • Please refer to Key Opportunities 1.1, 1.2 and 1.3
Transition Team Report #16: Increase staff training in Budget System modules, especially in financial report writing, use of data warehouse, document management, and Student based Budgeting	<ul style="list-style-type: none"> • Observations suggest progress made against Transition Team Report • Further progress possible to fully address Transition Team Report 	<ul style="list-style-type: none"> • PGCPS currently offers monthly budget system training, and individuals must participate in the training in order to receive a login • However, the training does not appear to cover more advanced uses of the system. Instead, users report that they typically “learn by doing” and from the Budget Owner who came before them (which is problematic given high turnover) • PGCPS currently offers training in SBB, but a small survey of principals indicated that many rated the training as “fair” or “good.” However, all of the principals commented on the usefulness of the “walk-in” hours for SBB, where principals can ask individual questions face-to face. PGCPS should continue this offering, and expand the amount of available hours for principals to ask questions • Please refer to Key Opportunity 1.6

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 1.1: Produce a 3-5 Year Financial Plan Aligned to District Strategy

Background/Rationale

PGCPS has launched a number of new and expensive programs in the past several years, but many stakeholders appear to have failed to truly play out the potential long-term implications of these programs (which all come with a significant “tail” of spending). There are several unintended consequences. First, the Leadership Team reports that they often get requests for more and more programs from stakeholders like the Board of Education—even when the money for the existing programs is uncertain. This may be due to a lack of understanding of the significant size of the spending “tail” that results from asking for programs in prior years. Second, Program Managers are often unsure about whether or not the expansion of their programs will be funded, leading to last minute scrambles to pull together the resources for new grades once the decision actually comes down. To rectify this, we would suggest the production of a full 3-5 Year Financial Plan, which attempts to lay out what will be funded, and, importantly, what resources will be needed. While individual programs often develop individual plans that lay out resource needs, none of these plans have been synthesized into a district-wide long term plan. Continuing to approach spending on a year-by-year basis leaves both internal and external stakeholders confused about the long-term priorities of the district and what leadership finds valuable. A public plan could help ensure that all stakeholders are on the same page and also understand the full implications of program decisions. Additionally, a long-term plan represents a key chance to identify opportunities for efficiency and reallocation of funds. Often, such a thing can only be achieved over multiple years, as efficiencies begin to add up and funds can potentially be reallocated.

Implementation Plan

Effectively constructing a long-term plan requires backing up and ensuring that everyone is aligned on key goals and instructional priorities for students. Outlining clear, tangible goals is key, as they will become the basis for evaluating potential investments of funds. The PGCPS “Strategy Map” (established in 2016) provides the district with a starting point for outlining both goals and instructional priorities, although there is potential for PGCPS to add more quantitative structure to the goals it has outlined (leading practices recommend “SMARTER” goals, which stands for goals that are Specific, Measurable, Achievable, Relevant, Time-bound, Exciting, and Resourced). As PGCPS updates its Strategy Map in any way,

the district should be sure to engage key stakeholders—particularly principals, teachers, parents, and others in the community.

Once the goals and priorities are established, PGCPS can move on to estimating the costs of these priorities and putting this information into a comprehensive plan. There are a number of key milestones involved in this process to be consistent with leading practice. The district must first identify the key elements needed for effective implementation of instructional priorities. This might include communicating with Program Managers to get a better sense for what makes their programs truly effective. Program Managers should also be involved in generating realistic estimates for what implementing (or expanding) these programs will cost in terms of time, money, and people. PGCPS must then determine its overall “resource gap” by considering the cost of instructional priorities and any other anticipated changes in district revenue and expenditures.

At this juncture, it is important not only to consider new priorities, but also to reconsider existing initiatives and which can potentially be reduced, consolidated, or cut in order to reallocate funds to pay for higher priorities. Although some of these initiatives will take time to phase out, this is the point of a long-term plan, as it would allow stakeholders to better understand which funds are being freed up over time to pay for priorities.

Potential Fiscal Implication

We do not anticipate that putting together a Strategic Plan would have a significant cost. However, we do anticipate that a fiscal plan could lead to potential cost efficiencies in the long run.

Key Opportunity 1.2: Establish further evaluative tools to track return on investment for new programs

Background/Rationale

A shift to truly effective budgeting requires that a district know what programs are providing an actual “return on investment” and which are not. At this point, however, the district does not appear to have a standardized method for program evaluations, particularly for the Specialty Programs and other key academic initiatives. Although PGCPS has started to pilot efforts for evaluating math and reading initiatives, the team should go further in coming up with more standardized ways to evaluate all programs that require significant extra expenditure. The team should also develop a plan to ensure that these programs are evaluated consistently. It is important to build a plan in which PGCPS is considering the cost and quality of programs, and include multi-year considerations while doing so. This will potentially allow the district to get the best full picture ROI comparison.

Implementation Plan

To be consistent with leading practice, PGCPS can start this process by selecting a number of key initiatives and planning out a standard method and plan for evaluation. For example, PGCPS could focus on building out a plan to evaluate the Language Immersion Programs. To do this, the Leadership Team should work with the Program Directors of the Language Immersion program to develop particular goals for the program that align with the district’s overall instructional priorities. Then, they can develop a plan for what data will be used to evaluate student achievement against these goals. This plan should also help keep Program Managers and the Leadership Team on the same page by outlining when data and program status discussions will take place.

However, as our team discovered through our work with the Specialty Programs, gathering data to properly evaluate programs can be difficult in PGCPS. This is because data sits in a variety of places: testing results sit in one office, while student enrollment sits in another, and other elements of the Specialty Programs (lottery, etc.) sit in another. Although it is possible to join this data via the Student ID, it requires a fairly manual process that can prove even more difficult given the often large size of an individual program. The district should consider ways to build a unified data system that allows Program Managers and the Leadership Team to easily view student level achievement data by program. At this point, Program Managers reportedly have to make often cumbersome requests to the Testing and Evaluation Office to understand how their students are doing. It is likely that these requests take significant time because of the need for the

Testing office to manually unify data. It would likely be difficult to make evaluation more common without some sort of unified system (or without potentially putting a very large burden on the Testing office).

Potential Fiscal Implication

The costs incurred from developing further evaluative tools would be small, *unless* PGCPS makes a decision to invest in more sophisticated or centralized data systems. These costs could vary widely. At the back end, we do anticipate that tracking return on investment would potentially lead to more cost-effective decision making.

Key Opportunity 1.3: Assess opportunities for reallocation

Background/Rationale

Much of the observed inefficiency in the PGCPS budget can potentially be explained by the fact that many Program Managers begin each year's process by rolling over their budgets and do not appear to build from a zero base. New administrations have come in and out of the district, layering on new initiatives but not taking a comprehensive effort to streamline, consolidate, or eliminate funds and initiatives that are not working or are no longer consistent with strategy. In this sense, it is not only line items at the individual Program Manager level that are being "rolled over" but rather whole initiatives and strategies are layering on one another over time. As a starting point, it is crucial for PGCPS to undertake a one-time effort to set a baseline of potential efficiencies in academic programming and begin to build this as an ongoing aspect of management culture going forward. Such a baseline would outline which strategic efforts will be discontinued, which will be continued pending evaluation (with a plan to do so), which will be consolidated, and a plan for any new strategic efforts. This will be a key input for a rigorous 3-5 year plan, as any plan needs to identify not just new costs, but also opportunities for reallocation to support these investments.

Implementation Plan

Given that this recommendation is a key input to the larger long-term plan, the process for resetting the key strategic priorities looks very similar to the process of establishing a long-term plan. The key difference is that, in this process, in order to reflect Leading Practices, the Leadership Team must apply an even more critical eye to understanding all of the initiatives that have been "rolled over" and layered on top of, and develop an understanding (with stakeholders) of what the new "base set" of initiatives will be. This will involve cutting, consolidating, and establishing new initiatives, as previously mentioned.

Potential Fiscal Implication

The costs of engaging in this process could likely be minimal. However, this is an important process that could possibly identify potential opportunities for cost efficiencies.

Key Opportunity 1.4: Build capacity for rigorous budget analysis across departments

Background/Rationale

PGCPS has adopted a somewhat "local" approach to its budgeting, which means that individual Program Managers fill out a budget template requesting funds. Similarly, Principals have some level of local budget decision making via the Student Based Budgeting process. The decentralization of district budgeting has become an increasingly popular strategy across the country. However, decentralized budgeting requires that Program Managers are well-versed in effective budgeting processes.

Throughout this report, we have referred to the culture of "rolling over" the previous year's budget as one of the largest observed issues potentially holding the budget process back from approaching leading practices. However, to refer to this issue simply as cultural ignores the reality that many Program Managers likely do want to budget more accurately, and do want the district to improve the budgeting process—but they sometimes lack the capacity to do what needs to be done to help improve the process. Program Managers often understand the process in terms of just their own budgets (especially given the lack of an overall long-term plan). This is one reason why Program Managers are incentivized to request as much

as they can, since they're often unaware of what else their budget is "trading off" with. They may also lack the resources (in terms of time, data, and perhaps systems) to apply a truly critical eye to their budgets.

At the same time, these individuals still know these programs best and have a deeper understanding of what line items must be funded and how different parts of the program interact with one another. Providing Program Managers with greater budgetary skills, communication, and capacity can potentially help them translate their internal and institutional knowledge of their area into more effective budgeting.

Implementation Plan

One example of building capacity is the current CFO's idea to integrate Budget Analysts more deeply into Program offices (based on his recent decision to hire a Budget Analyst to sit with the Superintendent for Teaching and Learning's team). The stated intention is for Budget Analysts to offer more direct lines of communication to the Budget Office, yet still be able to develop a deeper understanding of the office they are sitting in. The CFO and Budget Director also noted that this individual will have responsibilities above and beyond that of the typical Budget Analyst, and will be responsible for providing more capacity for true financial analysis (and for looking at potential for cost efficiencies).

We look forward to better understanding how the CFO's initial step at integrating a Budget Analyst into a Program Office unfolds, as this may provide valuable lessons to better roll out the initiative across several other Program Offices (the CFO cited Capital Programs as another potential office that could benefit from this).

Potential Fiscal Implication

This opportunity does require an upfront investment (equivalent to the salary of however many Budget Analysts are hired, or to the costs of training existing staff members to take on greater responsibilities). However, we do anticipate that these costs could potentially be worthwhile given the anticipated cost efficiencies resulting from rigorous budget analysis.

Key Opportunity 1.5: Work with Program Managers to facilitate the shift away from multiple Financial Review Processes

Background/Rationale

Our interviews indicated that many Program Managers are scared to lose the flexibility once provided to them by the multiple Financial Review processes. While removing this tool is likely an important step in the right direction, PGCPS could ease confusion among Program Managers and facilitate better budgeting by working with them to determine what they usually spent these "extra" funds for, and how they can create a plan to pay for important items without requesting extra funds mid-year or asking for multiple re-categorizations of funds.

Implementation Plan

There are several ways to potentially ease some of the Program Managers' concerns. A simple step would be for the Budget Office to provide Program Managers with historical data regarding the Financial Review requests they have made in the past. Budget Analysts could then be encouraged to communicate with Program Managers about creating new line items to properly budget these items upfront. For Program Offices where this amount is particularly large, the Budget Office should encourage Budget Analysts and Managers to develop a joint plan that outlines what new funds will be needed to replace the funds that used to be requested mid-year during the Financial Review processes.

Ultimately, we believe that Program Managers need to see that this type of collaboration is being offered by the Budget Office. At this juncture, Program Managers appear scared to move away from an old system in which they were at least assured that they had a flexible way of requesting funds mid-year. The Budget Office needs to find a way to communicate the message that the programs will still be adequately resourced if requests are placed in the correct categories upfront (even if this might contradict what was "rolled over" in the prior year).

Potential Fiscal Implication

This will require a time investment on the part of the Budget Analysts and Budget Office, but it is possible that this initiative will not otherwise have a fiscal implication.

Key Opportunity 1.6: Consider adoption of more user friendly budget visualization systems

Background/Rationale

At present, PGCPS trains Program Managers in its budget system before they can be on-boarded to the system. However, this training is of a one-time nature and is quite basic. Our interviews indicated that many Program Managers simply learn by doing, or from their predecessors. Additionally, many other Program Managers rely on assistants or Budget Analysts to pull information for them. We believe that this is potentially due to a lack of training. However, the current CFO and Budget Director explained to us that it is largely because the current system just isn't particularly user-friendly. Information is displayed by Account-String, and is not aggregated in a way that is useful to anyone on a day-to-day basis (instead, the system was designed to be used by Accountants).

Implementation Plan

PGCPS is already demoing several more user friendly budget systems for Program Managers to use. These would not replace the current system or replace the more upgraded model coming down the pipeline. Instead, these systems would provide a more user friendly way for Program Managers to visualize their budget data. For example, according to the CFO and Budget Director, PGCPS recently demoed a system that allows Program Managers to slice and dice their financial data to analyze spending by year, fund, category, and program. It also allows them to search for accounts, rather than memorize account strings. The system also provides performance analysis, and allows Program Managers to create customized dashboards to help track metrics they might be interested in.

At this point, PGCPS is still demoing systems. We encourage the Budget team to continue demoing and solicit Program Manager feedback. It is also possible that the district can dig more deeply into the capabilities of the existing budget/ERP system. While the district generally upgrades the software with the latest version, some of the capabilities of the system are ignored, and could potentially be used to provide Program Managers with more information (without having to invest in a new system).

Potential Fiscal Implication

While prices for such systems vary widely, interviews with several representative software companies indicated that such a system might generally have an annual fee of around \$20,000-\$30,000, which allows for some small subset of users (5-10), and also includes maintenance, implementation, integration with the ERP system, and annual upkeep/customer service. Generally, additional users cost more money (in the range of \$500-\$1,500 depending on the volume of users registered). While an upfront investment, such a system could be worthwhile if it assists budget owners in making more efficient budgeting decisions.

The cost to investigate the capabilities of the existing ERP system would be small, although if the district uncovers new capabilities, it might want to consider investing in more training for Program Managers, which could have a cost.

2. Building Services and Maintenance

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Building Services and Maintenance. The objectives for this portion of the study were defined in the RFP. The team was guided by this scope of work, which encompassed identifying duplicative services and potential inefficiencies, evaluation for reallocation of resources, and opportunities for collaborative partnerships to increase efficiency. In this capacity, we assessed staffing and training opportunities, software utilization, preventative maintenance, and partnership opportunities.

Based on the RFP, the team was first asked to conduct a performance assessment of Building Services and Maintenance. This involved identifying where services are potentially duplicated outside of the core competencies of the school system (e.g., both PGCPS and Prince George's County maintain fueling stations, haul trash, risk mitigation, etc.)

Second, the team was asked by the RFP to analyze and report on where resources are needed, where they may be eliminated, or where they may be redeployed to other offices that directly support the mission, vision, and core competencies of the school system.

The overall assessment methodology focused on preliminary analysis and primary research of the department and similar departments in the region. The methodology included preliminary analysis (including interviews with maintenance staff including the Department Heads and Facility Coordinators), primary research (extensive interviews, document analysis, site visits of numerous schools, focus group sessions with key departmental personnel), as well as secondary research (including research on leading practices and SOPs) and data analysis of the results/quality of the current Facilities Maintenance Program. For more details regarding the assessment methodology, please refer to **Appendix B-1**.

Section 2: Summary Perspectives

For the purposes of this Continuous Business Process Improvement Study, the team created a leading practices framework to assess each department within PGCPS.

These performance assessments take into consideration business practices and processes, safety and standards, use of data and analyses, appraisal of staffing within the organization, stakeholder engagement, and long-term planning and strategic direction. We believe that this system of assessment provides an overall evaluation as it relates to leading practices and its overall measure of quality control and efficiency.

Based on the results of the assessment, the team has assessed the PGCPS Building Services and Maintenance Department as "**Needs Improvement**" within the leading practices framework. We observed that the department is currently positioning itself to meet leading practices with regards to utilizing software for more efficient processes, effectively training its staff to meet work order demand, and developing a functional preventative maintenance program. We believe the "needs improvement" assessment reflects that the department is preparing to take the necessary steps to implement these programs and processes that will bring them closer to leading practices.

In general, the assessment of the PGCPS Department of Building Services and Maintenance can be separated into four main interconnected areas: Staffing, Training, Software, and Preventative Maintenance.

Current Situation Assessment and Evaluation of Continuous Improvement

Staffing

Four years ago (FY13), PGCPS made the very difficult management decision to cut the Building Services and Maintenance department's budget by approximately 20%. This budget cut resulted in a reduction in personnel and led to more limited supervision of schools and delayed work order completion. This reportedly led to existing staff having to accept more responsibilities and increase their management purview. The department has not yet been funded at the pre-20%

reduction level. The facility coordinators and the head of the Facility and Maintenance Division identified zone cleaning and teaming strategies to address efficiency issues needed as a result of a lack of adequate staffing. To address the impact of the hundreds of positions that were cut in FY12 and FY13, a combined total of 241 custodial positions were cut through FY13. Cost efficiencies were reported by PGCPS to be negligible because reduce cycles of cleaning and replacement and deferred PM associated with reduced staffing often contributed to reduced useful life of systems. Timely corrections and repairs could in many cases help prevent, or reduce the number of service calls and work orders generated by delayed repairs in bathrooms, school kitchen areas, HVAC vents and systems, as well as classroom areas and interior and exterior doors and windows.

There is a significant observed need to invest in adequately funding the appropriate staff positions. In order to effectively maintain the PGCPS building portfolio, the department appears to need additional resources for key positions, such as Facility Coordinators. There has reportedly been a decrease in departmental efficiency due to the reduction of Facility Coordinator positions. Currently, each of the five Facility Coordinators manages more than 40 schools in their respective district. Adding just one position to this team will drastically reduce the workload for the existing staff and potentially increase productivity and quality control. **Appendix B-3** illustrates the total number of work order backlogs at the school facilities that were inspected during the assessment.

The reduction in manpower due to budget cuts created more responsibilities with less staff. This reportedly resulted in a maintenance staff that lacks a clear understanding of the delineated tasks associated with their positions. Job descriptions that are not clearly defined can hinder the department's overall performance and can create a culture lacking accountability.

Training

The department has reportedly experimented with different training programs to meet the needs of the staff so they can perform duties as efficiently as possible. Recently, the department utilized a program called the Maintenance Medic Program that allowed for personnel to be trained to perform minor repairs. After successfully completing each area of training and meeting the requirements of the program, the candidate received a certification recognizing this achievement.

The purpose of this program, which was judged as successful by leadership, was to provide a more responsive work force for minor repair tasks at the school level. Unfortunately, this program was discontinued in FY 2014. The program was funded by a stipend that was eliminated for budgetary reasons. Since that time, the department has experienced an increased backlog of work orders.

Currently, the department has a partnership with the Prince George's Community College that allows staff to take courses that specialize in facility management, HVAC, and electrical engineering. This program provides participants an opportunity to enhance existing skill sets and generally increases the capabilities of the maintenance staff to complete work orders.

Software

The department uses a cloud-based maintenance and facilities management software that is provided by Dude Solutions. This software has a data services function that allows the user to create customized reports and dashboards that reflect key performance indicators, trends, and goals. This data services component of the software is being upgraded to a *Maintenance Essentials Pro* software product that has inventory tracking and management and preventative maintenance functions.

There is a significant observed need to abandon manual facilities management processes. Having the ability to provide critical maintenance staff support by generating recurring preventative maintenance schedules and automatically prioritizing work order requests in real time would reflect the existing leading practice. The department is currently working with the software provider to upgrade to the new system in order to meet leading practice.

Preventative Maintenance

A functioning predictive and preventative maintenance (PM) program is a lead indicator in a healthy and efficient facility management program. Having an effective PM program has the ability to potentially increase productivity by 20% and potentially reduce emergency work orders by 60%. The department does not currently have a PM program and primarily completes work orders in a reactive maintenance position.

The goal of strengthening the department's PM program ties into the key areas of focus for this assessment. Adequate staffing and training that utilizes world-class software is the backbone to a strong PM program. The upgraded cloud-based software is the solution that connects the department and helps provide a more productive and less reactive maintenance staff. The upgrade and full implementation of these products could prove paramount in developing an effective PM program and in the overall success of the department.

Key Opportunities for Further Continuous Improvement in Leading Practices

- Key Opportunity 2.1: Expand training and broaden use of cloud-based maintenance and facilities management software
- Key Opportunity 2.2: Develop and implement a more robust preventative maintenance program
- Key Opportunity 2.3: Reevaluate, re-implement, and expand the Maintenance Medic Training that was dissolved, (or implement a similar type of training program)
- Key Opportunity 2.4: Expand current maintenance training programs with Prince George's Community College
- Key Opportunity 2.5: Increase night shift maintenance staff or shifts completed after hours
- Key Opportunity 2.6: Increase the investment in Chief Building Supervisors and Facility Coordinator positions
- Key Opportunity 2.7: Continue a collaborative relationship with the Department of Capital Programs
- Key Opportunity 2.8: Revise written job descriptions for custodial and maintenance staff that clearly delineates duties and responsibilities
- Key Opportunity 2.9: Collaborate with peer or feeder schools

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
PGCPS inventory records were not comprehensive or complete. Lack of regular inventory audit and policy. (OLA Report Finding #9 & 10)	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none">• In 2013 the department started a reportedly comprehensive barcoding effort for all depreciable assets greater than \$5,000. PGCPS has currently increased that threshold to include all technology assets regardless of value in its barcoding efforts• Soon after the OLA Report, the department finalized the Property Control Manual, which outlines the current policy and procedure for property inventory• The full implementation of new software will also help with this issue

OLA Report Items	Summary of Observations	Commentary
PGCPS did not adequately document preventative maintenance work performed. (OLA Report Finding #15)	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Following the OLA report the department purchased their “plant operations and supporting services” software Please refer to Key Opportunity 2.1
PGCPS did not maintain required documentation justifying sole source procurements. (OLA Report Finding #3)	Observations suggest OLA Report Recommendation has been addressed	As of July 2014, PGCPS has reportedly revised and implemented the new procurement manual that outlines a sole procurement process that requires Board approval and a submission of justification to the Interagency Committee on MD Public School Construction. The Department of Building Services and Maintenance is currently utilizing the manual in its procedures.
PGCPS did not always obtain adequate assurance that services were provided under contract. (OLA Report Finding #17)	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> Making essential staff changes and a monitoring process under the new policy appears to have handled the issues associated with this finding. Please refer to Key Opportunity 2.8
ESCO contracts lacked necessary specificity to ensure timely project completion and realization of expected savings. (OLA Report Finding #16)	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> Management indicates that there has been approximately \$19M in savings since 2006 but due to the constant addition and elimination of facilities throughout the system, a more accurate assessment of energy efficiency savings is difficult to determine ESCO contracts are reportedly no longer being used by PGCPS

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 2.1: Expand the training and broaden use of cloud-based maintenance and facilities management software

Background/Rationale

PGCPS launched the cloud-based maintenance and facilities management software approximately two years ago and it is being upgraded to the *Maintenance Essentials Pro* product. The upgraded product has inventory tracking and management, and preventative maintenance functions that are not currently in use. The full implementation of the software is expected to be completed by FY 18, according to Management.

Key staff are currently being trained to fully experience the return on the investment but additional training is needed to enhance and to improve preventative maintenance efforts. We observed that the department is in need of a “train the trainer” program that utilizes key staff who are well-trained on the software and who then act as the point of contact (POC) for training additional staff. The department is also in need of a dedicated I.T. person for troubleshooting purposes to make processes more efficient for all levels of staff.

Neighboring jurisdictions have described tremendous success with the fully implemented software. They report 20% increased corrective and preventative maintenance productivity and approximately 30-minute savings per work order. Fairfax County School System has extended an invitation to PGCPS for collaboration and training with the software provider that both districts utilize. Fairfax has also mentored the Prince William County Public School System.

Implementation Strategy

There is a need for the development of a defined rollout strategy to effectively implement all four software models within the upgraded product: Corrective & Preventative Maintenance, Inventory Management, Capital Forecasting, and Building Automation. A potentially plausible implementation strategy would be to explore developing a training program for the software that allows identifying and training “champions” at each level of the department to then continuously train staff. This would potentially decrease training costs and increase internal buy-in from the employees of the department.

Another strategy that moves toward the broadened use of the cloud-based maintenance and facilities management software is to consider utilizing neighboring jurisdictions to help with the training and implementation of the software system: Fairfax County Public Schools, Chesterfield County Public Schools, and Prince William County Public Schools (**See Appendix B-4**). These neighboring jurisdictions have used these products for many years and have valuable leading practices that could be very helpful.

Potential Fiscal Implication

The software suite has been purchased by PGCPS and is being currently upgraded to the new package. Due to the simple update, there could likely be no additional cost to fully implement the upgraded software suite.

Key Opportunity 2.2: Develop and implement a more robust preventative maintenance program

Background/Rationale

The Department of Building Services and Maintenance currently does not appear to have a functioning preventative maintenance plan due to staffing constraints. Currently, maintenance work is done on a reactive and ad hoc basis. The department currently utilizes a cloud-based maintenance and facilities management software as only a basic maintenance software solution but this product does have a robust Corrective and Preventative Maintenance component. Fully utilizing the upgraded system, however, can potentially address the backlog of work orders, inventory control, and reactive maintenance issues.

Implementation Strategy

The department should develop a rollout strategy to effectively implement all four of the modules within the upgraded software package: Corrective & Preventative Maintenance, Inventory Management, Capital Forecasting, and Building Automation. Utilizing the Corrective and Preventative Maintenance module could increase efficiency. The rollout strategy should include short term and long term objectives with timelines and updates in the comprehensive maintenance plan.

Potential Fiscal Implication

The effective development and implementation of a preventative maintenance program can be easily handled through the upgraded software. PGCPS is currently upgrading and there is likely no additional cost associated with the upgrade.

Key Opportunity 2.3: Reevaluate, re-implement, and expand the Maintenance Medic Training that was dissolved (or a similar type of training)

Background/Rationale

The Maintenance Medic Program was reportedly created to provide a more responsive work force to handle minor repairs by providing in-service training for facilities maintenance staff. Recently, the Maintenance Medic training program was dissolved, which decreased the work product and output from the department. Due to the lack of properly trained staff, there appears to be a loss in effectiveness to handle the substantial work order backlog. Re-implementing the Maintenance Medic training program could increase the capabilities of facilities maintenance staff that can resolve work orders in their respective schools without the need for field staff.

Implementation Strategy

The cornerstone in this strategic implementation is to reevaluate the Maintenance Medic program's effectiveness and re-implement the program or one that is similar that works within the current needs of the department. The department should create a training rollout strategy that allows adequate staffing at each school while properly training maintenance staff to handle more work orders on the premises. That plan should also include implementing a flexible training schedule in accordance to the number of maintenance staff assigned at each school to provide adequate maintenance coverage while selective staff is attending training.

Potential Fiscal Implication

The Maintenance Medic training program was previously funded by a stipend that was eliminated for budgetary reasons. The cost of the program was reported at approximately \$400,000 per year.

Key Opportunity 2.4: Expand current maintenance training programs with Prince George's Community College.

Background/Rationale

There is a current training program with the Prince George's Community College that staff indicates enhances their ability to handle routine maintenance without having to wait and rely on field staff. This program allows participants to enhance their existing skill sets and potentially receive certifications in their desired field of training (HVAC, Electrical Engineering, etc.) Expanding this existing program could help to increase the capabilities of facilities maintenance staff to resolve work orders in their respective schools without the need for field staff.

Implementation Strategy

Effective implementation of this strategy begins by evaluating the Prince George's Community College training program's effectiveness and the current needs of the department. The department should create a training rollout strategy that allows adequate staffing at each school while properly training maintenance staff to handle more work orders on the premises. The department will need to determine their budgetary allowances to expand the maintenance training program or a similar type of program. If the specialized training programs are funded and permitted to resume, staff could receive training across most of the PM spectrum. As upgraded equipment is installed, training should be sought from the company to understand the best PM practices with the new equipment. Resources may not be available to deliver a full set of training skill sets across the spectrum of equipment and system types. While reducing the amount of field staff, or contractor support required to complete repairs, outside support may still be needed to support critical plumbing and mechanical problems.

Potential Fiscal Implication

According to our interviews, the current training program with Prince George's Community College costs approximately \$150,000 per year.

Key Opportunity 2.5: Increase night shift maintenance staff or shifts completed after hours.

Background/Rationale

Currently, school based maintenance staff perform both daytime and nighttime shifts. Maintenance is obviously done in a more efficient manner during the nighttime due to increased access with students and staff not in the building. The previous loss of positions has reportedly resulted in less frequent coverage of schools and delayed work order completion, but leading practices show that night shift maintenance is the most effective use of maintenance time and efforts for facilities managers. Completing critical preventative and or reactive maintenance after hours allows for uninterrupted and efficient maintenance time allocation. The department currently requires new hires to complete mandatory night shifts as a part of their on-boarding agreement. The tenured staff work hard to avoid the night shift and in some cases they consult with the union representatives to prevent being assigned to the night shift. Without significant night shift differential pay, similar to that received by public safety employees, it is difficult to get volunteers for the night shift. New employees are informed early in the hiring process that, depending upon the school assignment, they are likely to be scheduled for the night shift. It has proven a much easier process to build up the night staff from the new employees entering the system. Other incentives should be explored when possible because it has been proven that night shift efforts show added successes because of little or no interference.

Implementation Strategy

To effectively implement this recommendation, the department will need to evaluate the current night shift process and develop the appropriate strategy for night shift maintenance moving forward. The department should also coordinate with Facilities Coordinators on suggestions and input on how to successfully create a night shift maintenance strategy.

Potential Fiscal Implication

Due to the increased night shift maintenance requirements for new hires, there would potentially be little additional cost for expanding that requirement to existing employees.

Key Opportunity 2.6: Increase the investment in Chief Building Supervisors and Facility Coordinator positions

Background/Rationale

Currently, there is an observed need for additional Facility Coordinators and re-evaluation of the previously dissolved Chief Building Supervisor position. More facility coordinators could potentially provide better site coverage and increase frequency of inspections. Increasing inspection frequency could provide greater quality control. The Chief Building Supervisor position was dissolved for budgetary reasons during the PGCPS FY 13 budget reduction. According to our interviews, this role acted as an on-site building manager that had direct access to the Facility Coordinator position. Because the Facility Coordinators oversee dozens of schools in their zone, the Chief Building Supervisor reportedly allowed for improved quality control and efficiency.

Implementation Strategy

The department needs to evaluate their current staffing needs and develop the appropriate strategy for maximum efficiencies moving forward. With this strategy there is a significant need to coordinate with Facility Coordinators on suggestions and input regarding an increased staffing plan. The department must also determine their budgetary allowances for the potential increase of staffing. Finally, minimum custodial and routine maintenance standards that govern day to day operations are needed for potentially better accountability at every level.

Potential Fiscal Implication

The Facilities Coordinator position is funded on an average of \$54,000, annually. Chief Building Supervisors are no longer budgeted and this particular funding level is unknown.

Key Opportunity 2.7: Continue a collaborative relationship with the department of Capital Programs

Background/Rationale

There has been ongoing and increasing cooperation between the Department of Capital Programs and the Department of Building Services and Maintenance to share vital school maintenance and school construction information. Better collaboration and better support can yield potentially optimum efficiency for both divisions regarding school construction and for the renovation of projects.

Implementation Strategy

The implementation of this strategy should begin with examining the expansion of the collaborative relationship between departments to build schools that are easy to clean and maintain. The department should also plan and coordinate joint meetings with key Capital Programs staff to discuss upcoming and existing capital projects to provide input from a departmental perspective. These meetings should be consistent and ongoing for continued transparency.

Potential Fiscal Implication

Due to the internal staffing nature of this strategy, this recommendation likely has little to no potential fiscal implication.

Key Opportunity 2.8: Revise written job descriptions for custodial and maintenance staff that clearly delineates duties and responsibilities.

Background/Rationale

There is a significant observed lack of employee participation as it relates to going above and beyond written job descriptions and general accountability. Our interviews indicate that clearer guidance is needed in defining duties for all positions. Custodial and maintenance staff sometimes refuse to complete necessary work that “is not in their job description.” Accountability is needed to require managers to reinforce the newly augmented job descriptions with an effective organizational plan and structure.

The key elements of a properly written job description include but are not limited to: Position Identification, General Summary, Essential Functions, Core Competencies, and Physical Requirements. Developing concrete job descriptions along with management enforcement can potentially create a culture of accountability and success. Additionally, the department has approximately 900 school based custodial staff members and 131 in field support and administration totaling 1031, which has been reduced by 241 positions through FY13. This does not appear to be in line with leading practices in the region given the size of the school system. Utilizing the American Society of Civil Engineers assessments and studies conducted on behalf of the American Association of School Administrators, the combined custodial, support administration and maintenance staff should range around 1,690 positions combined. The school systems current combined staffing totals 1,391, clearly needing to regain some of the positions loss in the previous years as the schools continue to age. However, revising job descriptions can assist with being a cost efficient alternative to hiring more staff, to some extent.

Implementation Strategy

The implementation strategy for this recommendation is fairly straightforward and requires the department to revise and update the written job descriptions of essential positions within the department. The department also needs to update managerial job descriptions to require reinforcement of the newly augmented job descriptions for subordinates.

Potential Fiscal Implication

This recommendation likely has little to no potential fiscal implication.

Key Opportunity 2.9: Collaborate with peer or feeder schools.

Background/Rationale

Leading practice suggests that when the physical plant is maintained and the surrounding grounds are well kept, it conveys respect for the school community and the educational mission. Team collaboration with peer schools, staff, and the community is recommended to promote physical safety and to improve the condition of the school facilities. Leading practices indicate that in a safe and structured environment, students can focus their attention on learning.

Implementation Strategy

The department should combine efforts with input from peer schools and input from the community to improve structure and safety by hosting regular ongoing town hall meetings in the communities with parents and stakeholders and via focus groups. By working together, the communities can potentially establish a collaborative sense of order and a positive school climate of leading practices.

Potential Fiscal Implication

This recommendation likely has little to no potential fiscal implication.

3. Physical Security of Facilities

Section 1: Overview of the Scope of Work

The Continuous Business Process Improvement study team worked with the Department of Security Services from February to June 2016 to assess the physical security of facilities, specifically looking at facility issues that could pose a risk in the event of an emergency situation. The team developed a Physical Security of Facilities checklist, reflective of national standards and leading practices for security in school facilities as well as PGCPS security policies, to assess all Prince George's County schoolhouses. Investigative counselors (I/Cs) were responsible for conducting the assessments, which required walkthroughs of the building interiors, exteriors, a sample of ten classrooms, and a brief interview with the building supervisor, custodian and/or school administrator. A copy of the checklist and results are in **Appendices C-1 and C-2**.

The objectives for this assessment were outlined in the RFP released by Prince George's County. Specifically, the teams were asked to assess whether all facilities were adequately secured (through the use of the buzzer system, ID management system, video cameras, panic buttons, etc.). The team was also asked to assess how the Department is utilizing practices that reflect current known leading practices, and to suggest ways that physical security of facilities could be further improved.

The consultant team conducted a four-part quality assessment process to ensure consistency of the checklist assessment methodology across schools, in the following order:

1. Prior to assessments: Checklist training with I/Cs, who were responsible for conducting the assessments. I/Cs not present for the training with the consultant team were trained by Security Services leadership.
2. Concurrent walkthroughs: The consultant and I/C conducted simultaneous assessments and normed answers at the conclusion of the checklist. The consulting team conducted concurrent walkthroughs at 18 schools. Refer to **Appendix C-6** or a listing the schools.
3. Post-assessment walkthroughs: The consultant team conducted independent assessments of Friendly High School, Isaac J. Gourdine Middle School, and University Park Elementary School schools, which were previously assessed by I/Cs, and compared results.
4. Post-assessment surveys: The consultant team shared the completed I/C checklist with each principal and asked for their input via an online survey on whether the checklists were congruent with their own assessment of security issues in their schools. As of June 2016, 87 principals provided input. A summary of their perspectives is in **Appendix C-3**.

The assessment of physical security of facilities included the following additional methodologies:

- Interviews with Department of Security Services and Safety Office.
- Data analysis of school security incident data from School Year 2014-15 and School Year 2015-16.
- Leading practice research conducted primarily through the U.S. Department of Homeland Security, the U.S. Secret Service, and the U.S. Department of Education, National Clearinghouse for Educational Facilities, Center for Safe Schools, and Safe Havens International. Various state and local resources regarding school safety and checklists were also analyzed.
- A Town Hall meeting with community members on April 19, 2016.
- Survey of principals based on completed security checklist results.

Note: Appendix C provides additional details for the various methodologies:

- Summary of checklist assessment results **Appendix C-2**
- Summary of the Town Hall discussion is in **Appendix C-8**
- A complete list of interviewees is in **Appendix C-7**
- School Incident data analysis is in **Appendix C-4**
- Summary of the principal survey responses is in **Appendix C-3**

Section 2: Summary Perspectives

Current Situation Assessment

Physical security of facilities has been assessed as "**Approaching Leading Practices.**" Overall the Department of Security Services appears to have implemented a series of policies and procedures in several key areas consistent with national leading practices:

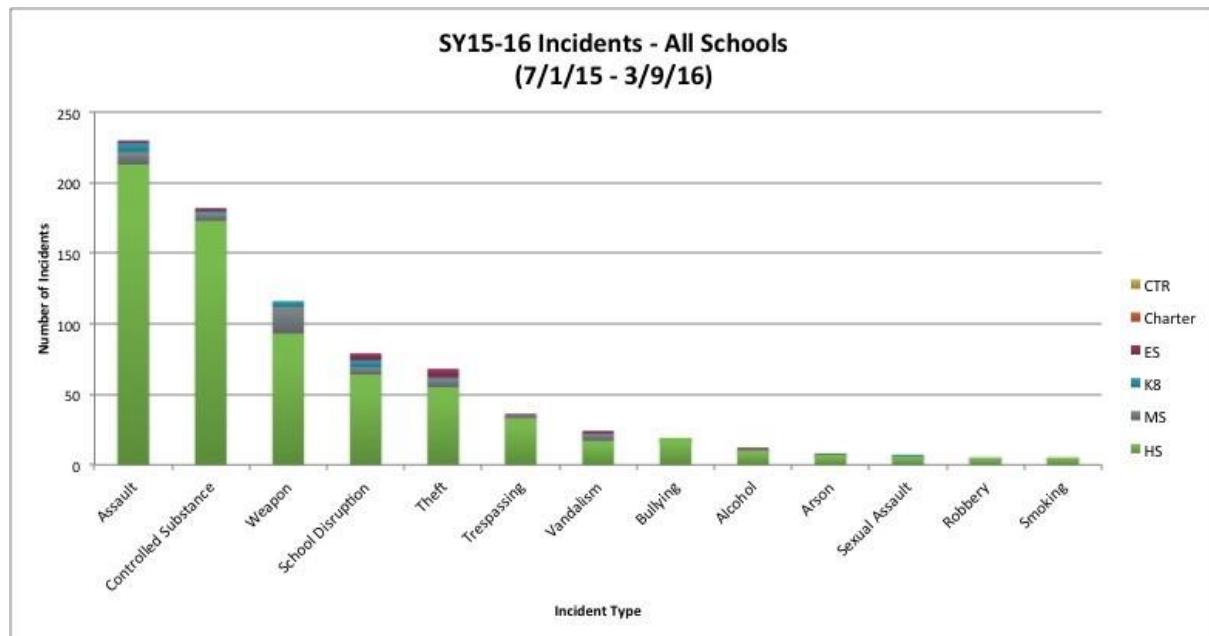
- **Infrastructure:** The Department of Security Services has outlined guidance for access control (including intercoms, Raptor systems, cameras, and fencing for temporary buildings) and has implemented protocols for schools to leverage this infrastructure, ensuring the safety of students and staff.
- **Communication:** To enforce and improve safety procedures, Security Services regularly collaborates with Building Services and Maintenance, the Office of Safety, and the Maryland State Fire Marshal. All schools have a notification protocol in their Emergency Plan that outlines who should be contacted in emergencies and how.
- **Staffing:** Security staff is focused primarily in high schools, where the need is greatest, and all schools have assigned security support. More than half of security staff are trained in conflict resolution.
- **Procedures:** The department trains administration, faculty and security staff on security and safety related issues throughout the year. The Department of Security Services provides continuous training and enforcement to conduct lock down drills. All PGCPS schools completed the four required lock-down drills as of June 2016.

Because many of these policies and procedures have only been implemented in the past one to two years, adoption across all schools is not yet fully consistent—and some adjustments or additions to policies and procedures need to be made in order to fully meet leading practice standards.

The Department of Security Services provided incident data from Star Light, the PGCPS incident reporting system, for 132 schools for the period of July 1 to March 9 of SY 2014-15 and SY 2015-16. The top five incident types, comprising 85% of all incidents in SY 2015-16, across all schools in both years were: assault, controlled substance, weapon, school disruption, and theft. In SY 2015-16, 88.5% of all incidents took place in high schools, with an average of 27 total incidents at each high school ranging from a low of 0 to a high of 92 total incidents at one high school (see **Appendix C-4** for more information).

Incidents at all schools from July 1, 2015 to March 9, 2016

Given that the majority of incidents occur in PGCPS high schools, prioritizing the deployment of security staff and cameras to high schools is a sound allocation of limited resources.



4

Assessment of Continuous Improvement

The Department of Security Services has stated that they are committed to continuously improving physical security and safety measures at Prince George's County school facilities. The department is currently researching alternative classroom door lock options that comply with Maryland State Fire Code lock requirements and lockdown leading practices. The Safety Office and Department of Security Services have identified the mortise lock as a viable option, but the \$500 per lock cost hinders installation due to limited available funding. To address fencing issues, Building Services and Maintenance and Security Services are collaborating to pilot a more durable fencing option at Northwestern High School in SY 2016-17. This high school has reported persistent issues with students cutting the perimeter fencing to leave school grounds.

In SY 2014-15, Security services introduced the Raptor vSoft scan system to screen 100% of all visitors at all Prince George's County schools; the Raptor system scans the visitor's identification, conducts a background check based on that information, and prints a temporary visitor badge to be worn at all times when in the school building. The department centrally monitors scan usage at schools and has reported an increase in scans since its introduction. In SY 2014-15 there were approximately 200,000 scans and in SY 2015-16 scans increased to 320,000. Despite the increase in usage, there is not 100% compliance in visitor screening as stated by parents at the Town Hall and also observed by the consulting team during checklist assessments. Security Services provides technical assistance for the Raptor system and is committed to increasing training and monitoring for school-based staff, who are responsible for Raptor visitor screening.

Key Opportunities for Further Continuous Improvement in Leading Practices

The staff of Security Services completed all of the Physical Security of Facility Checklists at all Prince George's County Schools as of June 2016. A summary of the checklist results is in [Appendix C-2](#). The checklist data provided valuable information on common practices and issues related to the physical security of facilities across PGCPS schools. The following key opportunities for improvement for physical security of facilities were identified based on the specific needs of PGCPS schools in the context of national leading practices:

- Key Opportunity 3.1: Enforce a 100 percent Raptor screening policy for all visitors to all schools.

⁴ Theft versus Robbery: A theft occurs any time there is an unauthorized taking of property from another person. Robbery is essentially theft accomplished using physical force or fear.

- Key Opportunity 3.2: Replace all analog cameras with digital cameras connected to the central system, and add new cameras to provide coverage of interior and exterior blind spots.
- Key Opportunity 3.3: Revisit security staffing allocations across high schools and middle schools.
- Key Opportunity 3.4: Establish, communicate, and enforce a clear, district-wide protocol for covering windows on classroom doors.
- Key Opportunity 3.5: Investigate policy and technology options for teachers to be able to lock their classrooms from the interior in case of a lockdown situation.
- Key Opportunity 3.6: Replace broken or missing boundary fencing in key locations in wooded areas at the rear of school buildings.
- Key Opportunity 3.7: Properly secure all temporary classrooms at elementary and K-8 schools according to PGCPS guidelines.
- Key Opportunity 3.8: Prioritize security-related building work orders.
- Key Opportunity 3.9: Add or improve directional and informational signage in school building interior and exterior.
- Key Opportunity 3.10: Institute and communicate a policy and procedure for testing panic buttons.

Section 3: OLA and Transition Team Recommendations

Physical Security of Facilities was not assessed in either the OLA Report or Transition Team Report.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 3.1: Enforce a 100% Raptor screening policy for all visitors to all schools

Background/Rationale

Access control—limiting how and when people can enter the building—is, according to leading practice, one of the most important elements of a strong security system. Almost all PGCPS schools were found to have two doors with a functioning system where the main office staff can view visitors through a camera, communicate with them via intercom, and let them into the building using electronic access control. Once visitors are given access to the school building, they are directed to the main office to sign in.

During the checklist assessment, assessors found that the majority of schools are diligent about using the Raptor system in the main office to scan visitor IDs and provide them with school-issued ID badges to wear on school grounds. In a few cases, assessors learned that the Raptor system was not working (schools are provided with one Raptor unit, and can purchase backup units at their own expense). Several parents at the Town Hall meeting, however, expressed that visitor screening varied from school to school and was not as rigorous or consistent as it should be to ensure the safety of students and staff. Consultant team assessors also observed this to be true, as on several occasions their IDs were not scanned when they entered the school and indicated they had a meeting with security personnel.

Office staff are responsible for enforcing use of the Raptor system. Reasons why visitors are not screened include personal judgment decisions of office staff or equipment failure. However, failure to use the Raptor systems can put all persons in the building in danger, especially students, if someone with an unknown criminal or violent legal record is allowed access to the building and is able to have direct contact with students.

Implementation Strategy

To ensure consistency and security, all schools should enforce a 100% screening policy for all visitors, no matter the reason for the visit.

- Expand communication and training on use of Raptor systems to school-based staff. There are 11 dedicated technicians to assist school-based staff with technical assistance and training for the Raptor system. These technicians are usually able to troubleshoot or repair any Raptor equipment failures within 24 hours.
- Conduct regular reviews within the centralized reporting system of how often Raptor units are being used at each school, and follow up with schools who are not using the Raptor unit as frequently as expected for their type and size of school.
- Conduct a periodic “secret shopper” spot check of Raptor screening by randomly sending visitors, unbeknownst to schools, to assess schools’ enforcement of the Raptor system.
- Make available more spare Raptor equipment for immediate deployment upon equipment failure at a school. Security Services reported approximately eight spare Raptor systems to service all schools, in the event of equipment failure—they should make sure that school administrative staff is aware of this resource.

Potential Fiscal Implication

The cost of the total Raptor system is \$635 for the printer and scanner, which are usually purchased together. An additional or replacement printer costs \$298.

Key Opportunity 3.2: Replace all analog cameras with digital cameras connected to the central system, and add new cameras to provide coverage of interior and exterior blind spots.

Background/Rationale

Camera types and storage capacity vary across schools. Analog cameras are more limited in storage capacity and cannot always be viewed at the central office. Digital recordings generally provide higher resolution images and users can zoom in on the recorded images after the fact, whereas analog cameras can only zoom in while recording. To date, five schools have zero interior cameras and 20 have zero exterior cameras, based on checklist results. The Director of Security Services stated that cameras will be installed prior to July 2016 at two of the five schools without cameras. Other upgrades and additional cameras are currently scheduled at schools throughout the district, but the department is limited to adding and upgrading cameras at 11 schools per year, based on current fiscal allocations.

Implementation Strategy

Security Services should continue adding cameras to schools with zero cameras and replacing cameras at schools with older analog cameras. The department should also prioritize high schools for addition of new cameras in blind spot areas with a focus on stairwells and entrances/exits.

Potential Fiscal Implication

Security Services is annually allocated \$405,000 for camera installations, which allows a maximum of 11 schools to be updated with a combination of 26 interior and exterior cameras. The approximate per camera cost is \$1,416, which includes installation, however this cost does not distinguish between an interior or exterior camera. This estimated cost is based on how many schools and Security Services reported updating in a school year with their current budget allocation. The cost for the five schools with zero interior cameras and 20 with zero exterior cameras is dependent on the number of cameras Security Services elects to install the schools. Ultimately, the potential fiscal implication will depend on how and when Security Services chooses to address the schools without cameras, the non-functioning cameras, and replacement of analog cameras.

Key Opportunity 3.3: Revisit security staffing allocations across high schools and middle schools.

Background/Rationale

Student populations are growing and changing as the surrounding neighborhoods evolve, and security personnel assignments need to be regularly reviewed and revised to account for changing needs in schools. Checklists indicated that security was adequate at 6 of the 24 high schools assessed (25.0%) and 10 of the 23 middle schools assessed (43.5%). Results from the elementary school checklists indicate that 66.3% felt that security staffing was not adequate. Currently elementary schools do not have designated on-site security staff, and based on checklist results some elementary school leaders are interested in having security staff.

Implementation Strategy

Department of Security Services should assess current security staffing allocations at all grade levels to address changes in school security needs. Research on school security staffing leading practices from the National School Safety and Security Services, The American School Board Journal, and Washington State Legislature notes the lack of research available on this topic, and confirms the difficulty in developing a formula to determine an optimal number of security staffing for school buildings because each school building in a district is unique and requires different security approaches. To begin to address PGCPS security needs in a manner that is more consistent with leading practices, Security Services should:

- Use incident data and input from principals and security staff to determine the schools with the highest need for increased security staffing.
- Determine budgetary allowances to increase security staffing at schools needing additional staff.
- Consider providing a more frequent or permanent security presence at elementary schools.
- Require the I/Cs to visit their assigned elementary and middle schools on a more frequent schedule, at least twice per month. The Director of Security Services determined the increased frequency to be a reasonable expectation for staff.
- Determine a monitoring method to ensure I/Cs are visiting elementary and middle schools more frequently. Some options for monitoring include reviewing how often security staff scan their employee cards at their assigned schools or having the cluster lieutenant conduct follow-up visits.

Potential Fiscal Implication

If Security Services increases staff at schools, the cost per fiscal year for additional security staff could be \$80,000 for an Investigative Counselor and \$65,000 for a Security Assistant. Both salary figures are inclusive of payroll taxes and benefits. Increased visits to elementary and middle schools by existing Investigative Counselors likely have no potential fiscal implication on PGCPS.

Key Opportunity 3.4: Establish, communicate, and enforce a clear, district-wide protocol for covering windows on classroom doors.

Background/Rationale

PGCPS policy states that the window on at least one classroom door should be uncovered at all times, with the exception of during a lockdown or lockdown drill. There is currently wide variation across and within PGCPS schools as to how and when windows on classroom doors are covered. Many classrooms always have some or all windows on doors covered (usually with paper taped over the window), other classroom doors have no window coverings, and still others have window coverings taped to the door at the ready but not covering the window. Refer to **Appendix C-5** for pictures of varying window cover options.

Based on leading practices for school lockdown procedures, every classroom should have a durable, temporary covering readily available to fully cover the window in case of lockdown. This covering could be in the form of a blind, shade, curtain, or piece of opaque paper that can be quickly appended over the window on the door.

Implementation Strategy

Given the uneven implementation of the current policy and leading practice, the Department of Security Services should develop a clear policy on when and how to use window coverings on classroom doors, providing a clear description and examples of acceptable options. The policy should specify color-coding and material requirements. A focus group of principals can potentially assist to identify the recommended materials for the window covering policy.

Upon policy development, the information should be communicated to principals and teachers as part of summer training activities, in conjunction with lockdown drill training and incorporated into the emergency plan being drafted in summer of 2016. After initial implementation, the Department of Security Services should conduct spot checks at each school to ensure that each classroom is adequately prepared to quickly cover its windows in case of a lockdown. Principals should use lockdown drills as an additional opportunity to review how consistently the policy is being implemented across classrooms.

Potential Fiscal Implication

Potential Fiscal implications for the development of the policy are likely to be minimal for PGCPS. The expected cost range will vary for the different window covering options. The use of paper and tape or Velcro could have the lowest fiscal implication for schools.

Key Opportunity 3.5: Investigate policy and technology options for teachers to be able to lock their classrooms from the interior in case of a lockdown situation.

Background/Rationale

National leading practices in preparing schools for a lockdown situation are constantly evolving. Maryland State fire codes for opening a classroom door from the inside during an emergency conflict with national leading practices for locking a classroom door from the inside during a lockdown drill. Furthermore, any solution should not enable students to lock themselves in classrooms when a teacher is not present.

Currently, few classroom doors in PGCPS can be locked from the inside which, while compliant with fire code, presents a challenge for teachers to secure the room in case of a lockdown. Because many doors open outward into the hallway, it would be difficult or impossible to barricade those doors. Current PGCPS practice is for teachers to open the door, lock it from the outside with a key, and close the door again to secure the classroom. In a real active shooter situation, this practice might not be practicable or adequate. In their assessment of the security checklist results, several principals also raised concerns about the inability of teachers to quickly lock themselves in classrooms during a lockdown.

Implementation Strategy

PGCPS should investigate technical and/or policy solutions that will work best for its schools, taking into account budget constraints, fire codes, and any other related district policies and procedures.

- Technology: Technology is evolving in light of the need to address this issue in schools nationwide. The Department of Security Services and the Office of Safety should continue to collaborate to review the options and determine if there is an appropriate technological solution to address this issue. The Director of Security shared that the team identified the mortise lock as a viable option, but reported cost barriers. (This document from the National Clearinghouse for Educational Facilities presents door locking options for schools: http://www.ncef.org/pubs/door_locks.pdf.)

- Policy: An alternative practice requires teachers to always lock classroom doors (using a key on the outside and closing the locked door behind them) while class is in session. This solution likely has no added cost, but could add minor inconvenience for the teacher having to let late students into the classroom.

Potential Fiscal Implication

Potential Fiscal implications will vary depending on the solution chosen for updating door locks. It should be noted that the cost of retrofitting classroom door locks at one high school is generally estimated at \$100,000, or \$50 per lock. The cost to install the mortise lock is \$500 per lock.

Key Opportunity 3.6: Replace broken or missing boundary fencing in key locations in wooded areas at the rear of school buildings.

Background/Rationale

Many PGCPS schools of all grade levels abut wooded areas that are far from the main school entrance and not easily monitored by staff or cameras. Furthermore, many of these wooded areas fall under the responsibility of the Parks Department or other county agencies, creating jurisdictional complications whenever there is an incident involving a PGCPS student on the wooded property. Many schools provide fencing between the school property and wooded areas, but some do not (there was not a specific question about boundary fencing in the checklist, but several notes were made about fencing where there was an issue). Other schools have installed fencing but students, reportedly, cut holes in the fencing, no matter how many times it is repaired or replaced. Northwestern High School is a pilot site to test more robust fencing, to combat the constant cutting of fences.

Based on our interviews, missing or broken fencing between the school property and wooded areas raises two primary issues of concern:

1. Students (especially high school students) are skipping class and leaving school property during the school day through the woods, reportedly to conduct unsafe activities in the woods, or to go through the woods to other destinations, such as a mall.
2. People who should not be on school property can easily access campus out of sight of school staff —and escape just as easily.

Implementation Strategy

More robust fencing prevents students from tampering with the fencing, having easier access to leave school grounds during a school day. Security Services and Building Services and Maintenance should use the following guidelines to replace fencing in these problem areas:

- Identify and prioritize the schools that are in need of replacement fencing. Develop consensus on a matrix for prioritizing schools. These would include age of and risk to students, cost relative to continuous vandalism, and actual scale of risk to students.
- Use results from the pilot school and collaborate with Building Services and Maintenance to select appropriate fencing options (more durable than chain-link, if possible) for other school sites.

Potential Fiscal Implication

The potential fiscal implication for replacing fencing is dependent on how the district addresses the issue. Using Northwestern High School as an example, the initial cost to install more robust perimeter fencing at the school is estimated at \$400,000. Despite the initial cost, the stronger fence could have a reduced likelihood to be tampered with, potentially reducing the need for repairs and consequently reducing repair costs over time.

Key Opportunity 3.7: Properly secure all temporary classrooms, at elementary and K-8 schools, according to PGCPS guidelines.

Background/Rationale

During the security assessment, results found that only 53.3% of temporary classrooms at elementary and K-8 schools are properly fenced with six-foot chain link fence and with egress via gates with crash bars in accordance with PGCPS Department of Security Services guidelines. However, the assessors noted that even for those temporary classrooms with fencing, the gates appear to often be left open throughout the day to allow students to move between the main building and the temporary classrooms, thereby negating some of the security benefits of the fencing.

Implementation Strategy

All temporary buildings should be fenced in according to PGCPS policy. Additionally, schools should investigate and implement a policy that allows students to transition between temporary and main school buildings, while still securing temporary classrooms. Teachers can also assist in ensuring gates are only open during transition times.

Potential Fiscal Implication

The average cost to fence a temporary building is \$15,000. The assessment did not collect the exact number of temporary buildings requiring fencing; however, there were 42 schools with temporary buildings that were not adequately fenced.

Key Opportunity 3.8: Define and prioritize security-related building work orders.

Background/Rationale

Security staff and school leaders stated that security-related work orders called into Building Services and Maintenance by security staff are addressed more quickly than if only entered into the work order management system. This claim could not be verified with data due to data validity issues in the work order management system. What constitutes a security-related work order is not clearly defined among school staff and other district offices. Currently no security staff have access to the system to submit, prioritize or review the status of security-related work orders.

In their assessment of the security checklist, several principals also indicated frustration with work orders for doors and windows that had been submitted but not resolved.

Implementation Strategy

The Department of Security Services should collaborate with the Department of Building Services and Maintenance to do the following:

- Establish criteria for the prioritization of security-related work orders and communicate any related process changes to all school administrators and security staff.
- Grant designated Security Services team members access to submit, prioritize and review work orders in the system. The Director of Security services indicated that he, the Assistant Director, and three field supervisors should have access to the system.

Potential Fiscal Implication

There is likely no potential fiscal implication to define and communicate security-related work orders. Additionally, there is not a per user cost to add users to the system.

Key Opportunity 3.9: Add or improve directional and informational signage in school building interior and exterior.

Background/Rationale

The security checklist assessed the existence and location of signage in facilities. Several items related to signage were identified as existing but needing improvement:

- **Directional signage:** The National Clearinghouse for Educational Facilities suggests that schools “Clearly mark the main entry to the school and post signs on other entries redirecting visitors to the main entry. Signs should include arrows, maps, or directions, not just the statement “Visitors must report to the office.”⁵ Most PGCPS schools had signage directing visitors to the main office at various points around the school building, but none of these signs appeared to provide any indication of where the main office was located in the building. For first-time visitors to the school, it is not always clear which door is the main entrance or where the main office is located. To this end, signs directing visitors to the main office should include arrows pointing towards the entrance. Many existing signs are faded or peeling; those signs should be prioritized for replacement with directional arrows added to the new signs.
- **Exterior door numbers:** Each school should number its exterior doors in keeping with the Center for Safe Schools Model Door Numbering System to assist emergency responders in case of an incident. Under this system: “All exterior doors that allow access to the interior of the school should be numbered in a sequential order starting with the main entrance (office door/public entrance).”⁶
- **Interior classroom and stairwell location numbers:** Each school’s Emergency Operations Plan should include an updated floor plan that includes room numbers; this plan should be made available to local emergency responders. In order to ensure easy navigation through the building by emergency responders unfamiliar with the layout, all interiors and exteriors of classrooms and stairwells should be clearly labeled with a number. This is especially important in large schools with many hallways that look similar.
- **Fire extinguisher locations:** In some schools, fire extinguishers are relocated from cases to classrooms or less accessible areas to prevent student misuse. However, the new location signage is not always put into the empty case.
- **Pedestrian crosswalks:** School bus loading and unloading at the main school entrance between the student/staff parking lot and the main door can create pedestrian/vehicular conflict. During the security assessment, the consultant team found that many crosswalk markings were very faded or non-existent.

Implementation Strategy

- Provide directional arrows or maps to indicate main office location on signs.
- Follow the Center for Safe Schools Model Door Numbering System for all exterior doors that allow entrance to the interior of the school.
- Ensure that all classrooms and stairwells have clearly marked location numbers above or next to the door.

⁵ Improving School Access Control (2008): 1-11. National Clearinghouse for Education Facilities. National Institute of Building Sciences, 2008. Web. 24 Apr. 2016. <<http://www.ncer.org/pubs/accesscontrol.pdf>>.

⁶ Smith, Don. “Model Door Number System.” *Model Door Numbering System*. Center for Safe Schools. Web. <http://www.nj.gov/education/schools/security/resources/DoorNumbering.pdf>

- Ensure all empty fire extinguisher cases have signage indicating their alternate location. Provide signage on the doors of classrooms indicating if there is a fire extinguisher in the classroom.
- Clearly mark all pedestrian crosswalks, especially at main school entrances where buses are loading and unloading:

Potential Fiscal Implication

Security Services will need to work with Building Services and Maintenance and Prince George's County Department of Public Works and Transportation to determine the costs to replace schools signs and paint pedestrian cross walks. Signage in empty fire extinguisher cases can be done at a low cost.

Key Opportunity 3.10: Institute and communicate a policy and procedure for testing panic buttons.

Background/Rationale

Security Services tests panic buttons on an annual basis, however only 41% of school staff were aware of the regular testing in surveys. The question itself raised awareness among school front office staff that panic buttons should be tested. Many were very interested in having testing but were not aware of the process or who was responsible for testing.

Implementation Strategy

The Department of Security Services should communicate to school administrators and front office staff the process for testing panic buttons. The department should also inform school administrators once testing is complete and share the outcome of the test.

Potential Fiscal Implication

Since Security Services already tests panic buttons, there is likely no additional potential fiscal implication to the district. The communication of testing results could have a very small potential fiscal implication.

4. Capital Program

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Capital Programs. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess the Capital Improvement Plan revenue planning and monitoring processes, planning, construction and design, contracting and procurement, quality of scope of work and incidence of change orders, vendor renewal, evaluation and quality control, project management, cost monitoring, and budgeting.

Second, the team was asked to identify areas where additional processes and internal guardrails are needed.

Finally, the team was asked in the RFP to evaluate how the Department is utilizing existing practices that reflect current known leading practices, and to recommend SOPs and benchmarks that reflect best known practices, as well as management reports needed to track adherence to SOPs. The team was also asked to identify areas for further continuous improvement in Capital Programs.

The methodology used included preliminary analysis (including interviews with CIP Staff), primary research (extensive interviews, document assessment, site visits of numerous schools, and focus group sessions with key departmental personnel), as well as secondary research (research on leading practices and SOPs) and data analysis of the results/quality of the current CIP Program. For more details regarding the assessment methodology, please refer to [Appendix D-1](#).

Section 2: Summary Perspectives

For the purposes of this Continuous Business Process Improvement Study, the team created a leading practices framework to assess each department within PGCPS.

These performance assessments take into consideration business practices and processes, safety and standards, use of data and analyses, appraisal of staffing within the organization, stakeholder engagement, and long-term planning and strategic direction.

Based on our observations, the team has assessed the PGCPS Capital Programs Department as "*Approaching Leading Practices*" within the framework. The department is currently positioned to meet leading practices with regards to effectively planning capital projects, fully implementing and utilizing software for more efficient processes, and appropriately meeting its evolving staffing requirements. We believe the "approaching leading practices" assessment reflects that the department is properly maturing in its implementation of these business process updates that bring them in line with leading practices.

In general, the assessment of the PGCPS Department of Capital Programs can be separated into three main interconnected areas: Planning, Software, and Staffing.

Current Situation Assessment and Evaluation of Continuous Improvement

Planning

In June 2015, the department completed a Master Plan Support Project with a team from Brailsford and Dunlavey, a program management firm based in Washington, DC. That project revealed an approximately \$2.5 billion backlog of facility repairs and a \$270 million gap in current spending on repairs and upgrades compared to project demand. The report assessed each school, their current conditions, and a plan for capital projects for 20 years. The Brailsford and Dunlavey study is a critical road map for outlining capital investment and infrastructure spending for 20 years in the future. Obtaining and implementing this information is in line with national leading practices.

The department also appears to be in line with leading practices and industry standards with regards to change order occurrence. Renovation projects incur an average change order percentage of 4.71%, which is within standards for a school system with such a large deferred maintenance cost. However, the PGCPS Board of Education policy #7430 states that all construction related change orders greater than \$25,000 require Board of Education approval. This process is lengthy and obstructs the department from effectively modifying construction contracts. The top performing school systems in the region have change order thresholds well above PGCPS' \$25,000 threshold. Raising the change order authorization threshold to that of comparable school systems could streamline project delivery, save money, and improve construction schedules. . The PGCPS' threshold should be increased to \$250,000, which ranks on the lower end of the current practices of school systems in the region, but still allowing for a more efficient construction approval process. This could allow projects to move forward in a timelier manner.

Software

The department currently uses an ERP system, but it does not appear to have been fully implemented. The system focuses on solutions that go beyond facilitating budget and scope projects, to support outcomes that drive strategic metrics and results. The department recently created a Committee for this software with representation from their four functional areas (Financial Accounting, Planning, Design, & Project Management). The committee was tasked with analyzing how to best integrate the system within the department.

The first phase of implementation is in progress with the Financial Accounting functional area and is estimated for completion by Fall 2016. A secondary integration is in discussion through the Committee. The Committee has identified integration with the Department of Purchasing and Supply Services (DPSS) as an opportunity that could streamline the procurement processes that are critical to successful and timely project delivery.

Staffing

There is great need for additional purchasing support that is dedicated to construction related procurement activities and personnel with significant experience in this arena. Our interviews indicated that there are currently no staff members in the PGCPS Purchasing and Supply Services department that are dedicated to construction related procurement activities. The department has recently met with Montgomery County Public Schools and Anne Arundel County Public Schools to discuss leading practices regarding their procurement practices and organizational structure. Additional procurement staff with construction related knowledge could improve the success of the program and staffing assistance, or full coordination with other purchasing staff could also assure better utilization of County based businesses, once the desired practice becomes about of the enhanced operational approach. Full procedures and a well-defined process could aid in the success of an inclusionary program.

On June 16, 2016 the department sent a memo to the PGCPS Deputy Superintendent of Teaching and Learning (formerly the Chief Operating Officer), regarding a potential Department of Capital Programs Reorganization. The department initiated preliminary reorganization measures with the Brailsford and Dunlavey Master Plan Support Project that outlined the planning, design, and construction of over 400 capital projects within the last two years.

There is also additional staffing reform and augmentation that the department believes is critical to sustain the level of productivity required to effectively implement an advanced capital program on this scale and complexity. That plan consists of building depth in three essential departmental units: Design, Planning, and Project Management. Currently, activities that fall under these units appear to often lag due to a large number of projects resulting in a heavy workload.

The department suggested a cost neutral alternative that upgrades two vacant Project Manager II positions and adds a Planner III and Architect I position to the Planning unit and Design unit, respectively. The proposed staff augmentation also creates a three person Contracting unit with contracting authority for capital projects. This unit would consist of a Contracting Supervisor, Contracting Specialist, and Secretary III. The costs associated with these suggested changes could be completely offset by the reduced reliance on current contracted staff augmentation. The Capital Programs Department benchmarked the total staff cost as a percentage of the capital budget, and they found they were within norms for

administrative costs, and far lower than programs with outsourced staffing. A rough estimate of the personnel cost of these changes could add \$500,000 to the capital budget. The decrease in augmentation resources and consultants currently required to support the activities of the capital program could off-set the cost of these positions by at least \$500,000, resulting in a cost neutral solution.

This strategy is in line with leading practices and reflects the department's commitment to continuous improvement.

Key Opportunities for Further Continuous Improvement in Leading Practices

- Key Opportunity 4.1: Expand the implementation and utilization of ERP Software
- Key Opportunity 4.2: Create full-time or dedicated Information Technology (IT) support position for the ERP software
- Key Opportunity 4.3: Create a full-time or dedicated Purchasing staff member who has expertise in the area of construction-related procurement
- Key Opportunity 4.4: Increase the change order threshold to be consistent with other school systems
- Key Opportunity 4.5: Provide additional resources for project managers to handle open capital projects
- Key Opportunity 4.6: Continue a collaborative relationship with the Department of Building Services and Maintenance

Section 3: OLA and Transition Team Recommendations

This area of the RFP did not contain any OLA or Transition Team Recommendations.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 4.1: Expand the implementation and utilization of ERP Software.

Background/Rationale

The Capital Programs Department has an ERP software system which reportedly can make business processes more efficient once fully implemented throughout the department. The department created a "Committee" of staff across four functional areas to ensure that the implementation of the system would advance the performance of core services and to analyze how to best implement the system. The first phase is currently being implemented with the Financial Accounting division. Estimated completion date is Fall 2016.

The Committee has suggested that the second phase of implementation occur with the Department of Purchasing and Supply Services (DPSS). Observations indicated that this strategy is not currently being examined. To successfully and fully implement the ERP system throughout the department, PGCPS should strongly consider the recommendations of the Committee.

Implementation Strategy

To effectively implement this recommendation the department must complete the first phase of software implementation and assess its progress. The department must then conduct the secondary integration with the Department of Purchasing and Supply Services, per the Committee recommendation. Finally the department should utilize the Committee to determine the best approach to integrate the next phase in the implementation to interface with Departments as needed for optimum efficiency and in alignment with leading practice.

Potential Fiscal Implication

The ERP software system is already purchased and currently being utilized. There is likely little to no additional cost to implement its expansion.

Key Opportunity 4.2: Create full time or dedicated Information Technology (IT) support position for the ERP software.

Background/Rationale

The ERP software system as it is currently used reportedly poses problems regarding lack of IT support for the Department of Capital Programs users. The Department could be better served by having a dedicated IT person on hand that will allow them to get more work completed through the system and to assist with all of the system functions. We observed that users are often not familiar with how to effectively utilize the system or troubleshoot common issues. The Software Committee has addressed ways that additional resources can be helpful for successful and timely project delivery.

Implementation Strategy

The department should allocate resources to a full time or dedicated subject matter expert who can provide support in the continuous implementation of the ERP software. To effectively implement this recommendation the department should determine if the dedicated support person can be repurposed or needs to be a new hire.

Potential Fiscal Implication

There is potential for additional cost with the creation of full time IT support staff. That cost could be equal to the existing fiscal allocation for PGCPS IT support staff. Conversely, dedicating existing staff can drastically reduce that cost as it eliminates the need for a new hire.

Key Opportunity 4.3: Create a full time or a dedicated purchasing person who has expertise in the specific area of construction related procurement

Background/Rationale

There is a significant observed need for a dedicated purchasing person as a part of the department's procurement processes. The dedicated purchasing support could connect the procurement process with the Department of Capital Programs' core business practices in order to help the design and official contract procurements that are generated. Leading practices suggest having staff dedicated to the continuous improvement of processes and procedures in accordance with the National Procurement Institute, NPI. Once these resources are allocated for a full time dedicated subject matter expert who can provide support for procurement functions that involve capital projects, the department can then provide support for procurement functions that align with leading practices.

Surrounding jurisdictions (Anne Arundel County, Montgomery County, etc.) have separated their construction-related procurement activities associated with capital projects from all other procurement activities. The Department of Capital Programs has also sent a memorandum to PGCPS that requested approval for a departmental reorganization to cut costs and augment staff.

The approval of this request and proposal, with positions posted at the start of FY17, could potentially facilitate the effective development of mature and capable capital program reorganization, commensurate with the scale and complexity of their program. Even with these additional positions, the department noted that MCPS staffing is still greater than theirs by approximately 8 positions, and far fewer projects annually.

Implementation Strategy

The department has already created a thorough plan for reorganization that is cost neutral, according to Management. To implement this recommendation, PGCPS could simply approve the cost neutral reorganization recommendation provided by the department.

Potential Fiscal Implication

The reorganization recommendation by the department thoroughly defines a cost neutral strategy to implement creating additional support for construction related procurement. Thus, there could potentially be no additional cost.

Key Opportunity 4.4: Increase the change order threshold consistent with other school systems.

Background/Rationale

Per PGCPS Board of Education Policy #7430, all construction related change orders greater than \$25,000 incurred on any capital project require board approval. The length of time to receive board approval and modify a construction contract varies between 8 – 12 weeks and or longer. Raising the change order authorization threshold to that of comparable school systems could streamline project delivery, save money, and improve construction schedules.

The policies of neighboring counties are:

- Fairfax County Public Schools: change orders above \$450,000 require board approval
- Baltimore County Public Schools: change orders above \$1,000,000 require board approval
- Howard County Public Schools: change orders are approved at the discretion of the purchasing department and the Chief of Facilities.

Implementation Strategy

Implementing this recommendation requires the department to utilize supporting comparable neighboring jurisdiction data to recommend a change order threshold increase to the PGCPS Board of Education. The department should suggest an increase from \$25,000 to at least \$250,000 to align with leading practices and to potentially allow for more streamlined project delivery. As outlined in **Appendix D-2**, Question #4, the Board of Education is required to change policy #7430.

Potential Fiscal Implication

There is likely no additional potential cost associated with the recommendation of an increased change order threshold.

Key Opportunity 4.5: Provide additional Resources for project managers to handle open capital projects.

Background/Rationale

Currently, data indicates that there are approximately 341 open capital projects (with 65 capital projects to be assigned in the upcoming months) and only 11 project managers. The Department of Capital Programs currently uses third party project managers to support critical project management business functions. The department currently spends approximately \$400,000 on third party project managers, which could be reinvested into existing resources to meet the same need. There is a significant observed need to invest in additional project management support to bolster their in-house capacity and capability.

The Department of Capital Programs sent a memorandum to PGCPS that requested approval for a departmental reorganization to cut costs and augment staff. The department states that the cost is completely offset by reduced reliance on contracted staff augmentation as all costs are capital – eligible, and will have no implication on the operating budget.

Implementation Strategy

The department should approve the cost neutral reorganization recommendation provided by the department immediately. The department should also examine the use of third party project managers and how in-house support could help increase efficiency. The department will need to determine any further budgetary allowances to properly allocate additional resources for project managers as needed.

Potential Fiscal Implication

The reorganization recommendation by the department thoroughly defines a cost neutral strategy to implement providing additional resources for project managers. Thus, there would likely be no additional cost.

Key Opportunity 4.6: Continue a collaborative relationship with the Department of Building Services and Maintenance.

Background/Rationale

There has reportedly been ongoing and increasing cooperation between the Department of Capital Programs and the Department of Building Services and Maintenance to share vital school maintenance and school construction information. The Department of Building Services and Maintenance informed us in conversations that they would like to see this relationship expanded and strengthened.

Better collaboration and better support could yield optimum efficiency for both divisions regarding school construction and renovation projects. The collaborative discussions can promote quality and continuous improvement in the overall processes. A strategic master plan with specifications should provide for reduced problems, costs, and delays.

Implementation Strategy

To effectively implement this recommendation, the department must begin by examining the expansion of the collaborative relationship between departments to develop capital projects that are easy to clean and maintain. They should also add the Department of Building Services and Maintenance into the appropriate planning meetings for new capital projects and have scheduled meetings that are consistent and ongoing for continued transparency.

Potential Fiscal Implication

There is likely no additional cost associated with continuing a collaborative relationship with Building Services and Maintenance.

5. Transportation: Routing and Efficiency

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of the Transportation Department. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess one *OLA Report* finding (specified below), and to assess whether or not it appeared to have been implemented (and if not, if there appeared to be a plan in place to address the recommendation).

Second, the team was asked to provide an assessment on how and if the Transportation department appears to be using leading practices to improve routing, and to identify further ways routing could be improved, particularly as it pertains to performance measurement.

OLA Report Item

Finding or Recommendation	Description
<i>OLA Report</i> Finding #19 Corrective Action	<ul style="list-style-type: none">• Develop standard operating procedures for bus routing• Develop efficiency targets by type of route• Implement GPS-enabled routing software and necessary integration tools to allow for planned vs. actual analyses, including a system to document actual staff hours worked

The methodologies used to assess Transportation Routing and Efficiency are as follows:

- Data analysis of key GPS arrival time data.
- Interviews with all Transportation routing staff and the Director of Transportation.
- Leading practice research and benchmarking conducted through interviews with transportation departments of comparable fleet size (1,084 Route Buses in 2015) and geographic attributes (mixtures of both rural and urban density). Comparable districts interviewed: Montgomery County (MD), Fairfax County (VA), Hillsborough County (FL), and Jefferson County (KY).
- Key performance metrics benchmarking against national standards using the Council of Great City School's *Managing For Results* 2015 Performance Measurement Report.
- A Town Hall meeting with community members on April 19, 2016.
- Software demonstrations of the current routing system (Trapeze) and the new routing system they will launch in Fall 2016 (Tripspark VEO).

Note: Appendices E and F provides additional details for the various methodologies:

- Summary of the Town Hall discussion is in **Appendix E-1**
- A complete list of interviewees is in **Appendix E-2**
- Data analysis methodologies is in **Appendix F-2**
- Benchmarked District summary is in **Appendix E-3**

Section 2: Summary Perspectives

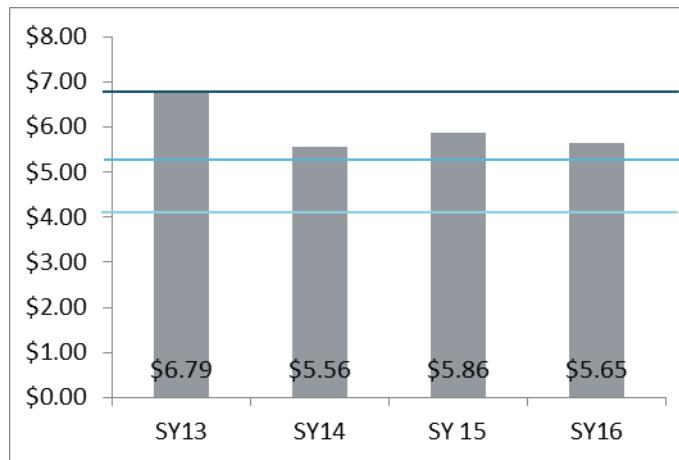
Current Situation Assessment

The overall assessment for the management of the PGCPS routing and efficiency systems can be characterized as ***“Approaching Leading Practices.”*** The assessment takes into account the current use of routing and GPS software to optimally design routes and the upcoming transition to an upgraded integrated software platform.

In addition, the consultant team analyzed the efficiency costs for PGCPS and conducted an analysis of on-time performance using a sample of GPS delivery data.

Efficiency Costs: The charts below demonstrate that PGCPS's transportation efficiency costs calculated as both cost per mile operated and cost per rider appear to be within expected ranges compared to the national average. National median, upper and lower quartiles of these metrics (from the 2015 *Managing for Results in America's Great City Schools*) are indicated in the blue lines across the chart. Despite costs that are in line with the national average expectations, the team observed ways in which PGCPS could increase its routing efficiency, detailed in the key improvements section of this report.

PGCPS Cost Per Mile Operated



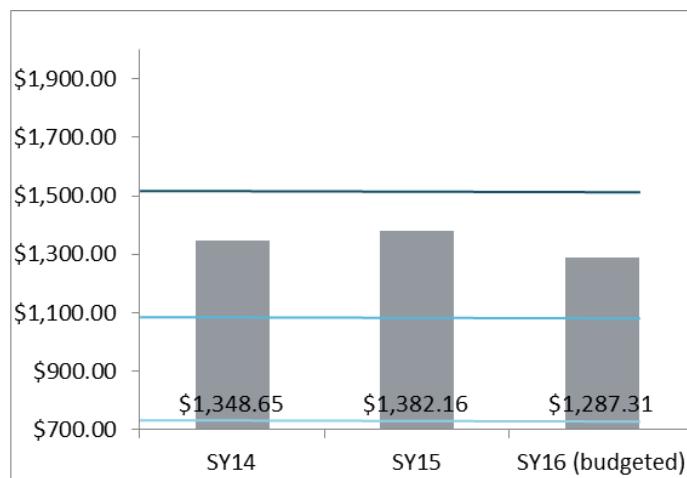
National SY13 Data:

\$6.74 (upper quartile)

5.31 (median)

\$4.09 (lower quartile)

PGCPS Cost Per Rider



National SY13 Data:

\$1,525 (upper quartile)

\$1,071 (median)

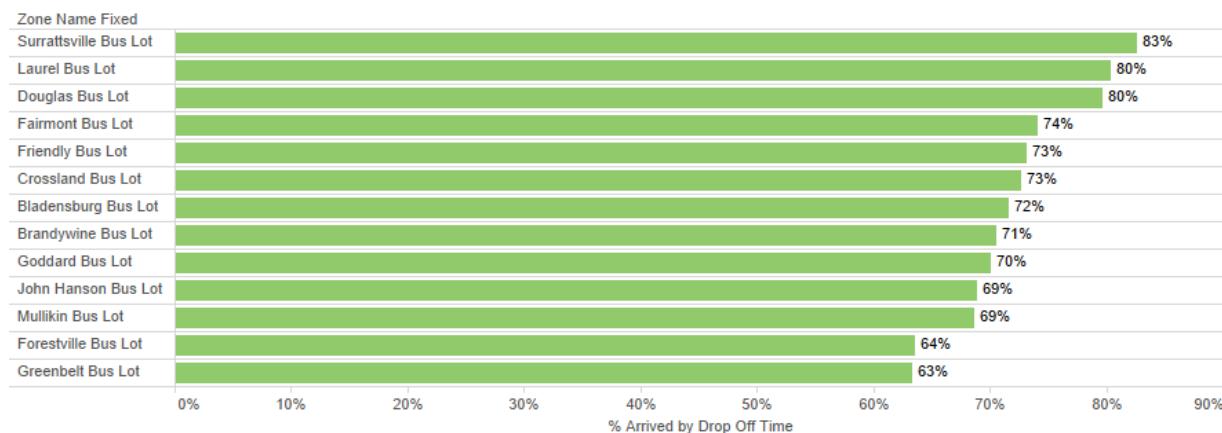
\$718 (lower quartile)

On-time delivery analysis⁷: The on-time delivery analysis looked at a sample of weeks from the school year to determine the rate at which a bus dropped students to school on time. A bus was considered "arrived by drop-off time" if its first entry to the school zone on a given day was earlier than or equal to 10 minutes prior to the bell start time. A bus was considered "arrived by bell start" if its first entry to the school zone on a given day was earlier than or equal to the bell start time. Additional on-time delivery analysis is in **Appendix F-1**.

These numbers likely overestimate on-time arrival because buses could enter the school zones during this time for reasons other than bringing students to school at the start of the day (e.g., a field trip bus arrived early). For this reason, as well as the fact that we could only collect a sample, we did not benchmark PGCPS on-time arrival against national averages.

Percent of buses arriving before or at drop-off times (10 min prior to bell start) by lot:

Forestville and Greenbelt lots have the lowest arrival rates before drop-off time across all lots.

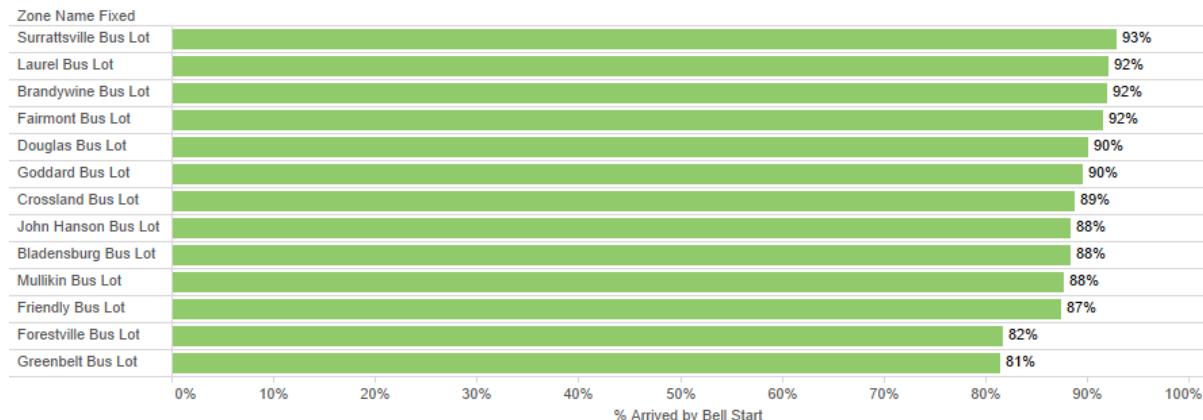


Percent of buses arriving before or at bell times by lot:

Forestville and Greenbelt lots have the lowest arrival rates before bell times across all lots.

⁷ Data Note for On Time Delivery:

- On time rate denominators: A bus was considered to be bringing children to school for the start of the day if it entered the school zone between prior to or up to one hour after bell start time.
- Sample Date Ranges: Q1: Sept. 21-25, Q1: Oct. 19-23, Q2: Nov. 16-20, Q2: Jan. 11-15, Q3: Feb. 22-26, Q3: Mar. 14-18, Q4: Apr. 11-15, Q4: May 9-14* (as YTD)
- Based on statistics from the 2015 Managing for Results in America's Great City Schools, the SY2013-2014 National Averages were: Upper Quartile 100%, Median: 97.715%, Lower Quartile: 98.832%



Assessment of Continuous Improvement

The PGCPS Transportation Department appears to have taken significant steps since the OLA Report to improve its use of technology for its routing practices. While the department is not yet able to access its GPS data collectively and daily to make performance improvements, they have procured the software necessary to begin utilizing these data starting in SY 2016-2017. The department will migrate to a new software system, Tripspark VEO, in the summer of 2016. (The current routing system will run in parallel as a leading practice to ensure no data is lost or performance suffers during this transition.) Management stated that VEO will integrate its GPS system directly into the routing software system, providing a real-time dashboard display of efficiency metrics using the GPS data. This could be the first time the department can use the GPS data to plan and directly manage all its routes, staff, and fleet.

VEO specifically offers the following new features to potentially improve efficiencies:

- Integrated GPS data into a data dashboard and report tool (VEO AVL) that will potentially allow PGCPS to see real-time driver arrival, departure and idle times, and assess bus timeliness.
- Easily-accessed route dashboards that flag when a parameter (i.e., total route time, bus capacity) has been exceeded in order for corrections to be made.

The Transportation Department uses the automation functions in their current software system to the greatest extent possible. However, both senior leadership and routing staff report that use of the automation features of their software are complicated by the inconsistency in implementation of the scheduled routes. Not all routes appear to occur on the schedule they are assigned and some routes are split in half and added to other routes on a daily basis due to a driver shortage. This driver shortage is two-fold. PGCPS reportedly has difficulty filling the current driver positions available and, even if these positions were full, there is not a sufficient “bench” (extra, non-routed drivers) to fill in for absent drivers on leave.

Key Opportunities for Further Continuous Improvement in Leading Practices

Our team observed that the upgrade to routing software greatly improves the routing team's ability to continue creating efficient and GPS data-supported routes for PGCPS buses. The following business process improvement opportunities could allow PGCPS to continue improvements to routing and efficiency:

- Key Opportunity 5.1: Create a plan to routinely collect, analyze, review, and make decisions based on data.
- Key Opportunity 5.2: Pilot bus driver position structure changes and/or incentives to increase the number of filled driver positions

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Report Finding # 19: Utilize an automated routing system to assist in developing efficient bus routes on a system-wide basis	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> The routing staff currently use all automation functions available and reasonable to the work.
OLA Report Finding # 19: Put systems in place to ensure accuracy of routing data	Observations suggest OLA Report recommendation has been addressed (Upon Launch of VEO Software)	<ul style="list-style-type: none"> The current inputted routing data from the Student Information System is reportedly 99% accurate and inaccuracies are quickly identified and resolved. The new Tripspark VEO software launching this summer (2016) could improve the routing output data, especially timeliness data. The GPS system is meant to integrate directly into the routing system to provide real-time data on arrival timeliness, driving behavior, and similar metrics. Please refer to Key Opportunity 5.1
OLA Report Finding # 19: Periodically review ridership data to ensure that routes are operating at capacity	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Staff periodically take rider counts on bus routes, but the collection and review of this data should be done more consistently. We recommend creating a schedule for ridership data review, identifying a secure location to store the data, and codifying collection and review processes in the standard operating procedures. Please refer to Key Opportunity 5.1
OLA Report Finding # 19: Develop policies and procedures for routing and guidance/goals for bus capacity and ride times	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> Transportation has standard operating procedures which appear to include this information. When they migrate to VEO software, they have stated that they plan to prioritize updating these standard operating procedures.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 5.1: Create a plan to routinely collect, analyze, review, and make decisions based on data.

Background/Rationale

The implementation of the new software system greatly increases the accessibility of the GPS data collected on the buses, allowing staff to track driver and route performance. A new set of Transportation reports will be accessible for the first time, but we observed no specific plan on when and how to review this data. Additional data from sources, such as the payroll system, also provide important data which is reviewed periodically and discussed on an ad hoc basis. Finally, ridership data collections, which consists of manual head counts on buses reported by drivers or school staff as either being over capacity or significantly under capacity, are not performed consistently across routes and the data are not stored in a systematic fashion so as to be useful for analysis related to ridership. Without a written plan for data collection, analysis,

and review, Transportation is at risk of not fully utilizing the data it does or could collect to its greatest benefit and may not be capturing all potential efficiencies.

Implementation Strategy

Below is an implementation strategy meant to assist staff in developing and executing a plan to use their data for improvements.

- **Determine what questions need to be answered or decisions made during the year using data.** Organizing Transportation's data needs will give the organization a clearer picture of how to manage these analyses.
 - Convene relevant decision-makers in a session(s) to identify the key answers needed for decision-making.
 - Document the questions raised, the data elements needed, the calculations necessary, and the timing of these calculations. Example:

Question/Decision	Data Element(s)	Calculation	Timing
What is the on-time arrival of all bus routes by bus lot, route and driver?	Planned arrival Actual arrival Bus Lot location	Subtract actual arrival from planned arrival	Every Friday
Additional question or decision...			
Additional question or decision...			

- **Establish a plan to collect and analyze the data required to answer the key questions, beginning with ridership data.** As discussed above, ridership data are not routinely collected and methodically stored, yet there are numerous opportunities to use these data to understand efficiencies better. The most accurate and comprehensive collection of ridership would be a student swipe card system on the bus. However, this method is likely very costly, and the information may not be worth the expense. We recommend instead piloting a ridership data collection process similar to the current system, where drivers (or attendants, when possible) verify rosters for their route(s). Once collected, the data should be stored electronically in a FERPA-compliant database. A simple, internally-constructed database on a department server could likely be sufficient. Analysis could be conducted using standard analytical tools (e.g., Microsoft Excel, Tableau, SQL Server Analysis/Reporting Services). Alternatively, many cloud-based FERPA-compliant data collection, storage, and analysis platforms are available. This could allow authorized users to enter/upload, store and analyze data and reports online. Finally, many questions can likely be answered through canned or custom reports in the new VEO system or other existing data systems (e.g., an ERP system).
- **Establish a schedule to analyze and discuss data.** Collecting and reviewing data is only half the equation. In order for the analysis to have any implication, Transportation must routinely discuss and make decisions based on these analyses.
 - Identify the types of data discussions that need to occur. Group like-minded questions/analysis together.
 - Using the timing in the analysis chart (example above) to develop a schedule for data meeting discussions by type.
 - Determine participants for each discussion group.
 - Identify a facilitator for each discussion group to schedule, prepare (or manage) analyses for discussion, prepare meeting agendas, take notes and action items in the meeting, and ensure follow-up on action items from the meeting.

- Release the meeting schedule and meeting objectives well in advance of execution.
- **Create a data-driven decision-making culture.** As mentioned above, action items should be taken at every meeting, but jotting down the action description, owner, and due date of a particular action is not enough. Leadership must follow-up on action items routinely to ensure action is taken and to help establish a culture of accountability.

Potential Areas of Data Investigation

During the course of our assessment, we identified numerous opportunities to use a more robust analysis and review process to investigate further improvements. Each idea is briefly discussed below.

Increase Bus Driver Availability: There is a critical observed need to develop and pilot new methodologies to recruit and retain bus drivers and maximize bus driver hours. Key Opportunity 5.2 discusses the issue and potential solutions further, but further data analysis is required to implement and monitor these solutions. Potential areas for data analysis are: Absentee rates with details on leave, paid time off rates, and route assignment data.

Reduce Re-routing: As part of our research on reducing the number of re-routes at the beginning of the school year, we spoke with the benchmarking districts about the concept of parents/students “opting-in” to use the bus instead of all students automatically being routed. Our interviewees indicated this is exceedingly difficult to manage at a large scale. However, some districts reported using historic ridership data by bus stop location/neighborhood to determine where they may reasonably assign students over bus capacity to reduce rerouting.

PGCPS Transportation currently reports that they overload certain bus routes at the start of the school year, but they do not appear to take a systematic, data-driven approach to this work. Overloads are mostly reserved for high school routes and are reportedly based on high school affluence, assuming that more affluent high schools have more students who drive or receive car rides to school. This methodology is not as robust as collecting consistent ridership data and analyzing this data over time to establish trends for schools and routes.

Utilize Public Transportation If Viable: Participants in the Town Hall suggested PGCPS use WMATA buses as a cost-saving mechanism. Transportation staff report that they previously explored the option to use WMATA buses and routes for high school students⁸ living on these routes but were unable to come to a suitable agreement with WMATA at the time. Staff indicated that they plan to pursue the conversation again. Ridership data by school, particularly if the rider’s home address can be included in the dataset, would greatly assist in analyzing the potential costs and benefits of piloting the use of public transportation. Additional questions to consider in the analysis:

- **True Cost Savings:** WMATA routes (as they are currently scheduled) would not be able to meet the complete needs of all students in a given high school. Transportation would still need to operate some bus routes to each school. Will PGCPS be able to eliminate some routes or is it only carrying fewer students on the same number of buses? Will there be a true cost savings to transportation for students who take WMATA?
- **Equity:** Will there be equity issues if some students use the WMATA system and some use the traditional school bus system?
- **Travel Time:** Can you guarantee the same maximum travel time standards on WMATA transportation as you can with PGCPS transportation?
- **Arrival Time:** Will the frequency of some of the WMATA bus routes force a student to show up to school exceedingly early in order to not arrive late?

⁸ 60% of PGCPS high schools have at least one WMATA bus route within 0.2 miles of the school.

- **Crowding:** At best, some schools are served by several bus routes. Most schools have just one route. What would be the implication to the WMATA bus capacity operating during school arrival and dismissal hours?

Time and Attendance Tracking: The time and attendance data available from the ERP system provides generic categories for bus lot staff leave time that does not allow for detailed reporting or measurement of the use of leave. The personal, sick, and unpaid leave categories do not appear specific enough for the district to closely measure whether the personal or unpaid leave was scheduled or unscheduled, or if they are using either workers' compensation long or short-term medical leave. These specific data points could allow bus lot Foremen and Transportation leadership to conduct more accurate and detailed leave reporting to identify trends by drivers and by lots—such as average leave time and average leave types—and analyze how much the district is paying in extra time and overtime to account for unscheduled leave. Since unscheduled leave, referred to as "call-outs", is a chronic issue among bus drivers, leadership could also use the detailed data to combat seasonal patterns and identify persistent attendance and tardy driver policy violators to more accurately impose penalties or corrective actions. Tracking detailed medical leave could also allow for clearer comparisons of workers' compensation injuries to medical time-off rates.

Potential Fiscal Implication

The potential fiscal implication of this recommendation could be minimal, comprising the cost of several hours of management's time to develop and manage the data analysis and review plan. Routine collection, analysis, and review of data can (and should) be an integrated part of each relevant staff member's time.

Key Opportunity 5.2: Increase the number of budgeted bus driver positions and pilot incentives to increase driver recruitment and retention

Background/Rationale

The number of drivers is reportedly insufficient to adequately cover the routes as optimized by the routing software and staff. The driver shortage and its implication on efficiently transporting students to school on time was cited as a concern by routing, payroll, bus lot operations staff; parents, and school staff mentioned numerous problems that could be traced to this driver shortage. PGCPS currently operates 5513 routes and employs approximately 1,260 drivers, and the insufficient number of drivers appears to have led to the following issues:

- Slower service and inconsistent student pick-up and drop-off times because optimal routes must be doubled up or split with another driver to cover all routes.
- Extra-time and overtime pay increases from extra routes covered by drivers, as well as bus lot administration staff with appropriate licensing, to fill in for absences. Furthermore, tracking pay adjustments increases the paperwork and verification burden on administrative staff.

There are three related factors that appear to contribute to the driver shortage:

- 1) PGCPS does not budget for enough full-time equivalent (FTE) positions to cover all required routes.
- 2) Many of the budgeted positions go unfilled.
- 3) Driver absences and leave are not accurately factored into the calculation that budgets for FTE driver positions.

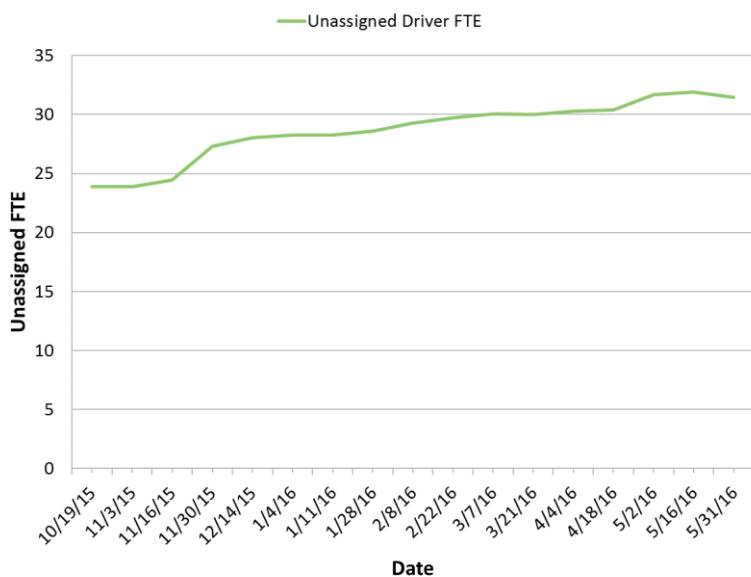
The calculation for deriving and budgeting the number of FTE driver positions must factor when routes are not likely to be covered due to call-outs, long-term medical leave, and scheduled personal leave. Additionally, if the department receives the requested budget and position allocations, they will need to develop more effective strategies to recruit and retain the right staff for the driver position.

The consulting team conducted analysis of all SY 2015-16 routes' hours and corresponding driver assignments to validate the actual shortage of drivers. The consulting team used the available data from the routing team's biweekly route vacancy

report to detail the assigned and unassigned routes and hours and the data shown below reflects the period after the most frequent rerouting that occurs at the beginning of the year. The chart depicts unassigned route hours, in terms of FTEs, based on the routes and number of hours not assigned to a driver during the two- week scheduling/pay period divided by 80 (the number of hours worked by an FTE over two weeks). The analysis shows that the total unassigned route hours throughout the school year equated to requiring a daily average of 28.7 additional full time equivalents for full route coverage. Also, based on routes and budgeted positions, PGCPS appears to operate at a constant driver shortage throughout the school year and the unassigned FTEs rate appears to steadily increases as the year progresses. The exact number of drivers needed by Transportation to fill all budgeted positions require a more extensive analysis of actual leave and sick time by drivers and access to that data could not be provided during the time of this report. Additional visualizations of the data by unassigned route hours is in [Appendix D-1](#).

In summary, there was a daily average of 28.7 bus driver FTE vacancy based on the weekly unassigned routes and hours. This average does not capture the actual daily vacancy of bus drivers due to absences for planned, unplanned leave, or long term leave.

Unassigned FTE for SY 2015-16 by two-week period



Data Note: Data provided by the Transportation Department on 7/7/16. Data contains the assigned regular hours of drivers to routes during the academic year. It is important to note that assigned hours do NOT include extra time or overtime which are assigned after this schedule is completed. Routes that were unable to be assigned to a regular driver were marked as assigned to a vacant driver. The total unassigned FTE displayed here is based on hours assigned to that vacant driver. Data reflects six weeks after the start of the school year on August 24, 2016 to account for beginning of the year rerouting adjustments.

The chart does not take into account driver absences. Of the drivers assigned to routes, there is still reportedly an issue with absences due to unscheduled leave causing available drivers and staff to make up this uncovered work with extra time and overtime. To ensure route coverage, all Commercial Driver's License (CDL)-licensed staff at bus lots drive uncovered routes, by splitting and doubling up these optimally designed routes. As a result, driver regular extra time totaled almost \$12 million and overtime almost \$4 million for the time period of July 1, 2013 to May 20, 2016. If PGCPS had a bench of drivers, the need to cover routes with extra time and overtime could be minimized.

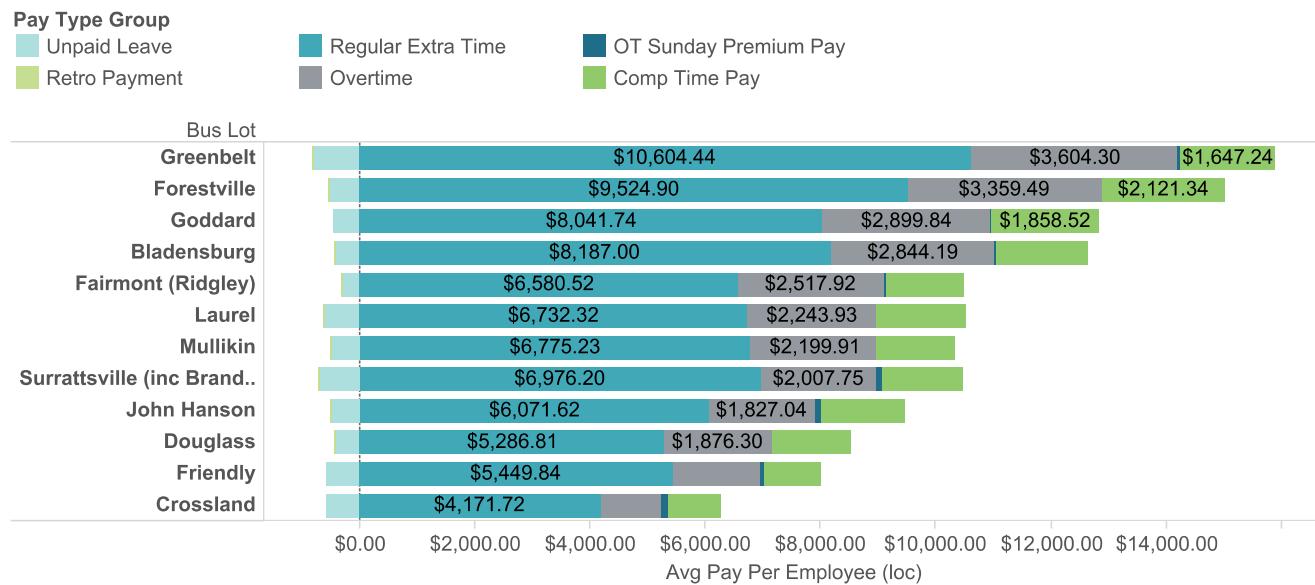
Transportation leadership reported starting SY 2015-16 without the sufficient number of drivers to fill all routes. The analysis conducted on the vacancy report supports this claim, showing a shortage of FTEs for routes at the beginning of the school year. To address the driver shortage and lack of bench, the Director of Transportation requested additional funding

for at least 25 full time equivalent bus driver positions in next year's budget, but at the time of publication of this report, this position request has not yet been funded.

Supporting Data: The data provided in this section depicts the regular extra time, overtime and leave payments of employees by lot from July 1, 2013 to May 27, 2016. Route re-assignment data were not available for analysis to compare the need for route re-assignment against attendance and payroll data. Also, the charts below refer to extra time and overtime dollars. It is important to note that the overtime hours only include the half-time portion. The whole hour is accounted for in the extra work dollars. For example, if Mary works 41 hours in a given week and she is a 36 standard hour employee, the data would count the 5 hours as regular extra time and 0.5 hours as overtime.

Payment Type Totals, by Bus Lot, Per Employee

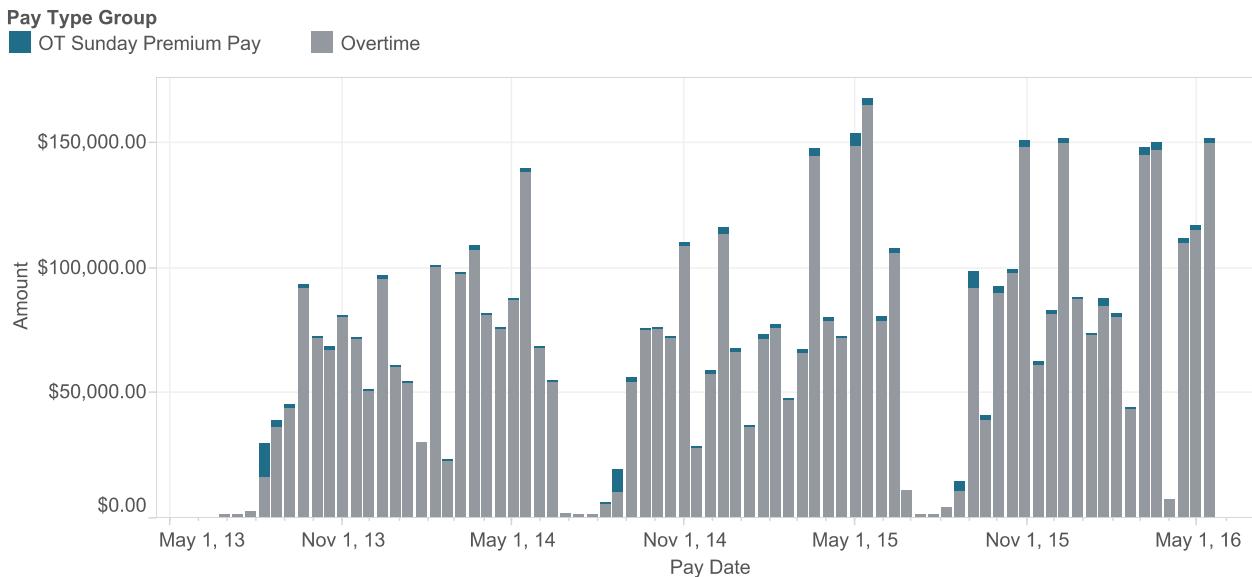
Definitions of the pay types are provided on the previous page in the Supporting Data summary.



Data Note: Payroll data provided by Payroll Services on 5/19/16 for employees in the "Transportation and Garage Admin" unit, including bus drivers, aides and bus lot administrator staff. It includes pay from FY14 (7/1/13) through 5/20/16. The average was calculated by summing all pay of each type paid to an employee of that lot and dividing by the number of unique employees who worked at that lot at any time during that period. Many employees were missing lot assignments for some fiscal years. Those employees were assumed to be working in the same lot as the prior or subsequent year if available. The few remaining employees for whom we had no assignment data for any fiscal year are excluded from this analysis. Note that this is an average over the time period, NOT an annual average.

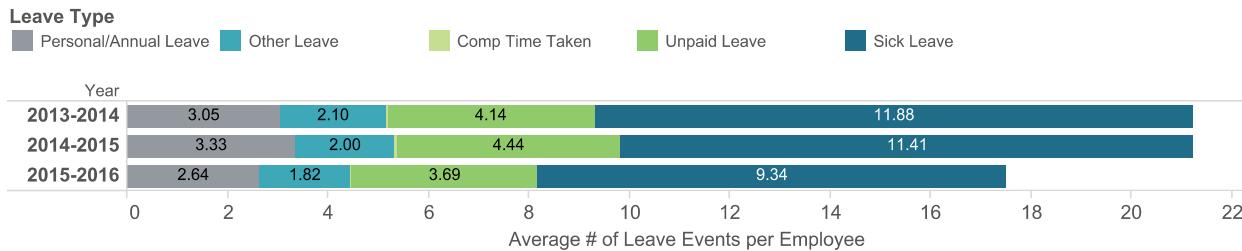
Total Overtime payments from July 1, 2013 to May 27, 2016

There are seasonal patterns to overtime pay at the end of October, the pay period prior to winter break, and the last few pay periods in May.



Data Note: Payroll data provided by Payroll Services on 5/19/16 for employees in the “Transportation and Garage Admin” unit. It includes pay from FY14 (7/1/13) through 5/20/16.

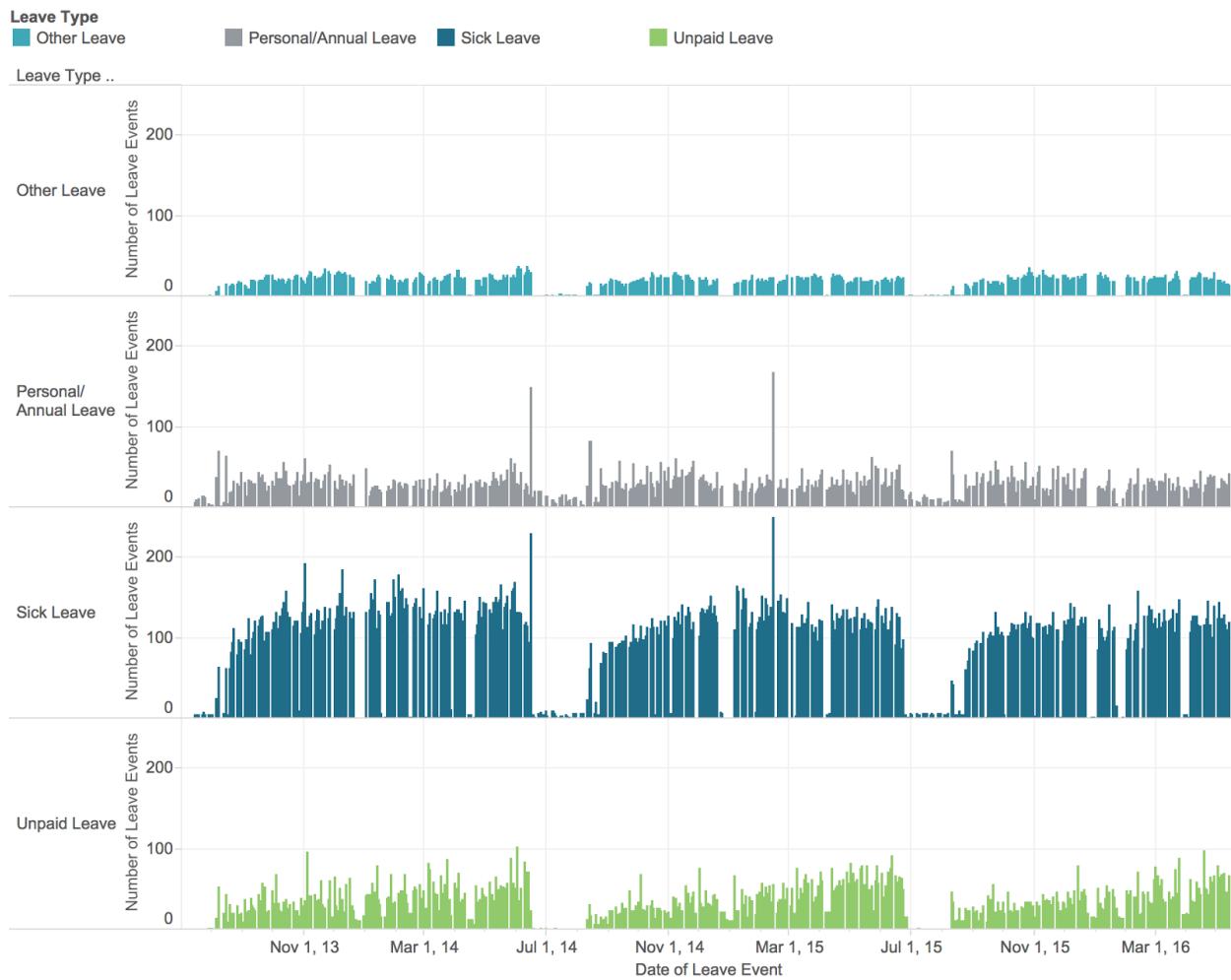
Average Number of Leave Events per Employee



Data Note: Leave data provided by Payroll Services on 5/19/16 for employees in the “Transportation and Garage Admin” unit. It includes leave from FY14 (7/1/13) through 5/11/16. The average was calculated by counting the number of leave events taken by employees and dividing by the number of unique employees who worked at any time during that period.

Leave totals over time

There are seasonal patterns for unpaid leave. This chart demonstrates and compares the spikes in leave over the course of the three years.



Data Note: Leave data provided by Payroll Services on 5/19/16 for employees in the “Transportation and Garage Admin” unit. It includes leave from FY14 (7/1/13) through 5/11/16.

Implementation Strategy

PGCPS needs to increase the number of budgeted drivers to cover routes. Increasing the number of drivers does not only imply that an increase in hiring will solve the shortage. It refers to ensuring there are enough drivers to drive routes and to strengthening Transportation’s position with the number of positions they currently have. Upon increasing the number of drivers, the district should focus on the recruitment and retention of bus drivers. Below are some potential options PGCPS may wish to pilot.

- **Increase Budgeted Positions: Increase the number of budgeted positions to adequately cover all routes.** To adequately cover the number of routes, Transportation needs to determine the number of FTEs that will cover all route hours and then factor in the amount of leave allowed per FTE. The analysis conducted on the vacant routes indicated that at the beginning of the school year, the 1260 drivers could not cover all of the 5513 routes. On average Transportation would need an additional 28.7 FTEs to cover all the routes. Tracking and planning for the driver vacancies day to day is challenging due to varying unknowns and lack of a system. Since the budgeted number of drivers was also not able to cover all routes when routes went uncovered due to sick and leave time, route coverage resulted in the use of extra time and overtime to address the vacant optimally designed routes and uncovered routes from sick and leave time. The vacancy report and leave time data did not provide enough detail to determine the average amount of leave and sick used by drivers, but it is recommended that Transportation

determine the average sick and leave hours used by bus drivers over the course of the year as a factor for determining an increase in the number of budgeted positions for drivers. The number of budgeted number of drivers should at minimum cover the routes and average sick and leave time. This figure could allow leadership to determine the actual bench size necessary to cover routes, without causing routes to be split or doubled by existing drivers. Reducing the number of split and doubled routes could ensure students get to school on time and could reduce the amount of overtime provided to existing drivers.

- **Recruitment: Disincentivize turning down the position after completing training and licensing.** PGCPS currently provides free CDL (with school bus endorsement) training to potential applicants, as well as 40 hours paid training time if they are offered and accept a position with PGCPS upon obtaining their CDL and endorsement. Since the cost to obtain the license falls on the candidate, Transportation is considering options on how to reduce the cost for drivers to obtain the Commercial Driver's License. PGCPS human resource staff report that not all candidates who obtain a license through this program accept a job offer, instead taking positions with WMATA and other competing organizations. This is an expense to the district and wastes valuable time and seat space that could be used to train applicants choosing PGCPS as their first choice employer. PGCPS should consider developing a contract mechanism to recuperate the costs of training for successful applicants who are offered jobs but decline the offer for another position. This contract mechanism could pro-rate the training cost over time (example: 6 months) to further disincentivize leaving the position before PGCPS can see a return on their investment of training time.
- **Recruitment: Survey New Hires to target recruitment efforts better.** A new hire survey would provide valuable insights into the reasons new hires choose a position as a PGCPS bus driver. If there is a natural, initial attrition among new drivers (i.e., most drivers that leave in the first year, leave within the first month), the survey should be administered after that natural attrition date to filter for driver information from those drivers with the greatest desire to stay. Consider administering the survey online and via paper. An online option is best for easy analysis, however, the paper survey will allow the less technologically literate staff to also participate. Survey questions could include:
 - How did you hear about the position? (Multiple choice. Allow an "other" option with open response.)
 - How else might you have preferred to hear about the position? (Open response)
 - Which of these reasons most influenced your decision to take the driver position? Multiple choice. Allow for multiple answers.)
 - On a scale of 1 to 5 (5 being most important), how important was _____ in your decision to take this position? (Scale. The blank can be filled in by a strategy PGCPS is piloting, such as offering more 8-hour shifts.)
 - On a scale of 0 to 10, how likely are you to recommend this position to a friend or relative? (Scale)
 - Why did you choose that number? (Open response)
 - Is there anything we could do better during the recruitment and hiring process? (Open response)
- **Recruitment/Retention: Determine driver demand for eight-hour routes and take action appropriately.** The consulting team heard varying accounts of whether the opportunity to work full time (eight hours a day) was an incentive to take a position and stay in that position. Some staff report that full-time work is crucial to recruiting new people. Others say that the five-, six-, and seven-hour work day positions are just as popular. We recommend surveying the entire driver pool and analyze results based on tenure to determine internal demand for each type of schedule and extrapolate to predict new hire demand for full- or part-time shifts. Utilize these data to determine if it is worth pursuing either (a) re-optimizing routes to include more eight-hour shifts, or (b) better messaging the availability of "extra time" to new hires taking five-, six-, or seven-hour shifts.

- **Retention: Improve and maintain bus lot facilities to retain current drivers.** The conditions at the bus lots are suboptimal in terms of bathroom accessibility, meeting/lounge space, and safety (pot holes, unmarked walk areas, etc.) These issues are discussed further in the Bus Lot Safety section of this report.

Potential Fiscal Implication

The potential fiscal implication for strengthening the driver position could vary by elected course of action. The average pay of a bus driver is \$37,603, calculated from the total regular pay wages from SY 2015-16 divided by the 1260 drivers employed during this tie. Overall, the addition of new drivers could increase costs for transportation and those costs vary based on union pay rates; some of these costs might be offset by decreases in overtime payments. Definitive costs cannot be determined for restructuring the bus driver position because it is dependent on routes and hours assigned to drivers. The estimated cost for adding 28.7 FTEs is \$1,079,232. This estimated cost is calculated from the average pay and may vary based on union pay rates for the varying experience of a driver.

6. Transportation: Pedestrian and Bus Lot Safety

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of the Transportation Department. The objectives for this portion of the study were defined in the RFP.

Specifically, the team was asked in the RFP to:

- Assess bus lots for safety and compliance with state and federal regulations.
- Assess pedestrian safety issues and identify locations where sidewalks are needed to reduce safety hazards.
- Assess how the Department is utilizing existing practices that reflect current known leading practices.
- Identify the ways pedestrian safety and bus lot safety could be further improved.

The assessment of pedestrian and bus lot safety included the following methodologies:

- Interviews with Transportation and Central Garage staff at bus lots.
- On-site visits to all bus lots in Prince George's County.
- Completion of a safety checklist, developed by the consultant team, with national and federal industry safety standards.
- Leading practice research and benchmarking conducted through interviews with transportation departments of comparable fleet size (1,084 Route Buses in 2015) and geographic attributes (mixtures of both rural and urban density). Comparable districts interviewed: Montgomery County (MD), Fairfax County (VA), Hillsborough County (FL), and Jefferson County (KY).
- Data analysis of workers' compensation claims from FY14-FY16.
- A Town Hall meeting with community members on April 19, 2016.

Note: Appendices E and G provides additional details for the various methodologies:

- Summary of the Town Hall discussion is in **Appendix E-1**
- A complete list of interviewees is in **Appendix E-2**
- Data analysis methodologies is in **Appendix G-5**
- Benchmarked District summary is in **Appendix E-3**

Section 2: Summary Perspectives

Current Situation Assessment

PGCPS bus lot safety for bus drivers, operational staff, and mechanics is assessed as "**Needs Significant Improvement.**" To assess and identify safety issues, the consultant team developed a checklist using information from industry-safety standards and leading practices from school transportation maintenance facilities around the country, and state and federal compliance regulations—and assessed all 12 PGCPS bus lots using this checklist. The observed safety issues highlighted from the checklist results are listed below. A summary of the checklist items and its results are in **Appendix G-2**.

- Most building facilities, bus parking, and mechanic facilities appear to not be in optimal condition.
- Older relocatable temporary classrooms are repurposed to bus lots as mechanic's and operational trailers and are nearing the end of their usable lifecycle.
- Seven bus lots appear to be failing to meet OSHA restroom availability standards.
- Most PGCPS mechanics work outside, causing unsafe work conditions in inclement weather.
- The unmaintained and unpaved bus lot grounds are riddled with potholes and loose gravel, which has caused over \$2 million in workers' compensation payments from slips and falls on the lots, over the last three fiscal years.

In addition to the OSHA violations for restrooms at the bus lots, there does not appear to be a clear long-term plan for the improvement of bus lots. Staff discussed desired improvements, but no formal plans appear to be in place to improve the facilities, grounds, bathrooms, or garages at the bus lots.

Pedestrian safety was assessed through the Physical Security of Facilities checklist and interviews with Office of Safety staff. The checklist indicated that 33% of schools needed more sidewalks; the Office of Safety is already working with many of the schools to address these pedestrian safety concerns (refer to **Appendix C-2**). Oversight of pedestrian safety on and off PGCPS property is a collaborative effort between the Office of Safety, Transportation Department, Office of Risk Management, and Maryland Department of Transportation. Since the offices regularly collaborate to address all pedestrian concerns as quickly as possible, pedestrian safety at schools is not assessed as needing improvement.

Assessment of Continuous Improvement

PGCPS Transportation reportedly makes critical safety improvements to bus lots when a safety issue impedes the staff performing their duties. The Transportation Department is not receiving Capital Improvement funding for the 2016-2017 school year, further limiting their ability to make significant safety improvements. The lack of square footage available is an additional constraint for improving the bus lots. At some lots buses have to double park to fit the entire fleet on the lot. The lack of available space could restrict the improvement and construction of facilities or garages in the future.

The new indoor garages at Mullikin and Crossland lots are major recent facility improvements. The Mullikin garage will open in summer 2016 and Crossland expects completion within the next 12 months, however mechanics at both lots will continue to work outside until these new garages are operational. Finally, within the past three years, Surrattsville, Douglass, and Friendly lots received new multi-stall restrooms. These three lots are now OSHA-compliant for restroom availability.

Key Opportunities for Further Continuous Improvement in Leading Practices

Transportation and Central Garage should make a larger investment to the bus lot facilities in the following recommended areas:

- Key Opportunity 6.1: Improve bus lot restroom facilities at seven lots to satisfy OSHA standards.
- Key Opportunity 6.2: Develop a plan for all mechanics to work in an indoor garage.
- Key Opportunity 6.3: Make improvements to facilities and grounds for operational staff and bus drivers.

Section 3: OLA and Transition Team Recommendations

Pedestrian and bus lot safety was not assessed in either the OLA Report or Transition Team report.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 6.1: Improve bus lot restroom facilities to accommodate minimum number of bathroom facilities requirements.

Background/Rationale

Seven bus lots do not appear to satisfy the Occupational Safety and Health Administration code 29 CFR 1910.141(c)(l)(i) to provide the minimum number of restrooms for bus lot employees.

Supporting Data:

The chart below details the number of employees, the OSHA standard for restrooms and the current number of restrooms available by lot. Starred lots indicate a deficiency in the restroom availability in comparison to the OSHA standard. The full table for OSHA recommended standards is located in [Appendix G-1](#).

Bus Lot Name	Number of Employees	Female Restrooms	Male Restrooms	OSHA Standard	Delta from OSHA Standards
Bladensburg*	113	1	1	5	-3
Crossland*	132	1	1	6	-4
Douglass	207	4	4	8	0
Fairmont	198	5	4	8	+1
Forestville	169	3	3	7	+1
Friendly	166	5	5	7	+2
Goddard*	139	1	2	6	-3
Greenbelt*	219	1	4	8	-3
John Hanson*	111	1	1	5	-3
Laurel*	139	2	3	6	-1
Mullikin	221	4	4	8	0
Surrattsville	140	4	4	6	+2
Brandywine* (satellite lot)	86	1	1	5	-3

The seven lots requiring restroom improvements have only two toilet rooms for use by the entire lot. Some of these lots have only one shared external sink that is often dual purposed as a kitchenette sink. Mechanics expressed concern for sharing this sink with staff and often opt to use an outdoor hose bib for handwashing to minimize any chemical exposure that can be found on their hands.

Implementation Strategy

PGCPS should increase the number of restrooms to meet OSHA standards at the seven starred bus lots. The team has provided some factors for consideration; the list is not exhaustive.

- **Expected future employee count increases at each bus lot:** The current bathroom deficits reflect the SY 2015-16 employment numbers at each lot. If employment is expected to increase at lots for subsequent school years, the number of restrooms necessary to meet OSHA standards will also increase.
- **Current square footage available at bus lots:** Some lots cannot accommodate parking for all buses, therefore the square footage required to add restroom facilities may not be available at these bus lots. The current limitation of available square footage will require PGCPS to think about vertical expansion or a reconfiguration of the number of staff/buses at certain lots.

- **Electrical Capacity available at bus lots:** Four bus lots did not have the electrical capacity to expand lighting. This demonstrates a potential barrier for the addition of bathroom facilities.
- **Consideration to consolidate current bus lot locations:** PGCPS has recently considered consolidating some bus lots. The consolidation has a larger operational and potential fiscal implication than the addition of a single bathroom facility. Transportation and Central Garage need to determine the likelihood of the consolidation before making major financial investments in lots that may not exist following the consolidation.
- Costs for bathroom additions are addressed below in potential fiscal implication.

Potential Fiscal Implication

The recent installations of restrooms at the Surrattsville, Douglass, and Friendly lots averaged \$150,000-\$200,000. The cost range takes into account the development of either a standalone restroom trailer with three stalls per gender or a combination trailer with three stalls per gender restrooms and a drivers' lounge. This cost estimate, provided by the Capital Improvement Office, is from a three-year-old development of restroom facilities. Current year cost projections will likely increase and vary based on the needs of each independent site.

Key Opportunity 6.2: Develop a plan for all mechanics to work in an indoor Garage.

Background/Rationale

The results of the checklist highlighted that the observed major safety issues with mechanics' workspaces are:

- Mechanics at 11 bus lots work outdoors, year-round.
- Some mechanic outdoor workspaces are on asphalt instead of concrete.
- Six bus lots do not have OSHA-compliant eyewash stations.

Central Garage mechanics were observed to work outside, year-round doing preventative maintenance on buses, as well as minor and major repairs, from light bulb to engine replacements. Since these outdoor work spaces provide no protection from inclement weather, rain and snow increase the safety risks because of the slippery and icy conditions. Also, some lots are on a hill, requiring the need for increased precaution when completing bus repairs. **Appendix G-3** provides pictures of various work areas for mechanics at PGCPS bus lots.

As mentioned there are indoor garages at Greenbelt and Brandywine bus lots. The mechanics at these two lots service buses from nearby lots if there are too many buses requiring repair. Central Garage also contracts out collision repairs, and engine and transmission remanufacturing, which are considered out of scope for the department. If weather conditions are too hazardous for PGCPS mechanics, some engine replacements are also contracted out.

We also observed some mechanics doing major repairs on asphalt workspaces; the other mechanics' workspaces are on concrete. Mechanics, who work on asphalt, have noticed jack stands shifting on hot summer days, due to the changing properties of the asphalt. In high and low temperatures, asphalt can begin to melt or crack. No injuries have been reported to date, but the risk of injury exists.

Mechanics have also submitted formal documentation to PGCPS leadership detailing their concern for the safety issues at their bus lot. The concerns listed in the memos are around requests for funding to repave the parking areas and improve lighting, replace the temporary buildings and requests for overall improvements to the working areas for mechanics. A few direct quotes from the reported safety concerns memos are listed below:

- "Electrical drop lights are being used to work on vehicles in the rain/snow with no overhead shelter to prevent rain from getting into the engine area or worst electrocution."
- "Upgrade fuel shed building with restroom and hand washing station (fuel crew works at night fueling)"

- Lack of lighting/request of lights in front of shop
- Request the posted speed limit signs of 5 mph be placed on lot/driveway

Based on the safety checklist results, six mechanics' facilities do not appear to have emergency eyewash stations/kits available to the mechanics' staff. According to OSHA standard, 29 CFR 1910.151, eyewash stations should be available because mechanics could encounter injurious corrosive materials that can result in permanent damage to the eye.

Benchmarking: None of the similar-fleet-sized benchmark districts have mechanics who conduct major repairs outdoors. Only minor repairs, such as light bulb replacement, are done outside. None of the districts had a definitive or optimal number of bays or mechanics per bus for repair, and they used one of two approaches for major repairs:

- Major repairs are done at all bus lot/home depot's garage, resulting in buses having minimal to no travel for repair.
- Major repairs occur at a few centralized indoor garages.

Implementation Strategy

Transportation and Central garage should create a plan to provide indoor work bays for all mechanics. To develop this plan, Transportation and Central Garage should consider the following items:

- Conduct an implication analysis on consolidating major repairs to specific bus lots. Review the implication of Brandywine and Greenbelt garages servicing buses from other lots, such as the mechanics' responsibility to coordinate the transport of buses between lots and ability of these garages to accommodate additional repairs.
- Determine the minimum number of garages and bays necessary to conduct major repairs, based on the fleet size, and identify locations that can accommodate the development of these indoor garages. PGCPS may want to also consider if garages can be standalone, in centrally located areas of bus lots, but detached from the bus parking locations. Another option for consideration is to collaborate with the County to identify locations for a bus lot or garage. The county could also serve as a resource for determining if a shared space could be a viable option.

In 2008, the Transportation and Central Garage commissioned a Needs Assessment and Recommendation report from the Mel McLaughlin Company. The needs assessment detailed the unsafe and poor working conditions of all 12 bus lots and actions required to improve the Prince George's County bus lots overall. The assessment makes an ultimate recommendation to consolidate the bus lots into six super lots, taking into account the declining worksite viability of the current lots. The assessment also detailed the required funding to adopt the super lot recommendation. As Transportation and Central Garage consider some version of bus lot consolidation, the 2008 assessment can provide a useful starting point to develop a current plan.

- Evaluate the ability to replicate the garage model used to build the Crossland and Mullikin garages. PGCPS developed these garages as prototypes for PGCPS indoor garages.
- Assess the ability for some mechanic's workspaces to have tent-like coverings with heated grounds. The larger plan is for all mechanics to work indoors, however constructing tent-like, sheltered coverings is a way to immediately address weather protection from rain and extreme sun, at a low cost. These structures can be installed and used before the completion of the indoor bays and as additional bays when the completed indoor bays are too full for repair. The coverage of the workspaces provides some weather protection, in rain and extreme sun. In addition, the benefits of a heated ground are multi-fold: 1) it replaces the risky asphalt, 2) combats hazardous work conditions in snow and ice, and 3) will provide some outdoor heating for mechanics in low temperatures.

Potential Fiscal Implication

Funding for an indoor garage is managed in the PGCPS Capital Improvement Plan, however, Transportation is not receiving any capital improvement funding for the 2016-2017 year. The current garage scheduled for completion at Mullikin was

budgeted at \$1.2 million dollars and is expected to cost \$1.5 million, upon completion. To develop a budget for any new indoor garages, Transportation and Central Garage should evaluate the options based on the considerations listed above and updated information from the 2008 assessment. If the Mullikin model can be utilized for future garages, the expected potential completion cost of \$1.5M, inflated appropriately for future years, gives a ball-park cost estimate of each facility. Additionally, the cost for providing tent-like coverage is approximately \$18/ square foot or \$21,000 for a 32ft. x56 ft. x18 ft. four-sided shed. This temporary building estimate covers shipping and installation only. Installing the tubing, manifolds, and boilers for the heated grounds range from \$4.50-\$6.00 per square foot and does not include the concrete. Costs vary depending on the materials selected to build the structure. This is just a cost estimate and will vary in cost depending on the election of the heating system, such as a hydro-electric or radiant heater.

Key Opportunity 6.3: Make improvements to facilities and grounds for operational staff and bus drivers

Background/Rationale

The grounds and facilities at the 12 bus lots in Prince George's County do not appear to be in optimal condition for safety. Through observation by the consultant team, assessment of the checklist results and interviews with bus lot staff, the main safety concerns for the facilities and grounds are:

- Unpaved and unmaintained grounds resulting in injuries
- Poor conditions of aging temporary trailers
- Cramped parking for buses

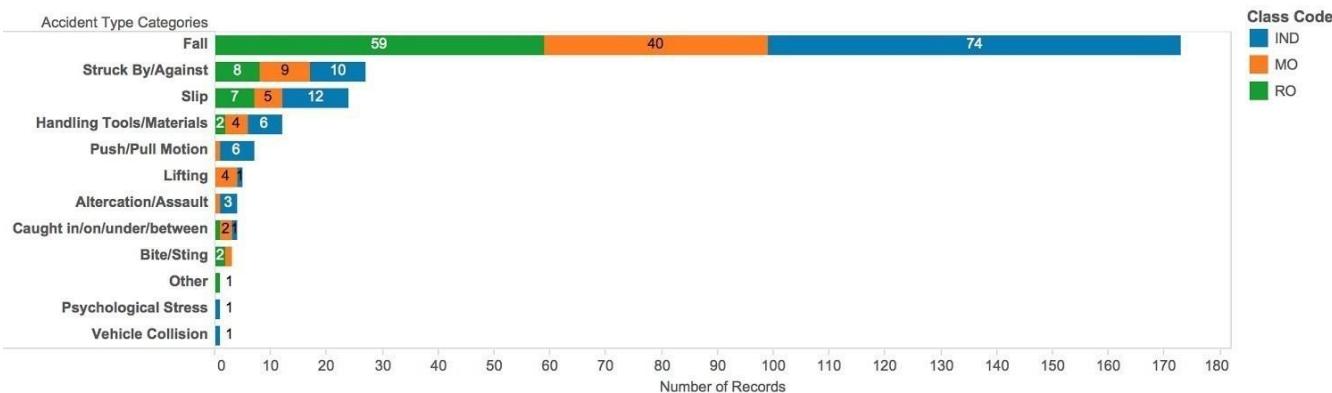
Supporting Data

The consulting team worked with the Office of Risk Management to obtain all transportation workers' compensation claim data from July 1, 2013 to April 9, 2016. The data analysis focused only on claims made on a Prince George's County bus lot; any non-bus lot claims were extracted from the data set. Additionally, employee leave data due to workers' compensation were not available to compare against claim payout totals. More information about Transportation data usage recommendations is in Key Opportunity 5.1 under Transportation: Routing and Efficiency. Prince George's County has reportedly paid out over \$2 million dollars in workers' compensation claims due to slips and falls on the bus lots since FY 13 to date. Additional workers' compensation data analysis is found in **Appendix G-4**.

Accident Claims by Type from July 1, 2013 to April 9, 2016

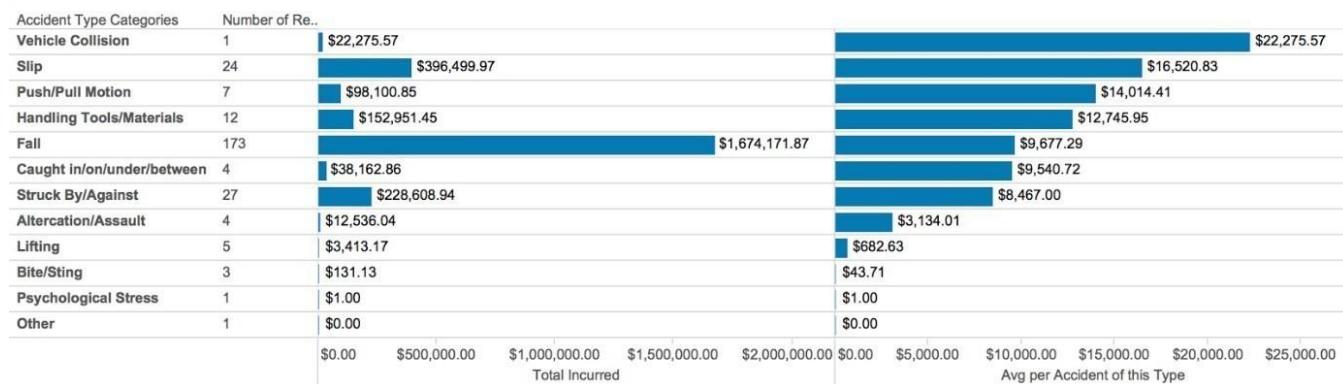
The chart below details accident types and their claim totals. The most frequent incidents are falls on the bus lots. The class codes are a workers' compensation designation for the outcome of the claim.

- Indemnity (IND): Time was lost due to the incident.
- Medical Only (MO): A medical payment was made to the claim.
- Report Only (RO): An incident was only reported to the PGCPS external workers' compensation claim managing company, CorVel.



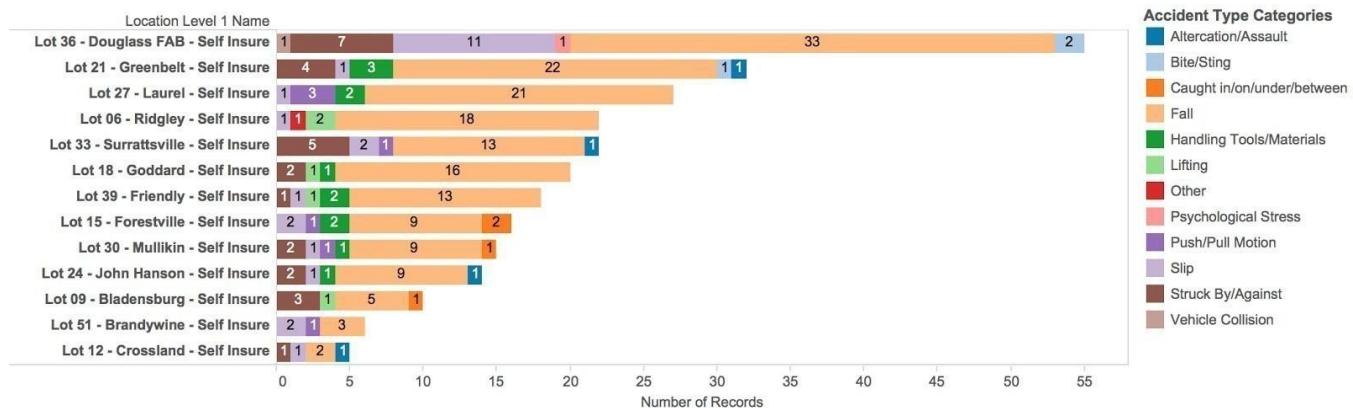
Total Costs incurred by Accident Type from July 1, 2013 to April 9, 2016

The chart below provides claim payout totals for the different accident types. Also, the chart details the average claim paid out by accident, calculated by dividing the total payout claims by all total claims. Slips and falls make up the vast majority of the dollars the district paid in claims.



Claim totals by Accident Type and by Bus Lot from July 1, 2013 to April 9, 2016

The chart below presents a consolidation of the Accident Claims by Type from July 1, 2013 to April 9, 2016 chart with the total claims from each bus lot. In addition to Douglas lot having the most total claims, the highest number of those claims were from slips and falls on the lot.



Grounds: As previously stated, bus lots appear to have unrepaved and worsening potholes, are lacking storm drainage systems causing extremely loose gravel, and have many broken parking wheel stops. Transportation leadership stated some bus lots such as Douglas have never been paved, exacerbating the issues with the loose gravel. Ultimately, the unrepaved grounds are the highest cause of workers' compensation claims from slips and falls of bus lot staff. Central garage staff does not reportedly have a current long term plan to address the grounds. The staff also reported that the replacements happened only on an as-needed basis, when funding was available. **Appendix G-3** provides pictures from multiple bus lots as evidence of the poor grounds' conditions.

Trailers: Operational staff and mechanics' supply rooms and offices are previously-used relocatable classroom trailers, and many are at the end of or beyond their five- to six-year usable lifecycle at bus lots. Some trailers appear to have unaddressed mold issues, rotting floors, and leaking roofs. Since these trailers have observed unaddressed safety issues, staff reported avoiding these areas of the trailers to prevent injury. Refer to **Appendix G-3** for pictorial evidence.

Parking: Due to the observed lack of available square footage at lots, bus parking spaces at nine lots were smaller than 15X40 ft. This is a national average for school bus parking spaces and PGCPS transportation staff's stated desired parking space size. Central Garage indicated frequently repainting parking spaces and reducing their size to fit the growing fleets on the lots. Bus drivers reported injuries walking around the buses during circle checks because buses were parked too close together. Also, as mentioned, some lots double park school buses to fit the entire fleet on the lot. Mechanics stated that double parking is problematic and dangerous when moving buses in need of repair or fueling.

Implementation Strategy

PGCPS should develop a plan to improve grounds' and facility conditions for operational staff and drivers. Plan development should take the following factors into consideration; however, this list does not provide all factors for planning improvements to facilities and grounds:

- **Make a determination on plans for consolidation.** As previously stated in Key Opportunities 6.1 and 6.2, plans to build new restroom facilities, operational facilities, indoor garages and repave grounds could be folded into a larger plan for bus lot consolidation.
- **Determine square footage necessary to build facilities and accommodate current bus fleet size at lots.** Assess current bus lot square footage and identify lots with space deficiencies. Work with Foremen and mechanics to assess each lots' available space for expansion, taking into account the current bus fleet and size of current facilities. For example, Goddard and Bladensburg have been identified by PGCPS staff as lots that cannot accommodate additional buildings.
- **Identify how to minimize operational implication with the addition of a new facility and repaving of grounds.** Consider developing a strategic repaving schedule with Building Services and Maintenance. Also, determine a strategy for lot by lot improvements and assess if lots can be combined temporarily to accommodate changes. The workers' compensation data will assist in determining the lots in highest need of repair.

Potential Fiscal Implication

The potential fiscal implication for improving the grounds and facilities at bus lots is dependent on how the district addresses the issue. Funding plans for facility improvements require approval by the Capital Improvement Office. Paving of lots is managed by Capital Programs and has been the joint responsibility of Building Services and Maintenance and Transportation/Central Garage. Building Services and Maintenance estimated that paving costs are approximately \$35.00 per square yard. The department also used the current standard rates for paving to provide cost estimations for the smallest and largest bus lots:

- Robert Goddard Bus Lot (smallest) - \$350,000 - 400,000
- Fairmont Bus Lot (largest) - \$750,000 - \$800,000

The per square yard budget approximation can be applied to the current square footage of all lots, to determine the estimated costs for paving.

7. Transportation: Inadequate Records for Time Reporting/Salary Payments

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of the Transportation Department. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess one *OLA Report* finding (specified below), and observe whether or not it appeared to have been implemented (and if not, if there was a plan in place to address the recommendation).

Second, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to identify ways that recordkeeping can be further improved.

OLA Report Items

Finding or Recommendation	Description
OLA Report Finding #8 Corrective Action	<ul style="list-style-type: none">• Develop standard operating procedures for timekeeping• Pilot standard operating procedures in one bus lot (FY14)• Use GPS system to verify route changes (verify drive time, idle time, etc.)• Study feasibility of implementing automated solution for documenting/verifying hours worked

The following methodologies were used to assess records and timekeeping for Transportation:

- Interviews with the following teams:
 - Transportation Leadership
 - Foreman and/or Assistant Foreman at each bus lot
 - Transportation Payroll Staff
- Analysis of payroll documentation used by all bus lots.
- Leading practice research and benchmarking conducted through interviews with transportation departments of comparable fleet size (1,084 Route Buses in 2015) and geographic attributes (mixtures of both rural and urban density). Comparable districts interviewed: Montgomery County (MD), Fairfax County (VA), Hillsborough County (FL), and Jefferson County (KY).
- Process mapping of timekeeping from the bus driver/attendant, Foreman/Assistant Foreman, and Payroll Clerk perspective.

Note: The Appendices provide additional details for the various methodologies:

- A complete list of interviewees is in **Appendix E-2**
- The Benchmarked District summary is in **Appendix E-3**
- Bus lot payroll process maps are in **Appendices H-1, H-2, and H-3**
- A summary of payroll documents assessed is in **Appendix H-4**

Section 2: Summary Perspectives

Current Situation Assessment

The overall assessment for the management of the PGCPS time reporting/salary payments for Transportation should be characterized as “**Needs Improvement**.”

- The paper process for payment record keeping appears to be inefficient; it is time consuming, requires managing paper documents, and lacks standardization across all bus lots.
- The current process does not allow for the analysis of weekly extra time or overtime accruals by the Transportation Department.
- The bus driver shortage adds significantly to the paperwork burden, as bus lot Foremen need to assign and document extra time earned when drivers take on double or additional runs.

Assessment of Continuous Improvement

Bus lot Foremen use the same general process across bus lots to assign and track attendance, leave, and extra time (see **Appendix H-3** for bus lot timekeeping process description) but have slight variations in the forms they use. As a result, when bus lot staff, drivers, or attendants relocate to a different bus lot, they must familiarize themselves with the new forms and learn any associated changes in routine. Transportation recognizes the shortcomings of having inconsistent forms across bus lots, and is in the initial stages of launching a pilot with four standardized forms at all bus lots in SY 2016-17. Transportation worked with a group of bus lot Foremen/Assistant Foremen to select the most important forms and revise and refine these forms for implementation starting in SY 2016-17.

While it is a step in the right direction, the new forms pilot does not appear reduce paperwork nor does it seem to improve reporting on extra time and overtime payment tracking, or provide the analysis to manage these expenditures. Foremen must rely on their experience and the information on multiple paper forms to make daily decisions about extra time assignments for bus drivers and attendants. Considerations Foremen have to take into account when assigning extra time include:

- Which drivers have not yet worked 40 hours for the week, including scheduled time and extra time accrued
- Seniority
- Availability, due to other scheduled runs and/or interest in taking on extra work

In addition to a paper log provided by the bus drivers, bus lot Foremen do use data pulled directly from the GPS system to verify any requests for changes to route times. They do not, however, verify with GPS in every case; rather, they use their judgment and experience with each driver to determine which cases warrant further review. When they do verify with GPS data, they maintain good paper documentation.

Key Opportunities for Further Continuous Improvement in Leading Practices

Transportation should focus on the following efforts to improve the accuracy and efficiency of the timekeeping process across all bus lots:

- Key Opportunity 7.1: Standardize timekeeping and tracking forms across all bus lots.
- Key Opportunity 7.2: Improve reporting capability to increase efficiency and reduce excess paperwork.
- Key Opportunity 7.3: Revise the role of Payroll Clerks to reduce duplication of work.
- Key Opportunity 7.4: Explore the use of technology to streamline the bus lot timekeeping process.

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Finding # 8: Develop standard operating procedures for timekeeping	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Some standard operating procedures appear to be in place as it relates to bus lots' interaction with the Payroll office, however there is still variation in the timekeeping processes at the bus lots themselves. Please refer to Key Opportunity 7.1
OLA Finding #8: Pilot Standard operating procedures in one bus lot (FY14)	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Management reports that, beginning in Fall 2016, Transportation will require the use of four specific forms consistently across all bus lots.
OLA Finding #8: Use GPS system to verify route changes (verify drive time, idle time, etc.)	<ul style="list-style-type: none"> Observations suggest OLA Report recommendation has been addressed 	<ul style="list-style-type: none"> For day-to-day route changes resulting in extra time, bus lot Foremen/Assistant Foremen use the GPS system on an ad hoc basis to verify route time discrepancies, but this is reportedly a manual process.
OLA Finding #8: Study feasibility of implementing automated solution for documenting/verifying hours worked.	<ul style="list-style-type: none"> Observations suggest that progress has not been made against OLA Report 	<ul style="list-style-type: none"> Transportation has not yet begun research with other districts to identify an automated solution for tracking, documenting and verifying hours worked. Key Improvement Area 5.4 provides more detail on options. Please refer to Key Opportunity 7.2, 7.3, and 7.4

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 7.1: Standardize timekeeping and tracking forms across all bus lots.

Background/Rationale

Bus lot Foremen developed and use their own forms to manage driver attendance and time (see **Appendix H-4** for a description of various bus lot forms). Furthermore, some bus lots have developed forms or templates that would be useful to staff at other bus lots if they were shared.

While forms may vary by bus lot, the timekeeping and tracking process across bus lots is generally similar. (See **Appendix H-3** for detailed bus lot payroll process map.) The key components of this daily process were reported to be as follows:

1. Manage advance leave requests and assign replacement drivers
2. Monitor daily attendance to ensure all routes have drivers for morning, midday and afternoon shifts, and activities
3. Assign extra work based on hours worked and seniority
4. Track extra hours worked by bus drivers
5. Submit extra work hours to Payroll Clerk for input into the ERP system

Implementation Strategy

At a minimum, until and unless an electronic system is adopted for sign in/sign out and/or tracking driver hours (see Key Opportunity 5.3 under Transportation: Routing and Efficiency), Transportation should standardize the following forms across bus lots.

Daily:

- Sign-in/Sign-out - Bus Driver: AM/Midday/PM
- Sign-in/Sign-out - Attendants: AM/Midday/PM
- Extra Work Request Sheet - Bus Drivers, sorted by seniority
- Extra Work Request Sheet - Attendants, sorted by seniority
- Daily Log Sheet - Drivers (standardization in progress)
- Daily Log Sheet - Attendants (standardization in progress)
- Daily Payroll Register (electronic, already standardized)

Weekly:

- Weekly Time Sheet - Bus Drivers and Attendants (standardization in progress)

Bi-Weekly (Pay Period)

- Leave Accruals by Pay Period

Other:

- Time Verification Sheet (standardization in progress)
- Route Assignments
- Driver Hours
- Driver Attendance Log by School Year

There are several potential benefits to the standardization of forms:

- All bus lots will be using the same version of the forms.
- Some bus lots will gain new forms that could improve their tracking process or efficiency.
- All forms would be available electronically.
- When bus lot staff, drivers, or attendants relocate from one bus lot to another, they will know the payroll process and forms used to track their attendance and extra time.
- Transportation can review extra time assignments consistently across bus lots.

Management reports that, beginning in August 2016, the four forms identified above will be standardized. Transportation should determine if the process can be replicated for future standardization processes. The department should also

continue to engage and obtain buy-in all from bus lot Foremen and/or Assistant Foremen in the process of standardizing forms, since these changes affect their daily work.

Potential Fiscal Implication

The potential fiscal implication for the standardization of forms could be minimal for implementation.

Key Opportunity 7.2: Improve reporting capability to increase efficiency and reduce excess paperwork.

Background/Rationale

The current timekeeping process at bus lots is time-consuming and involves many different paper forms to account for leave or extra work time. The persistent shortage of drivers appears to increase the Foreman's workload by having to manage the paperwork associated with reallocating drivers between uncovered routes. Foremen/Assistant Foremen do not appear to use a standard type of reporting tool to track hours worked against seniority. Tracking large amounts of data outside of a standard form or reporting tool is imprecise and does not produce a record for external parties to verify information, especially extra work and overtime accruals by employee. Also, it may result in a loss of institutional knowledge when staff cannot come to work or decide to retire.

The key steps a Foreman reportedly takes to ensure that all runs are covered every morning include:

1. Determine which runs need to be filled: Daily Log sheet, Sign-in Sheet, and visual inspection of bus lot
2. Identify drivers willing to take on extra work: Sign-up Sheet (some bus lots request this information on the Sign-in Sheet)
3. Identify drivers with under 40 hours for the week: no standard form, information is available on Driver Hours sheet combined with Daily Payroll Registers
4. Prioritize drivers with under 40 hours per week for extra work, assign extra work first by under 40 hours, then by seniority: *Driver Hours, Extra Work Request sheet (only at some bus lots)*

Using inconsistent paper forms across lots also prevents Transportation's ability to clearly report on extra work or overtime by employee. The current overtime report lacks data accuracy because it does not clearly differentiate between extra work and overtime.

Implementation Strategy

The district should identify better tools for tracking and managing this complicated process. Options could be developed in-house or purchased. Several potential options include:

- Modify the Daily Payroll Register to track information on a weekly basis, and include seniority and total weekly hours including extra time. This could provide one consolidated report with all the information needed by the Foreman to assign extra work.
- Customize ERP reports to provide timely information on bus driver hours worked with clear distinction between extra time and overtime hours and seniority.
- Consider Transportation-specific software for bus lot resource allocation and timekeeping; if this option is not available within ERP, the software should be able to speak to the ERP.

Potential Fiscal Implication

The potential fiscal implication for improving the reporting capability is dependent on how the district addresses the issue. Based on the potential options presented, modification of the Daily Payroll register and customization of ERP reports could have a minimal potential fiscal implication. The implementation of Transportation-specific software could have a high fiscal implication for product implementation.

Key Opportunity 7.3: Revise the role of Payroll Clerks to reduce duplication of work.

Background/Rationale

The Assistant Foreman and Payroll Clerks appear to be entering the same information into different systems. The Foreman/Assistant Foreman keep track of extra work time for each employee based on the assigned route or activity time. At the end of the day, any extra work time is typed into the Daily Payroll Register (in Excel) by the Assistant Foreman and emailed to the Payroll Clerk, who manually types the data into the ERP system. Typing data from one payroll register into the ERP system takes approximately 1-1.5 hours, depending on the number of entries. To expedite payroll processing, some Foremen/Assistant Foremen are responsible for the direct Daily Payroll Register entry into the ERP system every second Friday, if submitting after the midday deadline for bi-weekly payroll processing. It is unclear whether the Payroll Clerks' process is saving time based on reports from the Foremen and Assistant Foremen.

Two teams conduct mirrored quality control process for Transportation payroll: Payroll Clerks and the Payroll Analysts. The Payroll Clerks identify errors and omissions in the Daily Payroll Registers as they input driver's hours into the ERP system. The Payroll Analysts run regular weekly reports that flag for errors such as duplicate entries and more than 24 hours worked per day.

Implementation Strategy

Transportation should consider altering responsibilities of the following roles to revise the process for entering the Daily Payroll Register into the ERP system and to minimize redundancy.

- The Assistant Foreman should input extra time data directly into the ERP system rather than into the Daily Payroll Register.
- The Payroll Clerk's role should focus on quality control, ensuring there is no missing or anomalous data, and can serve as a backup on occasions when no one at the bus lot is available to input the data into the ERP system.
- The Payroll Analyst role should remain unchanged.

Potential Fiscal Implication

The potential fiscal implication for the role revisions is likely very small.

Key Opportunity 7.4: Explore the use of technology to streamline the bus lot timekeeping process.

Background/Rationale

Bus drivers and attendants are required to report daily to the bus lot office to sign-in and out for morning, mid-day and afternoon routes and runs. The bus lot Foreman uses the daily sign-in/sign-out process to:

- Keep a record of attendance.
- Determine which drivers have shown up for work for the morning, midday and afternoon shifts, and thereby determine which runs needs to be filled.

- Provide an opportunity for drivers to sign up for extra work.
- Confirm that drivers have checked for sleeping children on the bus upon return.

The sign-in sheets did not appear to indicate time of arrival or return to the bus lot. The only record of the time when buses leave from or arrive at the lot is by cross-referencing the routing system with the GPS Data.

Transportation leadership imposes penalties for persistent absences and tardiness and relies on the Foreman/Assistant Foreman to provide information to inform these penalties. Foremen/Assistant Foremen across lots could not clearly or consistently convey how absences and tardiness are being tracked. If evidence were required to substantiate the need for an absence or tardiness penalty, Foremen/Assistant Foremen would lack the adequate documentation.

Implementation Strategy

The Transportation Department has considered two viable technology options for the sign-in/sign-out process. If funding is available, one of these options should be pursued.

- **Electronic Verified Inspection Reporting (EVIR®) system⁹:** Drivers use an electronic handheld device (or “wand”) to capture, transmit, and record pre-trip inspection and maintenance data as they walk around the bus, placing the wand on data-encoded RFID tags at each inspection location of the vehicle and reporting any defects.

Potential benefits:

- Integrates with PGCPS's GPS system, since the same vendor also offers an EVIR system.
- Provides time stamp information for when pre- and post-trip inspections begin and end.
- Accesses inspection data through any web browser, which could be used by bus lot the Foreman or mechanics.
- Uses consistent terminology for issue reporting by using pre-determined checklists from which bus drivers select defects or issues.
- Can be linked with the fleet management system.
- Requires less paperwork for pre- and post-trip inspections.
- Technology can be installed on newly ordered buses at no additional cost.
- Technology allows for recording of time for both bus drivers and attendants.
- Company has previously integrated the inspection technology with existing ERP systems

Potential drawbacks:

- Installation costs of retrofitting buses with RFID tags and purchasing wands for each bus lot.
- Training drivers to use new technology.
- Implementing new process or technology could require union approval.

⁹ <http://zonarsystems.com/solutions/2010-electronic-verified-inspection-report/>

- **Employee scan cards:**

Potential benefits:

- Using PGCPS' employee scan cards system currently used at schools could eliminate the need for new technology.
- Recording electronic time stamps when employees arrive at the bus lot.
- Signing-in process could be faster than sign-in sheets.
- Training required could be minimal.
- Signing in on behalf of another employee could be difficult without the physical card.

Potential drawbacks

- Installation costs are \$3,200 for card readers at each bus lot and will incur an additional cost to issue cards to employees.
- Implementation of a new process or technology could require union approval.
- Limitations in access to consistently use the scan system, due to the poor internet technology at bus lots.

Either option provides bus lots with an electronic and readily accessible record of bus drivers' attendance and on-time record. Under either scenario, drivers would still have to come into the office in order to sign up for extra work and verify that there were no children left on the bus.

Potential Fiscal Implication

The potential fiscal implication for streamlining the bus lot timekeeping is dependent on the technology the district selects to address the issue. For example, there are existing software systems that could allow newly purchased school buses to be fitted for technology at no additional cost, but could require software upgrades if all buses are retrofitted. We expect that, depending on which software is chosen, costs would be in the range of \$199 to retrofit older buses, and an additional \$84 per year per bus for the inspection services (these costs are based on example software systems that would achieve the benefits cited). Additionally, some companies charge an approximate \$1000 base fee for customer configuration to use the service for payroll system integration. Other costs might include service representatives to upgrade older technology (~\$800/day for one representative, not including travel expenses).

Installation of employee scan card readers is \$3,200 per scanner. Total cost will vary depending on the number of scanners installed at each lot.

8. Accounts Payable

Section 1: Overview of the Scope of Work:

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Accounts Payable. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess several *OLA Report* Corrective Actions/Recommendations, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

Second, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to identify ways in which the assessment of invoices and payments could be further improved.

Additionally, we extended the Accounts Payable assessment to the whole purchasing to payment processes, as the root cause of the AP issues can reside anywhere along the Procure-to-Pay (P2P) processes. Additionally, an overall assessment of end-to-end current state P2P processes, policies, and supporting technology was conducted to analyze the organization's maturity and observed alignment with leading practices. This included performing an assessment of the Procurement business function in addition to Accounts Payable. The team also analyzed the current state and potential future target Purchasing and Accounts Payable capabilities across the following areas: Requisition process and end-user experience, Procurement organization structure, Procurement technologies, Procurement policy and purchasing authority, Buying and payment channels, Sourcing, Supplier enablement, Contract management, Accounts payable organization structure, Invoice matching and approval processes, and Performance monitoring and reporting.

OLA Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #2 Corrective Action (Review of Invoices/Payments)	<ul style="list-style-type: none">• Document and disseminate procedures for invoice review• Provide a mechanism for reviewers of invoices to see contracted pricing data (for price validation purposes)• Require vendors to provide invoices in a format which enables price verification (perhaps build this into procurement process)• Expand use of hosted vendor catalogs with contract pricing• Implement utility bill management system to track utilities system wide• Centralize the management of all cell phones. Ensure segregation of duties and understanding of invoice review procedures
<i>OLA Report</i> Finding #2 Corrective Action (Expense Monitoring)	<ul style="list-style-type: none">• Address inadequate monitoring of utility invoices• Implement utility bill management system to track utilities system wide• Set up internal accounting systems to compare actual with expected savings (from Energy Service Contracts) to ensure savings cover the cost of repaying the lease purchase payments for the ESCO work

Methodology

All findings and recommendations were based on interviews and data analysis as follows:

Data and information analysis:

- PGCPS Budget
- Purchasing and AP Org Charts
- PGCPS spend (one year)
- Invoice aging (snapshot as of 4/6/16)
- Invoice holds (snapshot as of 4/6/16)
- Purchasing manual
- Accounts payable and iExpense standard operating procedures document
- Overview of School Dude Utility Billing Automation Service

Interviews:

- Procurement Director
- Procurement Manager
- Senior Buyer
- P-card Administrator
- Manager Utility Billing
- Third Party Advisor for Utility Billing Management
- Technology Director
- Wireless Phone Purchasing Coordinator
- Accounts Payable Director

Demonstrations:

- eSchoolMall – catalog platform, supplier enablement, and contract management SaaS provider
- ERP System AP and iExpense demonstration/ AP Clerk “day-in-the-life” session
- Purchasing “day-in-the-life” session

Validation Session

- Went through draft findings and recommendations with Procurement Director, Accounting and Financial Reporting Officer, and Accounts Payable Director

Section 2: Summary Perspectives

Current Situation Assessment

The organizations that facilitate the procure-to-pay (P2P) process within PGCPS appear to be in the process of implementing a number of policy, process, and technology improvements that could deliver increased efficiency, improved customer experience, and more robust guardrails. Currently, the Purchasing and AP departments rely on a number of highly manual processes with limited use of technology. There appears to be a broad lack of automation, sourcing and procurement technologies, adequate contract and supplier management capabilities, and invoice processing technology. This process and technology landscape is typically prone to purchasing and payment errors, contract value leakage, supply reliability challenges, and poor end-user experience. However, the Purchasing and AP departments appear to be taking the appropriate actions and implementing more mature systems and processes that could substantially improve P2P performance in the near term (see the Assessment of Continuous Improvement).

Current State P2P Process

Purchasing

All purchase requests made using operating funds are put into the ERP system by end-users. Requestors may only make purchases from suppliers who are active in the system. Additionally, Purchasing currently maintains five catalogs with Office Max, Office Depot, Grainger, School Specialties, and Fray Scientific. Purchase requests are routed electronically to Buyers in the purchasing group who then determine sourcing and contractual requirements based on established monetary thresholds as follows:

- Purchases under \$6,000 do not require contracts, bids, or negotiations
- Purchases from \$6,000 – \$14,999 requestor is required to obtain three bids but do not require written confirmation of bids to be provided to Procurement
- Purchases from \$15,000 – \$24,999 require three written quotes which are submitted to the assigned buyer
- Purchases >\$25,000 and all equipment purchases require an RFx and approval by the Director of Purchasing

Once a purchase order is created, the PO is dispatched electronically to the supplier based on parameters determined within the ERP system and there is no current mechanism for PO acknowledgement (i.e., supplier acknowledgement of PO receipt).

Requests that require contracts and/or other sourcing activity are reportedly currently managed manually by procurement (e.g., contract authoring, bidding process, RFx authoring, dissemination and supplier response etc.). Active contracts are manually managed and stored on a share drive that is managed by purchasing and there is currently no mechanism for users outside of procurement to access active contracts. Additionally, there is currently no free text contract search or automated notification capability for required contract actions (e.g., contract renewals). Procurement does not currently manage supplier payment methods at the time of supplier enablement and although there are a significant number of suppliers that continue to receive paper checks and are not enabled to receive electronic payments.

Overall, the current state manual procurement processes appears to place significant constraints on procurement resources. This detracts from procurement's ability to more strategically partner with the broader organization to drive procurement enabled savings and contract compliance, manage supplier relationships, and maintain supply reliability. The lack of a robust contract management platform likely limits the organization's visibility into exiting contractual arrangements and pricing and procurement's ability to actively confirm that contractual terms, conditions, and pricing are being adhered to. The lack of multiple buying channels adds significant cost to the procurement process as all purchases currently require the creation of a purchase order. Although catalogs are in place, they must be actively managed by internal resources placing additional burden on the purchasing group and increasing the risk of pricing and product description inaccuracies. The current lack of PO acknowledgement could potentially create supply reliability and order

accuracy challenges. These challenges and limitations could have upstream implications on requestors, downstream implications on accounts payable and accounting, and organization wide implications from a savings and operating efficiency perspective.

Accounts Payable

The majority of invoices are received manually via US Mail in paper format and are manually keyed by AP clerks. Invoices are matched against goods receipts and confirmations (two-way and three way match). The AP organization processes approximately 7000 PO based invoices per month in this manner which equates to approximately 60% to 70% of the overall AP resource load. It is estimated that another approximately 20% of the AP resource load is dedicated to invoice resolution due mostly to receiving and pricing holds. Common drivers of receiving and pricing holds include the following:

Receiving Holds

- Partial receiving appears to be a frequent issue with vendors invoicing for full amount and only making partial shipments
- Receipts are often not entered by end-users (although this is a common AP problem the issue is exacerbated by the fact that PGCPS personnel are often off of work for the summer or change school locations fairly regularly)
- End users that have not properly received goods receive nightly emails (eventually escalating to supervisor) and after 60-90 days AP begins making calls to end user and requests POD (Point of Delivery) from vendor

Pricing Holds

- Requestors appear to use old or inaccurate quotations
- Catalog pricing may be out of date
- Lack of clarity on contract pricing
- When there is a price discrepancy there is a <10% or <\$500 tolerance within which AP can override and pay; otherwise requestor provides override approval

In addition to PO based invoices, AP also processes non-PO invoice payments for iExpense travel and uniform reimbursement submissions, tuition assistance payments via an interface with the HR system, and manual submissions for tool allotment reimbursements.

Overall, Accounts Payable appears to have a well-documented standard operating procedure and is well staffed to support the workload for which they are responsible. However, the observed highly manual process of entering paper invoice information into the ERP system could be prone to error and is resource intensive. A number of challenges that surface in AP are likely attributable to upstream purchasing and invoicing process steps.

Utility Billing and Performance Monitoring

Management indicated to our team that PGCPS entered into a series of energy services contracts as part of an opportunity to finance infrastructure upgrades at select locations. An assessment was conducted to analyze savings opportunities associated with energy efficiency upgrades and these savings were meant to offset the associated infrastructure upgrade construction costs. Our observations indicate that PGCPS was unable to completely track actual performance against these contracts. The construction phase of the energy services contracts (ESCs) has been completed. To date no energy performance savings tracking methodology appears to have been developed and ESC related savings was not earmarked specifically to pay the associated construction loans. Going forward, PGCPS should develop and implement an energy performance savings tracking and accounting methodology to support future use of energy service contracts.

There is an ongoing effort to develop more robust utility billing management capabilities. As with all billing at PGCPS utility bills are received by AP as paper invoices via US Mail from approximately 15 separate electric, gas, and water utilities. These invoices must be manually entered into the financial system of record and in many cases each specific meter represents a discrete account with the respective utility each with its own individual invoice, resulting in very high invoice volumes across the school district. Once invoices are entered in the ERP system they are scanned by AP and sent to Maintenance for use in performance monitoring. This process appears to result in significant challenges in reconciling invoice amounts against usage reflected at the meter, which must be physically observed, as well as with contracted rates, rebates, and incentives. A lack of visibility into utility contracts and the fact that in some cases multiple departments are co-located within the same facility (on the same meter) compounds the challenges around invoice reconciliation, performance monitoring and expense allocations.

Current State Procure-to-Pay Maturity



*Key:

- Informal – Need for significant improvement
- Developing – Needs improvement
- Defined – Approaching Leading Practices
- Advanced/Leading – Reflective of Leading Practices

Based on the processes and technologies that are in place at present time, both the AP and Purchasing groups have been assessed as ***“Needs Improvement.”*** Our analysis of maturity of AP and P2P maps to the overall leading practices framework utilized above. See **Appendix I-1 and I-2** for more detail on maturity models.

However, there appear to be efforts underway to address the current state challenges identified in this assessment (described in more detail in the following section).

- Purchasing is reportedly in the process of implementing several technology platforms and buy channel enhancements that will likely enable increased automation and improved sourcing, contract management, pricing visibility, and supplier service levels. These enhancements will also have positive downstream implications that will likely reduce accounts payable challenges.
- Accounts Payable is considering the use of elnvoicing technology.
- The Utility Billing Management Group is currently deploying EDI (Electronic Data Interchange) for electronic invoicing, both of which could potentially further drive efficiency through the P2P process.

As these systems and processes are further deployed the AP and Purchasing groups could be closer to approaching leading practice capabilities.

Assessment of Continuous Improvement

Both the Procurement and Accounts Payable groups appear to have developed and implemented robust policy documents and standard operating procedures. All in-scope departments are currently in at various stages of implementing technology platforms that, Management expects to significantly mitigate current constraints, primarily through increased automation and ease of use. The following is a description of improvements that are already in process of being implemented, according to Management and our observations:

Purchasing

- iSourcing: implementation of this module is expected to improve eSourcing, supplier management, and contract authoring automation and overall capabilities. These capabilities typically help drive increased Procurement-

enabled savings, supply assurance, contract value retention, as well as enabling purchasing resources to be redeployed to more strategic, higher value added activities.

- Cloud Based Procurement, Sourcing, and Contract Management Software: This platform could provide substantially enhanced catalog capabilities as well as an improved contract repository platform. This technology is expected by Management to improve contract management capabilities through free text search and contract notification functionality. The catalog capabilities provide users with a user-friendly buying experience complete with accurate product pricing and description information.
- P-card: P-cards are currently being deployed for use with catalog purchases of \$5,000 or less. Management expects the program to reduce Purchasing and AP workloads, transaction costs, and invoice payment errors.

Utility Billing

- Cloud-Based Maintenance and Facilities Management Software: This platform also offers a utility management module and bill management service. Although this technology and managed service offering is still being evaluated, there are preliminary indications that this software potentially has the capability to automate and manage utility billing and contract performance.
- EDI: One utility (Pepco) has been set up for electronic invoicing via EDI. Additional utilities are being considered and/or are in the process of validating technical capabilities and requirements for EDI. Management expects that adding additional utilities to EDI could decrease the manual workload associated with paper utility invoices.

Wireless Billing

- Wireless billing is currently being managed by using a vendor portal that provides detailed usage and pricing information as well as analytics capabilities for quickly identifying and resolving billing anomalies. Invoices are sent to the wireless services management team for reconciliation and approval based on current plan details and eRate discounts. A detailed policy appears to have been established to control access to wireless devices based on rank and job responsibilities. All exceptional requests are approved by executive leadership. Purchasing works with the wireless services management group to mitigate unauthorized orders for wireless devices. The wireless service management group is reportedly working to deploy an online form to streamline the wireless device request and approval process.

Key Opportunities for Further Continuous Improvement in Leading Practices

- Key Opportunity 8.1: Review and formalize end-to-end Procure-to-Pay processes to better integrate Procurement and Accounts Payable business functions
- Key Opportunity 8.2: Establish tracking of metrics around business and production support (Customer Relationship Management)
- Key Opportunity 8.3: Explore centralization of transactional activities in order to enable efficiencies and free up resources to focus more on value-add activities
- Key Opportunity 8.4: Look for opportunities to leverage newer technologies to implement new and improved functionalities and more electronic solutions to automate business processes

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Finding #2: Document and disseminate procedures for invoice review	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> AP appears to have a well-documented standard operating procedure document; however, exceptions are managed manually outside of the system of record; issues with invoice review should be tracked and resolved within a ticketing system Please refer to Key Opportunities 8.2 and 8.4
OLA Finding #2: Provide a mechanism for reviewers of invoices to see contracted pricing data (for price validation purposes)	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Not all reviewers have access to contract information or PO updates. Implementation of iSourcing and cloud-based procurement, sourcing, and contract management software in combination with P-card deployment could have a positive implication on contract pricing visibility Please refer to Key Opportunities 8.1 and 8.4
OLA Finding #2: Require vendors to provide invoices in a format which enables price verification (perhaps build this into procurement process)	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Cloud-based procurement, sourcing, and contract management software platform has the potential to streamline to procurement and price verification process; Increased automation resulting from procurement system enhancements could free resources to focus on supplier management; Purchasing should communicate invoicing requirements to all vendors and include requirements in all contracts and POs Please refer to Key Opportunity 8.4
OLA Finding #2: Expand use of hosted vendor catalogs with contract pricing	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Currently there are 5 vendors on catalogue. Need to identify more vendors that are suitable for this buying channel. Wave I and II of the cloud-based procurement, sourcing, and contract management software deployment has the potential to continuously incorporate additional vendors onto catalog platform Please refer to Key Opportunities 8.3 and 8.4
OLA Finding #2: Implement utility bill management system to track utilities system wide	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Implementation of EDI and cloud based Maintenance and Facilities management software is progressing and could significantly improve Utility tracking and monitoring capabilities once more suppliers are on boarded. Please refer to Key Opportunity 8.4

OLA Report Items	Summary of Observations	Commentary
OLA Finding #2: Centralize the management of all cell phones. Ensure segregation of duties and understanding of invoice review procedures	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> Wireless billing is managed using vendor portal that appears to provide detailed usage and pricing information as well as analytics capabilities. Detailed policy and approval process appear to have been established to control access to wireless devices based on rank and job responsibilities.
OLA Finding #2: Address inadequate monitoring of utility invoices	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Only on-boarded 1 vendor for EDI. Implementation of EDI and cloud-based maintenance and facilities management software is progressing and could significantly improve Utility expense tracking and monitoring capabilities Please refer to Key Opportunities 8.2, 8.3, and 8.4
OLA Finding #2: Set up internal accounting systems to compare actual with expected savings (from Energy Service Contracts) to ensure savings cover the cost of repaying the lease purchase payments for the ESCO work	Observations suggest progress not made against OLA report	<ul style="list-style-type: none"> To date no energy performance savings tracking methodology appears to have been developed and ESC related savings was not earmarked specifically to pay the associated construction loans. Going forward, PGCPS should develop and implement an energy performance savings tracking and accounting methodology to support future use of energy service contracts

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

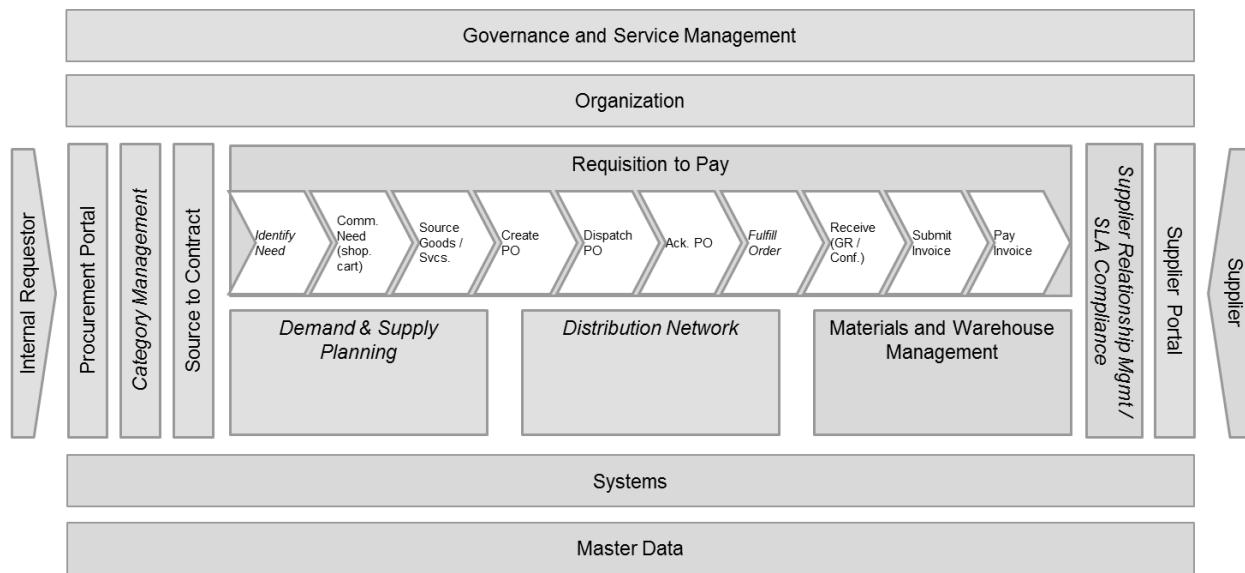
Identified key opportunities for further continuous improvement include the following:

Key Opportunity 8.1: Review and formalize end-to-end Procure-to-Pay processes to better integrate Procurement and Accounts Payable business functions

Background/Rationale

After conducting the high level Purchasing and Accounts payable assessment, we developed a point of view on the potential future state operating model that focus on the end to end Procure-to-Pay (P2P) processes. Rather than sub-optimizing the purchasing or AP processes within their silo, the end to end P2P integration could improve the functional performance of Purchasing and Accounts payable to better support PGCPS's strategic objectives and business partner services. The below graph provides an overview of the potential end to end Procure-to-Pay (P2P) processes that starts from business requisition to supplier collaboration.

Graph 1: End-to-end Procure-to-Pay processes chart.



Implementation Strategy

Requisition-to-Pay

- Evaluate implementation of ticketing system to track issues and resolution process (AP and Purchasing)
- Purchasing should communicate invoicing requirements to all vendors and include requirements in all contracts and POs
- Expand implementation of catalog capabilities to include PO purchases and continue to increase number of vendors available on cloud-based procurement, sourcing, and contract management software platform
- Evaluate options for improved PO dispatch and acknowledgement and supplier self-service in iSupplier
- Evaluate eInvoicing technology to eliminate manual payment process
- Expand use of EDI for utility billing and finalize implementation of School Dude Utility Billing Automation System
- Continue to evaluate end-to-end technology solution to drive the best value for PGCPS

Supplier Management: consider expanded use of supplier self-service and further develop tiered supplier relationship management approach, focusing on active engagement with key strategic suppliers to drive mutually beneficial outcomes. Vendor management should also focus attention on ensuring vendors are compliant with contracts, PO and invoicing requirements.

Internal Requestor: Collaborate with internal training group to ensure adequate requestor training is held regularly and that up-to-date process guides are made available to the organization. Accurate and appropriately completed requests could reduce cycle times, increase PO and Invoice accuracy, and drive supply reliability.

Category Management – Group purchasing activities around categories and manage procurement workload according to category grouping. This could enable the organization to better understand supplier landscape, market conditions, and could facilitate improved vendor management.

Organization – Purchasing should evaluate the cost and benefits associated with creating a contract administrator role. This role could, among other activities, help to confirm that established pricing and terms are accurately reflected throughout the lifecycle of the contract.

Source-to-Contract – iSourcing has the potential to improve sourcing capabilities and the cloud-based contract management software's contract repository could serve as an improvement to current contract management processes; PGCPS should periodically evaluate available eSourcing and contract lifecycle management technology options to further drive automation and integration with the overall P2P process.

Potential Fiscal Implication

PGCPS can establish a leading purchasing organization with a redesigned, more strategic operating model to sustain the value earned through technology enablement. Category management and strategic sourcing combined with supplier relationship management can optimize the total value and improve the effectiveness of 3rd party spending. Supplier and internal stakeholder support should be transitioned to a structure where issues are handled in a methodical way, and intra-company support can be efficiently obtained to facilitate alignment and compliance. Functionally aligned organization and system enabled P2P processes leverage the leading practices can greatly improve the efficiency and compliance to improve organizational and operational effectiveness, which in turn can have a profound potential implication on fiscal savings.

Key Opportunity 8.2: Establish tracking of metrics around business and production support (Customer Relationship Management)

Background/Rationale

Right now, PGCPS does not appear to have any key performance indicators (KPI) for the P2P processes. AP and Purchasing should establish formal, interdepartmental communication, governance, and performance reporting (KPIs) structure to drive the issues resolution and continuous improvement process at the procure-to-pay level.

Implementation Strategy

We recommend PGCPS establish key performance indicators (KPIs) to measure the procure-to-pay performance on efficiency, effectiveness, cycle time, especially the value added to the strategic initiatives. Purchasing and AP can initially select three to five key KPIs to focus on (to be finalized through implementation), and leverage other benchmarking (e.g., APQC, CAPS) resources later to fully deploy other meaningful KPIs. Some examples are:

Measure Category	Sample Metrics/KPI's	Value to PGCPS
Value added	Percentage of total spend managed by purchasing	The higher percentage of expenditures managed with a strategy and covered by a category plan, strategically sourced, contracted and controlled, the higher level of effectiveness and efficiency could be provided by procurement to the business units
Value added	Cost reduction savings as a percent of the managed spend	3rd party expenditure savings that could directly implicate the bottom line and provide additional capital for other investment/initiative.
Cycle time	Average cycle time (in days) from requisition approval to purchase order placement for indirect goods and services/direct goods	Measure how procurement can efficiently meet the purchasing needs to support the business activities

As well, the current issue resolution process in both AP and Purchasing appears to be informal and lacking transparency. PO and invoice issues are communicated via email or phone and there does not seem to be a structured approach for managing issue resolution activities. A shared P2P helpdesk structure supported by a ticketing system could help to standardize and streamline the issue management process and provide transparency into issue volumes, actions, and ownership of activities.

Potential Fiscal Implication

PGCPS should be able to measure the value and success/improvement that Purchasing and Accounts Payable make after the implementation of KPIs and a CRM (Customer Relationship Management) /ticketing system.

Key Opportunity 8.3: Explore centralization of transactional activities in order to enable efficiencies and free up resources to focus more on value-add activities

Background/Rationale

Based on our interviews, we observed that both Purchasing and Accounts Payable have traditionally been a tactical, process facilitator viewed as offering limited contributions to individual business units' and PGCPS's overall strategies/goals. They appear to have a bit of the shared service model already, but there could be more synergy if they can be aligned under the same Shared service umbrella to facilitate end-to-end support. Efficiency could improve with shared vendor master data management, catalogue management, supplier communication, shared ticketing system as mentioned above, etc. These efficiencies could create an opportunity to redeploy existing resources to higher value-add strategic activities, such as category management, strategic sourcing, working capital optimization, etc.

Implementation Strategy

PGCPS could first evaluate the strategy that establishes a broader shared services across Finance, Procurement and HR to drive transaction synergy. Second, PGCPS should invest in a CRM capability/ticketing system to track P2P issues and supplier inquiries to make sure everything is followed through until resolution. A CRM capability also has the ability to rapidly route requests to the appropriate parties, create case issue tracking, track response times, and evaluate functional performance.

Potential Fiscal Implication

Determining the exact potential fiscal implication would require additional analysis. The value driver of taking such action could be to align resources to high value activities and areas of greater interest to employees. Organizations that move to a shared service model typically drive greater economies as they move back office activities for example Accounts Payable, IT, Finance, HR, and Payroll.

Key Opportunity 8.4: Look for opportunities to leverage newer technologies to implement new and improved functionalities and more electronic solutions to automate business processes

Background/Rationale

There is potential that continued adoption of leading practices and technologies could reduce manual processes and speed issue resolution. This in turn could be expected to free resources to focus on higher value-add strategic capabilities such as improved P2P governance, training, supplier relationship management, and category management. The development and implementation of these could coincide with resource availability that results from technology and process enhancements.

Implementation Strategy

Many of the opportunities outlined above could be expected to reduce resource workloads through increased automation and process efficiency. In order to redeploy resources, PGCPS will need to evaluate the current skills and experience of existing resources, as well as the overall structure of the organization. An organization redesign and resource upskilling initiative may be required to fully realize the benefits associated with proposed process and technology enhancements.

Potential Fiscal Implication

The value drivers listed below can deliver both qualitative and quantitative benefits to PGCPS. The quantitative benefit could be expected to potentially be 5-10% of the managed spend, which could be as high as \$65-130 million annually after the transformation, based on the FY15 spend of \$1.3 billion managed by purchasing.

Value Drivers	Potential Qualitative Benefits	Potential Quantitative Benefits
Strategic procurement activities: Category management, Strategic sourcing, Contract management, Supplier relationship management	<ul style="list-style-type: none"> Transform the focus of the purchasing organization to more strategic from purely operational Provide strategic supply market insights to better support the business needs with improved customer satisfaction Effective contract management could lead to higher contract compliance Supplier qualification and performance management to potentially improve quality and reduce supply risk 	3-6% 3rd party savings due to category strategy and strategically leveraging the supplier base
P2P Technology	<ul style="list-style-type: none"> Leverage leading process to achieve Process Excellence and Lean Improve source to contract end-to-end traceability and control Optimize/automate the procurement process and drive down transaction cost 	2-4% 3rd party spend savings due to increase competitiveness Organizational savings with improved staff productivity
Total		5-10% of savings is equivalent of \$65-130 million annually based on the current spend of ~\$1.3 billion managed by purchasing

Financial benefits associated with initiatives of this type are traditionally difficult to quantify at the business planning phase. In order to identify some indicative ranges at this stage, we have relied heavily on P2P solution (SAP Ariba) provided business case and benchmarking against other organizations that have implemented similar operating model and transformation. We also associated the benefits estimation through the employment of assumptions, market knowledge and PGCPS-specific spend data.

All system-related continuous improvement opportunities may require additional analysis to determine feasibility. Detailed process mapping, requirements definitions, market pricing and business case development could inform the overall benefit versus the system costs.

The costs for the transformation initiative are driven by the resources and their necessary skillsets. It will be critical to recruit staff with the required skills and competencies to support the transformation on an ongoing basis which could be challenging given the current workload versus staffing level, and the availability of required skills and competencies in the market.

9. Finance and Treasury

Section 1: Overview of the Scope of Work:

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Finance and Treasury. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess several *OLA Report* Corrective Actions/Recommendations, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

The team was also asked to assess the PGCPS Property Control Manual.

Second, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to identify ways in which the assessment of invoices and payments could be further improved.

Finally, in addition to discussion of PGCPS' progress towards implementing the above corrective actions, an overall assessment of current state processes, policies, and supporting technology was conducted to assess the organization's maturity and alignment with leading practices. An understanding of the current state and potential future target Asset Management capabilities was established across the following areas: Asset tagging and tracking, Inventory audit and management, and Enabling technology

OLA Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #9 Corrective Action	<ul style="list-style-type: none">• Ensure that detailed equipment records are maintained for all appropriate assets• Ensure that detailed records include all applicable information, including cost and serial numbers or other specific identifying information• Amend the Property Control manual to require tagging of all equipment for identification purposes
<i>OLA Report</i> Finding #10 Corrective Action	<ul style="list-style-type: none">• Amend the Property Control manual to specify the frequency for conducting physical inventories, designate inventorying responsibilities and require documented reconciliations of the inventory counts to the detailed equipment records• Ensure that all locations are inventoried on a regular basis

Methodology

All findings and recommendations were based on interviews and data analysis as follows:

Data and information analysis:

- PGCPS Property Audit Manual
- Sample Property Audit Report

Interviews:

- Chief Information Officer

- Assistant Comptroller
- Fixed Asset and Lease Purchase Accounting Director
- Lead Property Auditor
- Accounting Manager in Fixed Asset Management

Demonstrations:

- TDC IT asset process and tracking database

Findings and Recommendations Validation Session:

- Presented draft findings and recommendations to Assistant Comptroller, Fixed Asset and Lease Purchasing Accounting Director, Lead Property Auditor, and Accounting Manager in Fixed Asset Management

Section 2: Summary Perspectives:

Current Situation Assessment

A standardized and centrally managed process appears to be in place for tracking and monitoring IT hardware assets. This process is supported by database and barcode scanning technology and appears well staffed to meet the needs of PGCPS. For non-IT assets, the Fixed Asset Accounting group appears to have made great strides in recent years by implementing an asset tagging and tracking process and updating audit policies concerning inventory audits of fixed assets. However, due to resource constraints, limited use of enabling technology, the relatively wide geographic footprint of the school district, and decentralized asset receiving process, asset management seems to be a highly manual and labor intensive process. A district wide inventory is planned for 1QFY17 and is anticipated to provide a baseline of existing assets that could serve to inform inventory optimization opportunities.

Current State Asset Management Process

Non-IT Asset Management Program

Prior to 2012 there was no standard process in place for tagging and tracking fixed assets. The current state tagging program was implemented in July of 2013. Currently, non-IT assets >\$1500 and IT assets >\$5000 are in-scope for fixed asset tagging and tracking program. Identification of fixed assets is a multidimensional process including identification of existing fixed assets, system embedded account codes that identify capital assets, and a manual process involving AP clerks who review all scanned check payments and identify any fixed assets that may have been incorrectly coded. Fixed Asset Clerks flag these assets and CIP and send a report to the fixed asset accounting group for incorporation into the asset tagging and tracking program and capture of relevant data for accounting and depreciation purposes. All new in-scope capital assets are reviewed as part of a quarterly report by the fixed asset accounting group and manually assigned an equipment tracking tag via a process in which fixed asset accounting generates an excel-based report that reflects all new assets acquired since the previous reporting period. Tag numbers are manually assigned to each new asset and keyed into the fixed asset management spreadsheet. Asset tags are then distributed to field locations for tag placement and tag numbers are uploaded to the system of record. Typical assets types include kitchen equipment, musical instruments, visualization equipment, vehicles, buildings/playgrounds, furniture, and grounds equipment.

IT Asset Management Program

All IT assets are received centrally at three locations (TDCs). TDCs are responsible for central management of all IT assets as well as repairs for existing assets. The locations have been selected based on geographic ability to serve one of three territories within the school district with each location serving approximately 70 locations. The TDC Program is staffed by 10 resources (plus one vacancy) and has tagged approximately 140k assets over the past five years. The IT asset management

process works in collaboration with IT hardware suppliers and leverages an internally developed asset management system that is integrated with the ERP system to incorporate PO, pricing, location/department, and employee data (for asset assignments). The system also has pre-populated fields for recording asset type, and inventory status (e.g., lost/stolen, fully depreciated etc.). Requisition information has been integrated into process to automatically direct shipping of equipment to appropriate distribution center. Hardware suppliers label all boxes/packaging with associated PGCPS PO number and TDC receiving staff receive all orders according to applicable PO information and manually enters receipts in the ERP system. TDC staff then enters all applicable information into TDC system to record asset information and place tags on equipment. The tagging process leverages bar code scanning to automatically import bar code information from the tag into the TDC asset management system. Equipment is then placed into inventory or shipped to the appropriate location for use. The TDC asset management program is also integrated with the HR system so that employees can electronically sign employee equipment agreements and assets can be tracked according to personnel changes. Each time an employee leaves the organization equipment must be transferred back to a TDC for redeployment. Equipment stays with the employee in the case of inter-organization transfers and the TDC system is automatically updated based on HR feed to record updated asset locations. The TDC process focuses primarily on district assets that are assigned to employees and assets purchased with Title I funds but can be used by local IT administrators to track assets that are purchase through other means such as school discretionary funds.

Property Audit Program

The Property Audit team leverages tagging information from the financial system of record to conduct physical inventories of selected locations annually. PGCPS conducted a full inventory of all capital assets but to date, our observations indicated PGCPS has not conducted a full inventory of all assets. A district-wide asset inventory is anticipated to be launched by June of 2016 and could help inform inventory optimization opportunities going forward. The most current Property Control Manual contains an inventory audit policy that proscribes a district-wide inventory every three years. Additionally it requires that each school undergo a full inventory of IT Hardware on a three year rolling basis (i.e., approx. 1/3 of all locations inventoried annually).

Current State Asset Management Maturity Assessment



*Key:

- Informal – Need for significant improvement
- Developing – Needs improvement
- Defined – Approaching Leading Practices
- Advanced/Leading – Reflective of Leading Practices

Based on the processes and technologies that are in place at present time, the asset management program is assessed as ***“Approaching Leading Practices.”*** This assessment leverages the above maturity framework (see **Appendix J-1**) as well as the overall Leading Practices evaluation framework.

In order to more closely align the asset management process with leading practices, PGCPS should evaluate options to standardize and streamline the receiving and tagging process for non-IT assets. There is also an opportunity to better leverage technology such as front end barcode scanning and asset management software to decrease manual processes.

Assessment of Continuous Improvement

The PGCPS Fixed Asset Accounting group appears to have made all of the necessary process improvements to address all OLA findings and implement a basic but effective organization wide program for tagging, tracking, and managing non-IT fixed assets.

Key Opportunities for Further Continuous Improvement in Leading Practices

Key opportunities for further continuous improvement include the following (please see section 4 for a greater description of each opportunity):

- Key Opportunity 9.1: Leverage information obtained from upcoming district-wide inventory audit to evaluate inventory optimization opportunities
- Key Opportunity 9.2: Evaluate opportunities to better leverage barcode scanning technology for front end tagging process (non-IT assets)
- Key Opportunity 9.3: Evaluate opportunities for supplier collaboration in tagging and managing assets (non-IT assets)
- Key Opportunity 9.4: Evaluate opportunity to leverage existing or third party asset management software
- Key Opportunity 9.5: Evaluate standardized receiving process for fixed assets (centralized versus decentralized)

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Finding #9: Ensure that detailed equipment records are maintained for all appropriate assets	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • Detailed equipment records now appear to be kept for all in-scope assets • Please refer to Key Opportunity 9.1
OLA Finding #9: Ensure that detailed records include all applicable information, including cost and serial numbers or other specific identifying information	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • Detailed records appear to contain all recommended information • Please refer to Key Opportunity 9.2
OLA Finding #9: Amend the Property Control manual to require tagging of all equipment for identification purposes	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • The property control manual appears to have been updated appropriately
OLA Finding #10: Amend the Property Control manual to specify the frequency for conducting physical inventories, designate inventorying responsibilities and require documented reconciliations of the inventory counts to the detailed equipment records	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • The property control manual appears to have been updated appropriately
OLA Finding #10: Ensure that all locations are inventoried on a regular basis	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • Property manual outlines approach for inventory of all locations on a regular basis; this process is scheduled to be fully implemented starting in 1Q FY17 • Please refer to Key Opportunity 9.1

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

PGCPS Fixed Asset Accounting group appears to have made the necessary process improvements to address the OLA findings and implement a basic but effective organization wide program for tagging, tracking, and managing non-IT fixed assets. A number processes are reactive and/or manual and leverage technology on a limited basis. The following opportunities have been identified to further standardize and streamline the asset management process.

When it comes to prioritizing/implementing technology-related recommendations, PGCPS should follow the below process:

- Gather information and feedback from schools and departments about the current asset management processes and solutions to determine what works and what could be improved.
- Identify and evaluate new solutions for Bar Coding, Scanning and Asset Management, and perform a vendor selection process for new technologies. This may include the definition of requirements, development of evaluation criterial, creation and distribution of requests for proposals, vendor demonstrations, etc. Develop and carry out a project plan using a proven implementation methodology. In some cases, this may be more of a traditional “waterfall” type methodology (plan, analyze, design, develop, test, deploy, support) or may follow more of an “agile” concept for quicker delivery.
- Leverage change management methodologies and concepts to facilitate change throughout the district. Identify and implement standardized process and improved efficiencies through training, communications, and data analysis.

Key Opportunity 9.1: Leverage data from upcoming district-wide inventory audit to evaluate inventory optimization opportunities

Background/Rationale

A more comprehensive understanding of existing assets could allow PGCPS to track assets and optimize inventory across the system.

Implementation Strategy

Follow process for prioritizing/implementing recommendations (above).

Potential Fiscal Implication

Just understanding assets inventory and where assets are located is the first step. Additional benefits could come as that understanding can be used to optimize the transfer and timely use of assets, generate procurement bargaining tools, and other efficiencies potentially leading to cost savings and other potential fiscal implications.

Key Opportunity 9.2: Evaluate opportunities to better leverage barcode scanning technology for front end tagging process (non-IT assets)

Background/Rationale

The current process for tagging non-IT fixed leverages use of manual spreadsheets and keying of asset tagging information that is then uploaded to the financial system of record. Further use of barcode scanning technology could reduce manual keying requirement for initial system entries reducing processing times and improving accuracy of records.

Implementation Plan

Follow process for prioritizing/implementing recommendations (above).

Potential Fiscal Implication

The potential fiscal implication for improving and further automating the asset management process is dependent on the result of the evaluations. The cost for bar coding, 3rd party managed asset tagging and asset management solutions should all be quoted by the vendors. PGCPS can also leverage the expertise of the consultancies to evaluate the audit data and the asset management processes, should the current workload and priorities not allow for existing resources to support this work.

Key Opportunity 9.3: Evaluate opportunities for supplier collaboration in tagging and managing assets (non-IT assets)

Background/Rationale

PGCPS should explore supplier capabilities to support the asset management process. It is possible that suppliers may offer pre-tagging capabilities or, at a minimum, may be able to provide asset information in a format that streamlines the asset tagging process.

Implementation Plan

Determine the highest impact suppliers (e.g., Dell and Apple for IT Assets), and work directly with them to implement collaboration in tagging. Some suppliers will automatically have this capability, while others may require additional effort. As such, it would be beneficial to conduct a supplier analysis before choosing which one(s) to team up with.

Potential Fiscal Implication

Costs may vary by supplier, but for the most part, high impact suppliers should be able to support collaborative tagging with minimal expense to PGCPS. It helps to build supplier relationship, which may also lead to procurement efficiencies. In addition, the workforce and manual effort savings may prove to be well worth any investment required.

Key Opportunity 9.4: Evaluate opportunity to leverage existing or third party asset management software

Background/Rationale

An internal database is currently being used for management of IT assets which could potentially be leveraged to improve the asset management process for non-IT assets. Alternatively, PGCPS could evaluate best-in-class third party asset management software platforms to drive process and technology standardization and further automate the asset management process.

Implementation Plan

Follow process for prioritizing/implementing recommendations (above).

Potential Fiscal Implication

The potential fiscal implication for improving and further automating the asset management process is dependent on the result of the evaluations. The cost for bar coding, 3rd party managed asset tagging and asset management solutions should all be quoted by the vendors. PGCPS can also leverage the expertise of the consultancies to evaluate the audit data and the asset management processes, should the current workload and priorities not allow for existing resources to support this work.

Key Opportunity 9.5: Evaluate standardized receiving process for fixed assets (centralized vs. decentralized)

Background/Rationale

The current process for identifying and tagging non-IT fixed assets relies on invoice and receiving data obtained after an asset has already been shipped to its final location. Fixed asset management personnel are then required to physically travel to all locations where new assets have been acquired to place tags or rely on on-site staff to properly tag assets. Evaluating an alternative distribution and receiving network could yield cost saving efficiencies.

It is anticipated that continued adoption of leading technologies could reduce manual processes and improve controls. Alternative distribution and receiving footprints could result in a more efficient asset management process and higher internal service levels. All process and system related continuous improvement opportunities will require additional analysis to determine feasibility. Detailed process mapping, demand footprint analysis, requirements definitions, market pricing for technology solutions, and business case development could inform the overall benefit versus the costs associated with acquiring additional facilities space, staffing, or software required to implement proposed solutions.

Implementation Plan

Perform evaluation to determine costs and implications. Include benchmarks and research from other organizations. Develop a business case and implementation plan for standardization and centralization (assuming the business case supports it).

Potential Fiscal Implication

Determining the exact potential fiscal implication would require additional analysis. The value driver of taking such action would be to reduce de-centralized costs by improving efficiencies of scale in a centralized environment. However, the cost of centralization in a large district like Prince Georges County may be greater than the efficiencies gained.

10. HR Technology

Section 1: Overview of the Scope of Work

The consulting team worked with the Prince George's County Public Schools Departments of HR Strategy & Workforce Planning and Information Technology from February to June 2016 to conduct a performance assessment of the state of Human Resources Technology. The specific focus was on opportunities raised through the *Great by Choice: Transition Team Report* on applicant tracking in the ERP system's iRecruitment tool and evaluation systems for teachers and administrators. The objectives of this assessment were outlined in the RFP.

First, the team was asked to assess several recommendations from the *Transition Team Report*, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

Second, the team was asked to assess how the department was utilizing existing practices that reflect current known leading practices and to provide ways in which HR technology utilization can be further improved.

Transition Team Report Items

Finding or Recommendation	Description
Transition Team Report Operations and Finance Recommendation #2	<ul style="list-style-type: none">• Complete analysis of all technology used in Human Resources
Transition Team Report Operations and Finance Recommendation #12	<ul style="list-style-type: none">• Analyze automated processes in HR• Implement a new applicant tracking system• Integrate technology solutions to improve the use, collection, archiving, and analysis of HR-related data points

Methodology

The assessment of the HR Technology included the following methodologies:

- Interviews with the following teams:
 - Technology Application
 - Technology Training and Instructional Technology
 - Division of Human Resources
 - Department of HR Operations & Staffing
 - Data Quality team
 - Recruitment team (both instructional and support staff hiring)
 - Principals
 - Finance/Payroll (for perspectives on time and attendance tracking)
- Process Mapping of HR data systems.
- Assessment of HR and Technology Applications documentation and training courses.
- Walkthrough of end-user iRecruitment module.

- Leading practice research and knowledge of other district's HR technology implementation, upgrades and usage including: Chicago (IL), Cleveland (OH), and Shelby County (TN).

Note: The Appendices provide additional details for the various methodologies:

- A complete list of interviewees is in **Appendix K-3**
- HR Systems Data Map is in **Appendix K-2**

Section 2: Summary Perspectives

Current Situation Assessment

We have summarized our observations of HR Technology to be "**Approaching Leading Practices.**" PGCPS appears to have made improvements in the area of HR Technology over the last few years, focusing on recommendations in the Transition Team report. Some items remain in progress and our team observed additional opportunities for improvement to HR technology solutions and the use of these solutions across the district. The HR and IT teams developed long-term plans for iRecruitment and are in the process of developing a next phase for the module. Overall, the collaborative relationship between the HR and IT teams potentially positions the district to continuously identify and implement improvements to HR technology to reduce manual processes and improve system effectiveness.

Assessment of Continuous Improvement

As a result of the Transition Team report, the HR and IT teams stated that they had conducted a thorough assessment of HR systems and identified specific actions to improve HR operations. The team developed and still uses the Transition Team Tracker document to internally track and report on progress for these action items. In interviews, staff pointed to many system updates and improved operations as a result of the Transition Team Tracker. The status of items identified in the Transition Team Tracker are included in **Appendix K-1**.

PGCPS has developed a process to determine and implement changes to iRecruitment. The following items demonstrate the progress on items from the Transition Team Tracker:

- HR and IT worked together to gather feedback from various stakeholders (executives, senior HR staff, recruitment team, employee services, etc.) on what users wanted from an applicant tracking system.
- While the Transition Team report recommended implementing AppliTrack, PGCPS conducted a thorough analysis of AppliTrack against their current systems and resources and decided to pursue iRecruitment as a better long-term investment.
- Upgrades to iRecruitment are being completed in two phases using in-house talent to manage the process.
 - Phase 1 was implemented in March 2016 and included updates such:
 - Enhanced search capability
 - Enhanced ability for managers to make comments
 - Better methods for screening candidates
 - Improved communications/alerts to candidates throughout the hiring process
 - Phase 2 is scheduled to go live at the end of June 2016 and will include:
 - Default costing from the position records

- Methods to reduce manual data entry of HR data and instead transfer information electronically for applicant data (data refers to all information and documents associated with an applicant)
- Make the system more user-friendly to applicants

Key Opportunities for Further Continuous Improvement in Leading Practices

The opportunities identified below aim to improve business processes in HR Technology and serve as recommended next steps:

- Key Opportunity 10.1: Continue upgrades to the ERP system with automation of 1) applicant interviewing process and 2) tracking vacancies.
- Key Opportunity 10.2: Improve access to data and reports and build capacity for data-driven decision-making.
- Key Opportunity 10.3: Implement Administrator Evaluation within the new recruitment system.

Section 3: OLA and Transition Team Recommendations

Transition Team Report Items	Summary of Observations	Commentary
Transition Team Report Operations & Finance Recommendation #2: <ul style="list-style-type: none"> • Complete analysis of all technology used in Human Resources. 	<ul style="list-style-type: none"> • Observations suggest Transition Team Report recommendation has been addressed 	<ul style="list-style-type: none"> • PGCPS stated that they conducted a thorough assessment of HR systems to identify specific actions that would improve PGCPS HR operations. The plans and activities identified in the Transition Team Tracker appear to have been actively tracked and followed through by PGCPS staff. (Transition Team Tracker details in Appendix K-1)
Transition Team Report Operations & Finance Recommendation #12: <ul style="list-style-type: none"> • Analyze automated processes in HR • Implement a new applicant tracking system. • Integrate technology solutions to improve the use, collection, archiving and analysis of HR-related data points. 	<ul style="list-style-type: none"> • Observations suggest progress made against Transition Team Report • Further progress possible to fully address Transition Team Report 	<ul style="list-style-type: none"> • PGCPS appears to have improved the automation of HR processes and implemented a new applicant communication system. However, there are HR processes for applicant management that still require automation and improvement. • PGCPS should improve the collection, access and use of HR-related data points, as detailed in Transition Team Report Recommendation #12. The current data warehouse and reporting options have limitations that can be improved upon to address Recommendation #12. • Please refer to Key Opportunities 10.2 and 10.3

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 10.1: Continue upgrades to the ERP system with automation of 1) applicant interviewing process and 2) tracking vacancies.

Background/Rationale

The HR and IT teams appears to have made improvements to the ERP system's iRecruitment and we recommend that these efforts continue with a focus on the following areas:

- **Applicant interviewing process:** The interviewing process is managed manually – interview scheduling is communicated only via email and interview notes are entered into a Google form or emailed to HR Partners. The lack of central management for these email communications appears to have led to inconsistent and duplicate communications with applicants. Additionally, HR partners appear to have no system to review scheduled interview times or email exchanges regarding post-interview notes.
- **Tracking vacancies:** The master vacancy report for all PGCPS positions appears to be tracked manually outside of the ERP system. HR partners are expected to update the report daily, by cross referencing the ERP system and then updating the shared Google document. The risk of not having the most up-to-date data exists if HR partners do not complete their daily responsibilities or if an HR partner is out of the office. Further, HR partners rely on the accuracy of this report to make hiring decisions and determining start dates. When a new hire or transfer is entered in the system, PGCPS would like to be able to immediately view current staffing at schools and see vacancies in real time, reflective of the recent hires.

Implementation Strategy

PGCPS should prioritize the automation of the applicant interviewing process and vacancy tracking. Below are strategies to help to define and implement these system upgrades.

Automate the applicant interviewing process:

- Define workflow and use cases for automation of the interview process from the perspective of various stakeholders for the hiring of both support staff and instructional staff. Stakeholders include: HR partner, hiring manager, interview team, and applicant (interviewee). A unique use case for schools is the principal's desire to review interview notes from other principals. This case is potentially useful when teacher candidates are being considered and interviewed by multiple principals.
- Investigate upgrade options that exist within the ERP system's iRecruitment to determine if they meet the needs of PGCPS. iRecruitment's Interview Management module provides the following capabilities:
 - Scheduling job interviews for applicants.
 - Selecting members of the interview team.
 - Maintaining interview schedules, contact information, and details about the interviewers.
 - Recording interview notes and the results from the interview.
 - Viewing interview summary data on the "My Interview" page.
- Define a plan to upgrade, configure, test, and implement the interview management module within the ERP system.

- Consider rolling out this module with a pilot group of users—for example a group of schools and central office departments. Using a pilot group could allow PGCPS to test how the interview management module implicates the interview process. The results of the pilot can then potentially provide guidance to staff on process efficiencies and new system enhancements.

Automate methods to track vacancies:

- Continue plans to refine position titles in the ERP system with specifications such as grade level, instructional subject, and school.
- Similar to the strategy above, we recommend defining the report specifications and use cases from the perspective of various stakeholders. The Google report that is currently used to track vacancies can be used as a basis for the requirements.
- Discuss the requirements with the ERP system to determine options within the system. For example, iRecruitment module has an Applicant Efficiency Report that shows the average amount of time to fill a vacancy from the ERP system. PGCPS could explore if elements of this report can be leveraged to build out a vacancy tracking report that satisfies HR needs.
- If development within the ERP system is not possible or does not meet PGCPS' needs, then the HR and IT teams should consider building the report internally.
- Define a plan to upgrade, configure, test, and implement the vacancy report within the ERP system.
- Provide training and communications to staff on use of the new report to track vacancies.

Potential Fiscal Implication

The potential fiscal implication for improving interview management and vacancy tracking is dependent on how the district addresses the issue. The cost to update the scope of the ERP system to include interview management and potentially new features for vacancy reporting should be quoted by the ERP system vendor. An internally-built report will have a lower associated cost.

Key Opportunity 10.2: Improve access to data and reports and build capacity for data-driven decision-making.

Background/Rationale

In interviews, Human Resources staff frequently indicated a need for better access to data and reports to help monitor performance of key processes, and inform their decision-making process.

The following examples illustrate limitations of access to data and reports:

- Principals identified that Teachscape, the District's current teacher evaluation system, does not provide easily accessible reports on overall strengths and opportunities of teachers in their schools. Principals would like to have access to this type of data to help identify professional development and coaching opportunities for their staff.
- The HR team developed a strategic plan for departmental initiatives but does not have consistent baseline data for their measureable outcomes. The baseline data is critical to understand current and ongoing performance of key measures in order to determine which action plans are effective.
- The Data Quality team is heavily leveraged by principals and instructional directors for report and data requests, in many cases due to users being unaware of how to access the data and reports themselves.

- The recruitment team uses “School Profile” information to assess fit for a candidate and a particular school. Currently this process appears to be manual and largely relies on the experience of the HR partner. Ideally, there would be a shared dashboard/report on each school with key indicators to view the unique characteristics of each school.

The HR and IT teams identified the data warehouse and some reporting options from the ERP system as a way to provide data to PGCPS staff. Each option appears to have limitations to its use. The current data warehouse has up-to-date data for instructional users, but does not capture all data elements that principals and instructional directors need. PGCPS has some dashboards, but these are available to limited numbers of teams and for their use only. Wide usage of the data warehouse reportedly requires building out more dashboards for business users. Other users expressed concern that available data cannot be validated and require a data-mapping verification. Alternatively, some data can be reviewed directly in the ERP system, but there is limited ability to review data across systems (e.g., the ERP system and Student Information System [SIS]). For example, we observed that, in order to review instructional staff diversity across grade levels and subject areas would require pulling data from both the ERP system and the SIS.

We have traditionally found that as an organization provides more and better access to data and reports, there is a need to build staff capacity in interpreting and using data to make decisions. Various trainings are offered to staff on how to use a system, but there is not a specific focus on how to interpret and use their own data to make decisions. Because PGCPS staff are not trained on these skills, they are reliant on the Data Quality team to provide the data and reporting support. Increased access to data analysis tools enables increased data-driven decision-making across PGCPS. Staff should be able to know when to seek data, what information to investigate, and how to use and interpret the data to support their decision-making process.

Implementation Strategy

The IT and HR teams have identified a need for increased access to data. PGCPS should consider the following enhancements to build staff capacity around data access and analysis:

- Determine scope and focus areas for the first phase of expanding data access to staff. The recommended focus areas are:
 - Data/measures in the HR strategic plan
 - Needs of the Recruitment team
 - Needs of principals
 - Needs of the Data Quality team
- Determine methods to address how and where staff should access data and reports—e.g., through a dashboard tool, data warehouse, and/or directly through source systems (e.g., ERP system, SIS, Recruitment software, etc.).
- Develop a set of use cases for how people in various roles would use a set of dashboards and/or reports (e.g., Principals using aggregated observation data to determine areas of strength/weakness across their school, grade levels, subject areas to identify professional development and/or coaching opportunities).
- Provide department-tailored professional development sessions on accessing, interpreting, and using data to make decisions using the use cases described above.
- Leverage the expertise of the Data Quality team and their experience with PGCPS data and requests to develop both the use cases and content for professional development.
- Expand the role of the Data Quality team to support the preparation and review of large-scale analysis based on their knowledge about systems and how to access data. The Data Quality team could serve as a technical

assistance resource during professional development sessions and/or as other departments are performing their own analyses.

Potential Fiscal Implication

The current IT and HR teams could manage much of the data access expansion at no additional cost to the district. If a dashboard option is required or pursued, there could be a potentially higher initial implication for the introduction of a new technology. Additionally, internal resources, such as the Data Quality team, could be used to design and deliver professional development sessions and material to facilitate data user groups and provide technical assistance on using and interpreting data. Though current workload and priorities may not allow for existing resources to support this work, initial development could be sourced externally, and then transitioned to the training and data quality teams to support ongoing efforts.

Key Opportunity 10.3: Implement Administrator Evaluation within the new recruitment system.

Background/Rationale

PGCPS currently uses Teachscape to administer and track the teacher evaluation process and alternatively uses an internally-built system for the administrator evaluation process. With plans to transition from Teachscape to a new teacher evaluation system in school year 2016-2017, there is an opportunity to also integrate the administrator evaluation into this new system.

Administrators report that they are extensive users of the teacher evaluation system throughout the school year as they perform and record teacher observations. Principals stated that having all evaluation components in one place—including observation data, conference records, SLOs (Service Level Objectives), professional development videos, etc.—was a system strength. Principals also indicated that the administrator evaluation system lacks the same ease of use since some evaluation components are manual (not entered in a system) and recorded in a Word document. They are limited in their capabilities to receive and view feedback on their own evaluations due to the manual components that live outside of the system.

Implementing both teacher and administrator evaluation processes within the new recruitment system could provide consistency and efficiency from an end-user and technology management perspective. For example:

- Teacher and administrator evaluation system training could be streamlined for new administrators.
- IT can likely maintain fewer systems.
- Administrators, Instructional Directors, Central Office staff could have easier access to review data and reports on teachers and administrators.
- Data imports/exports for teacher and administrator evaluations (e.g., import of student assessment data or export of evaluation data to the data warehouse) could be managed in a single system.

Implementation Strategy

PGCPS reports that they plan to pilot the administrator evaluation in the new recruitment system for the 2016-17 school year with 30 principals. This system has implemented administrator evaluation for other districts within their system and should be able to provide system demonstrations, etc. on the various options for implementation. The following is a set of recommended actions to undertake developing administrator evaluation within the new recruitment system.

- Gather feedback from principals about the current system and process—e.g., what works and what could be improved.

- Request that the software provider conduct a system demonstration of the various solutions and discuss options for administrator evaluation.
- Develop a set of requirements for the administrator evaluation system. Use focus group feedback from various stakeholders to gather feedback on both the system needs and evaluation process.
- Define a plan to develop, test, and implement the administrator evaluation module within the new system.
- Identify and implement efficiencies through system trainings, communications, and data analysis.

Potential Fiscal Implication

The integration of an administrator evaluation system within the new recruitment system will increase user costs for the system. The Office of Employee Performance and Evaluation received a quoted cost of \$14,800 for the 30 pilot users for the 2016-2017 school year. The quoted cost for the 30 users should serve as an estimation base for expansion to the entire administrator user base. The software provider might be able to provide additional and more detailed cost information for the integration of the two systems and expansion of the user base.

11. Payroll

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Payroll. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess several *OLA Report* Corrective Actions/Recommendations, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

Second, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to identify ways in which payroll could potentially be further improved. This was specific to two categories within payroll: approvals of rate, time, and leave, and overpayments/duplicate payments. The RFP requested information on how payroll could improve practices and avoid overpayments/duplicate payments.

OLA Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #4 Corrective Action	<ul style="list-style-type: none">Audit personnel transactions to determine which transactions are prone to high error rates (and should require supervisory approval);Segregate time card entry and approval access for all employees;Develop processes to expand delegation of authority for approving time cards (address supervisors with "too many" time cards);Implement self-attestation of time cards.
<i>OLA Report</i> Finding #5 Corrective Action	<ul style="list-style-type: none">Develop comprehensive SOPs for all payroll transactions and develop reports to track adherence to SOPs
<i>OLA Report</i> Finding #6 Corrective Action	<ul style="list-style-type: none">Clarify which employees are eligible for payout (per union contracts).Document final decision in payroll SOPs.Update existing Administrative Procedure to specify the daily rate calculation used to payout leave to departing executives.
<i>OLA Report</i> Finding #7 Corrective Action	<ul style="list-style-type: none">Update sick leave bank rules and create accounting systems to track leave balances (e.g., liability accounts, management reports)

We did assess several opportunities for further improvement that have been highlighted throughout this report. To do this, we employed the below methodology:

Data and information analysis

- The EY team interviewed members of the PGCPS payroll and human resources teams relating to the following four findings in 2012 in order to understand the current state. During these interviews we were shown various documents and system features
- Analysis of the Involuntary Employee Deductions SOP
- Analysis of the Employee Voluntary Resignation SOP
- Analysis of the Personnel Action Sheet SOP

Interviews

- Full details of the interviews are seen in **Appendix L-1**
- Director of Payroll
- Supervisor for Operations and Procedures, Payroll and Time Management
- Supervisor, Payroll and Time Management
- Director of Human Resources Operations and Staffing

Validation session

- After the preliminary observations and recommendations were documented, Payroll and HR validation sessions were conducted to go through the findings with the Director of Payroll and the Director of Human Resources Operations and Staffing. An additional team validation session was held with the CFO on May 19, 2016

Section 2: Summary Perspectives:

Current Situation Assessment

Our assessment indicates that PGCPS does not appear to demonstrate leading practices in the four areas we assessed. We noted that there appear to have been improvements to existing practices, but there still are significant gaps between the current practices and leading practices. There are a number of recommendations in this report that could move PGCPS closer to leading industry practices based on EY experience and benchmark data. At this stage, however, this area has been assessed at **“Needs Improvement,”** which maps to “Developing” on the below maturity framework.



Payroll Controls

We met with stakeholders from HR and Payroll to assess the current status of payroll operations with a specific focus on payroll inputs and payroll processing. Within the context of these areas we specifically analyzed the construct of control activities with a focus on enforcement of segregation of duties.

We discussed employee transactions (status changes, compensation adjustments etc.) that have the potential to impact payroll activities and outputs. We learned that the Data Quality team owns responsibility for the majority of transactions. As transactions occur, the Data Quality Team receives a hard copy PAC document outlining the data changes required. The Data Quality Team enters the data into the system manually. Additionally, the Data Operations Team uses a peer review process that ensures the information is properly entered into the ERP system; however, consistent documented evidence of review is not always maintained. A senior member of the team will validate each transaction. Lastly, the team noted that they are collaborating with Information Technology and planning to implement an automated data entry workflow with embedded reviews within the ERP system, and the solution will include system generated reports which will be used to spot check for errors. We recommend the following leading practices to consider (a combination of these practices should be used to mitigate risk):

- Implement a formal independent review of data entry performed by the Data Operations Team. Review should compare data entered into the system against the source PAC document. Reviewing party should not have access to make data changes within the system and should provide evidence of review and approval. HR has mentioned that they will potentially be collaborating with IT in the future, and may create an automated report which will be used to spot check against errors

- Implement a periodic review of data entry using a report covering the review period.
- The independent reviewer should review transactions against source documentation, research and resolve issues with the Data Quality Team and sign off on the review.
- Particularly, if concerns about fraud exist, consider conducting a segregation of duties assessment to identify the number of instances and users who have broken segregation of duties. Another reason to conduct such an assessment would be to identify the pervasiveness of the problem and potential risk exposure.
- Identify opportunities to create an automated workflow around data entry. Leading practice would be to push transactions out into the organization where employees and managers initiate HR transactions within the system and HR reviews, where appropriate.
- Consider implementing a review checklist to validate and complete a data entry process. The reviewer should complete the checklist and provide evidence of completion.
- Create additional HR SOPs where needed. (Review examples within Figure 1).

We recommend immediate action to improve the control structure around these transactions. Taking such action could significantly reduce operational, fraud and financial risk.

During the interview process we met with the Payroll Team to discuss the time collection process. We learned that time entry practices from across the system vary. We noted that the system requires managers to review and approve time for all employees and document their approval. The ERP system records all approvals that state the approver along with a time and date stamp. We also noted that the Payroll Team implemented a report to identify delinquent approvers which has significantly improved time entry approval timeliness. We did note that approvers, at times, have an extensive span of approval (hundreds of approvals). This reduces the quality of the reviews. We also noted that cases exist where managers enter employee time on behalf of employees. We have the following recommendations:

- Develop a process to ensure that each time approver is assigned an adequate number of employees. A leading practice would be 10-15 employees per time approver (time keeper or principal).
- Review time collection alternatives. Automating the time collection process across the system will improve the timeliness of time reporting, provide effective dated time transactions and streamline the process to capture data changes.
- Implement one-time time entry training courses during the onboarding process for all new hires and recurring time entry courses to reinforce time entry practices.
- Consider implementing incentives (disincentives for poor practices) to enter time timely, accurately and to minimize time adjustments. Leading organizations create an accountability structure for supervisors to drive accurate time entry.
- Implement a control for employees to approve their time submissions and any changes to their time. Practices of this nature reduce the risk of exposure to back pay and the potential for class action law suits for underpayment and/or missed overtime. Leading practice would be to implement an automated confirmation or approval. Other alternatives could be a periodic manual signoff on time.
- EY recommends the PGCPS population, consisting of non-salaried subs and temps, implement a backup for those that input time into the ERP system. Currently, if the time keeper isn't available, the non-salaried subs and temps will not get paid for the days the time keeper is absent.

We recommend implementing the improvements above in a timely manner. In addition, we recommend that PGCPS conduct a review of time collection requirements and evaluate opportunities to automate the time collection process and deliver it directly to employees. Automated time collection affords the following potential benefits:

- Could improve speed for time submission and approval
- Could improve ability to document employee and manager approvals
- Could provide greater accuracy of time entry
- Could provide workers with ability to access leave balances, request leave, track overtime and hours worked and access a number of other key types of information.

Implementing a system for automatic time collection could reduce the amount of errors in timesheets as well as improve the control infrastructure embedded in the process. Furthermore, automation will improve data quality and serve as an input to overall workforce planning and management. Generally, improving workforce management, we typically see upwards of \$1M - \$1.5M in savings per 1,000 employees. Potential savings drivers may include:

- Labor cost reductions ~ 50%
- Payment accuracy ~ 27%
- Risk abatement ~ 10%
- Process savings ~8%
- Absence control ~ 5%

Time and attendance automation implementation considerations:

- Project planning and management
- Solution management
- Solution build
- Testing
- Deployment / Cut-over
- Post Go-live support

We learned that the team is in the process of creating SOP documentation. We found that the HR and Payroll Team's SOP documentation appeared to contain a number of leading practices such as visual aids, step by step activities, flowcharts and version control. We also identified several opportunities for improvement:

- Create a high level process overview for each procedure. For example, in payroll consider including items such as, pay cycles, pay calendar, pay groups, etc.
- List other documents or procedures that the SOP is dependent on
- Develop a roles and responsibilities matrix that outlines key stakeholders in each process (RACI)
- Add controls to the process flow visuals
- List risks and objectives

- Add ERP system screen shots
- List outputs, such as reports and how those outputs are leveraged throughout the county

Reporting

PGCPS would also like to improve and increase their reporting capabilities. The payroll team has stated that there are some limitations to their current reports, such as *the Payroll Compare* report. We identified the potential root cause of many challenges to be “hard coded” data elements and/or large data sets which prevent some reports from finishing. Additionally, the payroll team has mentioned that the ERP system does not provide them with the ability to customize the proper reports. Finally, the payroll team would like to have more autonomy within the system to create Ad-hoc reports and to further customize reports such as a *Duplicate Payments Report*. The ability to create these reports could allow the payroll team to further reconcile data and pay elements. In addition, these reports could provide the opportunity to put in place additional controls and to identify errors, such as duplicate payments.

Based on our interviews with the payroll department, the team identified a number of reports that the payroll team needs in order to potentially improve the payroll function. The reports are as follows:

- Payroll reconciliation report to compare one pay date to another and from one year to the next
- Date last paid for all employee statuses
- Payroll assignment listing with statuses and pay types
- Leave reports with associated reasons
- Reports to pull absence management (FMLA/LOA/SLB/WC) data with consecutive time frames
- Last day worked and last day paid for all employee groups and statuses
- Payroll register

We recommend the following actions to potentially improve reporting. Consider (a combination of these practices could be used to mitigate risk):

- Identify criteria, data elements, report frequency and user population for customized reports
- Evaluate underlying data structure in the ERP system to identify hardcoded elements, ineffective joins, etc.
- Develop a solution plan, which includes project management, to present to the ERP system to create the customized reports
- Give the payroll team the ability to create Ad-hoc reports and to leverage pre and post payroll processing
- Perform a technical assessment of the ERP system’s reporting capabilities in conjunction with the PGCPS local area network assessment

We found that, while progress appears to have been made that this area did not appear to meet the expectations outlined in the OLA report.

Overpayment Detection

We analyzed the overpayment process with the payroll team by assessing the causes of the overpayments. We learned that the causes (unidentified terminations, time issues, administrative leave, proration, transfers, etc.) could be tied to noncompliance of reporting transactions to payroll in time and late submittal of time sheets. We learned that the Payroll

Team leverages post processing reports, when possible, to identify instances of overpayment. For current employees, the Payroll Team adjusts future pay to net out the overpayment.

For overpayments related to terminated employees, the Payroll Department notifies Treasury. Treasury has various processes in place to seek out collections. In addition, the Treasury Department posts a receivable on the General Ledger and ages the receivable in accordance with policy and financial reporting guidance. During discussions with the team we identified that the source for the majority of overpayments to terminated employees is likely due to missing or untimely entry of the termination event in the ERP system.

We recommend the following:

- Deliver periodic communications to managers regarding the proper way to notify payroll of terminations
- Identify opportunities to improve the consistency of the employee termination process. Identify opportunities to enable employees and managers to leverage self-service. Also, identify alternate control mechanisms (Inactivated badges, asset returns) to detect terminations and notify the HR/Payroll teams of missed termination events in the ERP system.

We found that, while progress appears to have been made, that this area did not appear to meet the expectations outlined in the report.

Leave Payouts

The Payroll team walked us through the leave payout calculation process and described a three day turnaround time. When a leave payout occurs, a payroll staff accesses a leave template to calculate the payout, which includes elements such as final vacation payout, etc. Each leave template has several supplemental spreadsheets which have pre-determined calculations used for reference purposes. These templates are physically signed-off on and stored in both the employee's drive and in their physical file. Using these spreadsheets, the Payroll Staff calculates the leave and provides the information to the Payroll Specialist for review. The Payroll Specialist recalculates the leave payout for verification and researches and attempts to resolve issues prior to sign-off. If the leave payout is for a district leader, a Specialist performs the calculation and has another specialist perform the review and validation. After leave is calculated, Payroll manually adds the leave payment into the employee's final payout. It is then issued on an off-cycle check, or as a quick pay.

It is important to note that we were not provided a formal policy during our assessment.

We found that the process in place to manage leave payouts appears to be satisfactory. However, we recommend the following:

- Create a distribution group for the team who manages payouts
- Investigate the capabilities of ERP system functionality to determine whether system has capability to perform automated calculations
- Develop a formal leave policy

Given that we were not provided a formal policy, we found that, while progress appears to have been made with regard to administration, this area did not appear to meet the expectations outlined in the report.

Sick Leave Usage

In our interviews with payroll, we discussed the usage and the negative balances within the five sick leave banks. Each union has one sick bank for its population governed by that Union's collective bargaining agreement. These sick banks are used when employees have depleted their personal and sick time and need additional hours. Maternity and paternity leave cause the largest use of the sick leave banks. Across the sick banks there are a number of common characteristics such as 6 month employment requirements and the need to reapply for the grant with a doctor's notice every 30 days. At one point,

some of the banks were in a negative value, but the payroll team implemented additional catch-up policies to replenish the accounts' hours.

We found that the process in place to manage leave payouts appeared to be satisfactory compared to the initial finding.

Assessment of Continuous Improvement

- The payroll team has identified the need for documentation within various processes in the payroll function and has started to create SOPs based on those needs
- The tracking of overpayments appears to have been improved with additional payroll reports
- The leave calculations appear to have been improved significantly with standard calculation tools and templates
- HR has stated that they are undertaking an automation initiative to reconfigure the technology for an automated workflow with approval steps. However, it is our knowledge that this action has not yet been adopted.
- The Payroll team appears to have taken specific action to resolve negative sick leave balances.

Additional detail exists in the discussion above.

The current technology that is in place for the payroll approvals does not have the flexibility and automation to support additional guardrails. There are also resource constraints which have prohibited focus on key areas such as SOPs, Report Design and overall process improvement.

In each of the four areas the district appears to be progressing and it appears that the situation is getting better; however, as noted opportunities remain for improvement.

Key Opportunities for Further Continuous Improvement in Leading Practices

Key opportunities for further continuous improvement include the following (please see section 4 for a greater description of each opportunity):

- Key Opportunity 11.1: Review ERP System Contract and determine if the existing tools could be leveraged to support employee communications. If not, research acquiring a capability of this nature.
- Key Opportunity 11.2: Invest in a Customer Relationship Management (CRM) capability to track employee inquiries received.
- Key Opportunity 11.3: Conduct a feasibility assessment to determine the value of moving to a shared service structure.
- Key Opportunity 11.4: Conduct a network assessment on both local area network and wide area networks.
- Key Opportunity 11.5: Conduct a technology assessment
- Key Opportunity 11.6: Perform Payroll Analytics to analyze payouts.
- Key Opportunity 11.7: Improve practices to discern the validity of sick leave requests.

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Report #4 <ul style="list-style-type: none"> Audit personnel transactions to determine which transactions are prone to high error rates Segregate time card entry and approval access for all employees Develop processes to expand delegation of authority for approving time cards Implement self-attestation of time cards 	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> Additional work and resources are needed to complete SOP documentation. Opportunities exist to enhance the control environment and segregation of duties. The HR team confirmed that a plan is in place; however, that plan does not yet appear to be implemented. Please refer to Key Opportunities 11.1-11.3
OLA Report #6 <ul style="list-style-type: none"> Clarify which employees are eligible for payout (per union contract) Document final decisions in payroll SOPs Update existing Administrative Procedure to specify daily rate calculation used to payout leave to departing executives 	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> A clear policy was not provided during the review. We did note that PGCPS appears to have a process in place for a member of the payroll team to manually calculate leave payouts in a standard template. The Payroll Supervisor reviews and approves leave payout calculations. Executive payouts are calculated by a payroll manager and then reviewed by another payroll manager. Please refer to Key Opportunity 11.6
OLA Report #5: Develop comprehensive SOPs for all payroll transactions and develop reports to track adherence to SOPs	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> The area of greatest observed risk for overpayment comes from terminated employees receiving payment after their departure from PGCPS. Currently, terminations are not always entered timely and/or completely from the field. If an overpayment occurs and is detected, the payroll team takes various measures to collect the due payment directly from the pay slip or from the employee.
OLA Report #7: Update sick leave bank rules and create accounting systems to track leave balances	<ul style="list-style-type: none"> Observations suggest OLA Report recommendation has been addressed 	<ul style="list-style-type: none"> The school district has put in place practices to track negative time in the sick banks. Specifically, the team has put in place a report to track sick leave balances. Opportunities may exist to identify and reduce misuse of sick leave. Please refer to Key Opportunity 11.7

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 11.1: Review ERP System Contract and determine if existing tools could be leveraged to support employee communications. If not, research acquiring a capability of this nature

Background Rationale

Currently, the HR and Payroll functions appear to spend a significant amount of time and resources managing inquiries from the field. This seems to create a number of redundant activities and prohibits teams from conducting both basic and value added work. Finally, the volume of calls appears to distract employees, reducing their efficiency and effectiveness in their current roles.

Implementation Strategy

PGCPS should review their ERP system contract and determine if existing tools could be leveraged to support employee communications. If not, PGCPS should research acquiring a capability of this nature. There are tools in the marketplace that directly interface with employees to push information to the employee population. This enables employees to potentially research and resolve questions on their own rather than reaching out to functional experts. Specifically, employees can select their question, using a drop down menu, through the ERP system intranet. These tools use the employee's selection to direct the user to relevant resources to answer their questions. Resources may be frequently asked questions "FAQs", standard operating procedures "SOPs", policies or other organizational knowledge content. If that action does not meet the employee's needs, Tools would direct their inquiry to a central inbox linked to PGCPS COE (center of excellence) contacts. Internally, PGCPS could have one employee inquiry contact that would either answer the question or redirect them to the appropriate subject matter resource. PGCPS could use this as part of a broader shared service arrangement across back office functions. Adding a functionality of this nature can significantly reduce inquiries, depending upon the situation.

Potential Fiscal Implication

Determining the exact potential fiscal implication would require additional analysis. The value driver of taking such action could be to align resources to high value activities to the organization and areas of greater interest to employees.

Key Opportunity 11.2: Invest in a Customer Relationship Management (CRM) capability to track employee inquiries received

Background Rationale

Currently, the HR and Payroll functions appear to spend a significant amount of time and resources managing inquiries from the field. This seems to create a number of redundant activities and prohibits teams from conducting both basic and value added work. Finally, the volume of calls appears to distract employees, reducing their efficiency and effectiveness in their current roles.

Implementation Strategy

PGCPS should invest in a CRM capability to track employee inquiries received. A CRM would be a foundational technology that would build upon the ERP's capabilities and could enable PGCPS to improve its tracking of employee questions/issues to drive rapid resolution. It could also inform where training, communications and/or specific initiatives may be required to improve operations and/or the employee experience. A CRM capability also has the potential ability to rapidly route requests to the appropriate parties, create case tracking (i.e., case management), track response times, and evaluate functional performance.

Potential Fiscal Implication

Determining the exact potential fiscal implication would require additional analysis. The value driver of taking such action could be to align resources to high value activities to the organization and areas of greater interest to employees.

Key Opportunity 11.3: Conduct a feasibility assessment to determine the value of moving to a shared service structure

Background Rationale

Currently, the HR and Payroll functions appear to spend a significant amount of time and resources managing inquiries from the field. This seems to create a number of redundant activities and prohibits teams from conducting both basic and value added work. Finally, the volume of calls appears to distract employees, reducing their efficiency and effectiveness in their current roles.

Implementation Strategy

PGCPS should conduct a feasibility assessment to determine the value of moving to a shared service structure. A structure of this nature focuses on centralizing basic transactions to drive economies of scale. In addition, over the past 5-10 years, leading organizations are moving beyond basic transactions and centralizing more complex transactions to achieve greater economies. Given these developments, PGCPS has an opportunity to potentially advance rapidly up the shared service maturity curve by applying leading practices and lessons learned from other organizations. When moving to an arrangement of this nature there are a number of key considerations to consider. A few key considerations include:

- Changes could be required to the organizational structure in order to organize the right talent within and around the shared service center construct
- Changes to process could be required with a specific focus on workflow, roles and responsibilities and technology configuration
- PGCPS may need to evaluate its current system construct (customization and configuration), integrate the CRM capability with current functionality
- Consider the use of telephony, software robotics and mobile capabilities to drive execution and improve the interface with employees
- Develop detailed documentation, SOP documents, escalation logs, service center reference documentation and job aids.
- Identify opportunities to drive transactions out to employees through enhanced self-service and manager self-service capabilities
- Perform a comparative vendor analysis to see what competitive functionalities are in the marketplace and the costs associated with an alternative option.

Potential Fiscal Implication

We have found that approximately three quarters of large organizations across all industries leverage shared service centers (Similar sizes to PGCPS and larger). Typically we find that organizations that move to a shared service center model see potential savings of 15-40% of baseline cost. With savings of this nature, organizations can divert their talent to higher value activities such as risk mitigation, strategic activities and a focus on driving continuous improvement. Furthermore, organizations that move to a shared service model can drive greater economies as they do more back office activities for example Accounts Payable, IT, Finance, HR, and Payroll.

Key Opportunity 11.4: Conduct a network assessment on both local area network and wide area networks

Background Rationale

We learned from the payroll team that the system frequently would freeze or crash when running large reports from the ERP system. Insufficient bandwidth of local area networks (LAN) and/or wide area networks (WAN) are likely symptoms of challenges with report generation and processing.

Implementation Strategy

PGCPS should conduct a network assessment on both local area network and wide area networks. A network assessment will identify the current hardware components of the ERP system and identify the age of the different HR technologies that are upstream and downstream. Given that PGCPS has experienced issues running large reports, a key consideration would be to analyze the current ERP system data model. This review would focus on how many databases the system is utilizing and the performance benchmarked under different conditions.

Potential Fiscal Implication

Further assessment would be required to identify the implications across the organization. Right now the challenges resulting are delays in administrative processes and rework by employees who we met with. These efficiency losses likely exist across the organization and not just in HR and payroll.

Key Opportunity 11.5: Conduct a technology assessment

Background Rationale

Although the current ERP system has reportedly been kept up to date with system updates and upgrades (with exception of the most current release, due to the fact that it does not support the current budget solution), it is 15 years old and requires numerous manual workarounds, batch based transactional processing, heavy customization and extensive efforts to implement upgrades. Furthermore, the ERP system lacks many of the reporting capabilities found in a leading organization particularly flexible and adaptive real-time reporting capabilities. We noted in multiple circumstances that the system functionality serves as a barrier to execution, whereas leading practice organizations leverage technology to serve as an enabler. Finally, given the age of the system, the focus is on executing transactions rather than driving an enabled user experience through mobile capabilities, real-time data availability and general system access. As such, it may benefit PGCPS to look into how well the current ERP system (current and latest release) compares with other solutions (especially before choosing to upgrade).

Implementation Strategy

We typically find that most organizations update their Systems on an average of every 20 years. Given that, we recommend that PGCPS conduct an HR Technology assessment with the following goals:

- Identify leading practices to bring to PGCPS
- Evaluate the employee experience with HR technology
- Define future state requirements for a leading practice solution
- Evaluate the position management structure and link to the chart of accounts, budget and other key foundational areas
- Identify the master system of record and assess data quality

- Identify redundant offline systems
- Create a business case for change

After conducting this assessment evaluate alternatives in the market. PGCPS has an opportunity to potentially make a transformative change that will improve HR/Payroll functional performance, improve how it invests in technology, talent and resources and reduce the implication of HR/Payroll transactions on individuals in the field.

Potential Fiscal Implication

Depending upon alternatives, there are opportunities to improve the cost ownership for the system which takes into account considerations such as: Support costs, upgrade costs, hardware and software licensing and maintenance costs, staff support, subscriptions and/or issue management. In addition, many of the technology capabilities on the market could create tangible value to customers such as improved user experience, improved workflow and improved reporting efficiency.

Key Opportunity 11.6: Perform Payroll Analytics to analyze payouts

Background Rationale

During the process, we looked at the steps taken to manage overpayments, and observed that there is opportunity to periodically evaluate data associated with key payroll transactions. This is a leading practice that PGCPS can purchase or develop in house.

Implementation Strategy

Perform Payroll Analytics to analyze payouts. There are a variety of analytics that can be run to identify overpayments, duplicative payments and other payment issues. Several include:

- Missing addresses
- Multiple payments to a given account/address etc.
- Missing Bank Account
- Missing business unit
- Invalid national ID
- Inconsistent payouts versus underlying time
- Payments outside of appropriate pay cycle
- Payouts to terminated employees
- Improper payouts to employees on leave

Potential Fiscal Implication

Depending upon the extent of issues and improper data, the potential fiscal implication can be significant. There are two main drivers of cost savings: reducing inaccurate, fraudulent or redundant payments and identifying potential compliance issues such as improper payment of overtime. These issues can become potentially important to PGCPS and to financial statements if untracked.

Key Opportunity 11.7: Improve practices to discern the validity of sick leave requests

Background Rationale

During our discussions with key stakeholders we learned that there is concern about sick leave bank abuse. We discussed strategies used by similar organizations with the PGCPS team and have added a suggested implementation strategy in the section below.

Implementation Strategy

We have the following recommendations to improve the sick leave payout process:

- In order to improve the validity of sick bank requests, PGCPS should create a policy which requires employees to go to PGCPS approved doctors for illness validation.
- Conduct analysis to identify trends related to timing of sick leave, authorizing doctors, location or groups of employees with significant leave usage. Research areas of high volume.
- If concerns of abuse exist, conduct a campaign to reward anonymous sources who identify fraud.
- Create a program of accountability to encourage proper use and deter questionable use of sick banks.

Potential Fiscal Implication

It is possible to see a significant reduction in the utilization of sick leave payouts by implementing these practices. Savings will vary.

12. Access and Security Controls

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of the district's Access and Security Controls procedures. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess several *OLA Report* Corrective Actions/Recommendations, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

Second, the team was asked to assess, as a result of their observations, how the Department appeared to be utilizing existing practices that reflect current known leading practices. To do this, the team engaged in a process level assessment for key Identity and Access Management (IAM) processes in practice at PGCPS using an IAM maturity framework that looks at leading practices for Governance, Identity & Credentials, Access, Authoritative Sources, and Administration and Intelligence domain. Please refer to **Appendix M1** for more details).

OLA Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #11 Corrective Action	Comprehensive assessment of data access. Develop centralized rules outlining allowable combinations of access and if exceptions to segregation of duties are made. Develop of alert systems to inform of inappropriate use of that access. Feasibility study to examine a phased approach to implementing a role based control model for data systems access (rather than the approach we have now which tailor access for each individual employee)
<i>OLA Report</i> Finding #12 Corrective Action	Log use of critical database privileges. Create system to generate documentation of electronic review of the Student Information System

EY conducted this assessment by measuring their observations PGCPS's current state with an IAM framework that reflects leading practices and maturity across 5 domains listed below:

- Governance
- Identity & Credentials
- Access
- Authoritative Sources
- Administration & Intelligence

We performed a 4-step approach in conducting the overall IAM Assessment in order to assess the current state maturity, identify gaps and develop recommendations. This process included a period of planning, workshops and interviews, assessment, and the production of a report. More information can be found in **Appendix M**.

Section 2: Summary Perspectives

This area has been assessed as "**Needs Improvement**." Below, our team has mapped the OLA findings to the IAM framework representing leading practices.

EY and OLA Findings by Domain

Domains	EY Findings	OLA Findings
Governance	<ul style="list-style-type: none"> • No governance process is defined, established or documented for the organization. • Goals for organization's IAM program are not defined. • Most of the performance process is performed on ad-Hoc basis and is not standardized. No program for IAM metrics has been drafted or established. • Lack of documentation for definition and boundaries for processes including provisioning, de-provisioning, SLAs (Service Level Agreements), policies, standards, etc. • No measure in place to assess that standards and policies are consistently followed. • There is no formal guidelines on IAM compliance program established (with exception around password policies). • Segregation of Duties rules were established while implementation of ERP Identity Manager and were never reviewed after that. 	<ul style="list-style-type: none"> • Two PGCPS Purchasing Department employees could modify approval paths and that these changes were not subject to independent review by supervisory personnel. • Source : OLA Report , February 2014 , Page 24
Identity and Credential	<ul style="list-style-type: none"> • Access is granted based on individual user's responsibilities rather than following a role based approach (RBAC—Role Based Access Controls). • No auto discovery process for correlating user accounts. • Limited notifications are generated associated with authenticator management • Self-service portal usage is only limited to password reset capabilities. • Privileged accounts are managed directly by individuals or groups, no privileged access management solution is in place. • Lack of defined procedures about resetting service or functional accounts credentials managed by individual when they leave the organization. • PGCPS did not require standardized user access profiles; rather, each user's access capabilities for various system functions could be unique as they are assigned based on their responsibilities and job duties. Consequently, this increases the likelihood that employees are assigned incompatible or inappropriate functions. • Source : OLA Report , February 2014 , Page 24 	<ul style="list-style-type: none"> • PGCPS did not require standardized user access profiles; rather, each user's access capabilities for various system functions could be unique as they are assigned based on their responsibilities and job duties. Consequently, this increases the likelihood that employees are assigned incompatible or inappropriate functions. • Source : OLA Report , February 2014 , Page 24

Domains	EY Findings	OLA Findings
Access	<ul style="list-style-type: none"> User entitlement workflow is not enabled and any additional role other than birthright roles are provisioned using manual request and approval process. Not all provisioning and de-provisioning requests are logged and audited. Use of multifactor authentication is not practiced. Lack of centralized authentication and authorization capabilities. Identity federation implementation are configured for limited scenarios and are not documented. Compliance to policies during the access validation and recertification process can't be guaranteed as it follows manual processes (excel based tool) and lacks documentations Only a standard set of seeded reports are available through the publisher component through ERP Identity Manager. A large number of roles exist through ERP Identity Manager which are defined at application level but are not mapped at enterprise level. Use of RBAC (Role Based Access Controls) model is also confined to application level. Role ownership does not appear clearly defined and documented. Very limited data seems to be available regarding role management processes. Review and process improvement analysis of roles are either not performed or are very limited. Detailed implication analysis for a retiring role is not documented Baseline of approval or denial of a role request by RISA is not documented 	<ul style="list-style-type: none"> Supervisors often did not respond to periodic ITD (Information Technology Department) reports requesting such confirmations. A similar condition was commented on in the OLA Report Many of these employees had been assigned capabilities that resulted in an inadequate separation of duties. Supervisors often did not respond to periodic ITD reports requesting such confirmations. A similar condition was commented on in the OLA Report Many of these employees had been assigned capabilities that resulted in an inadequate separation of duties. Source : OLA Report , February 2014 , Page 24
Authoritative Sources	<ul style="list-style-type: none"> IAM uses out of the box ERP system E-business connectors from ERP Identity Manager. The system is compliant with HR policies and standards and hence there are no major gaps observed with the Authoritative Source. 	<ul style="list-style-type: none"> N/A
Administration and Intelligence	<ul style="list-style-type: none"> No governance, standards and processes defined for IAM administration Lack of process documentation for managing and maintaining IAM administration processes Many existing functionalities of the IAM tools are not utilized because of limitations to handle complexity for performing workflows. 	<ul style="list-style-type: none"> Both aforementioned databases were not configured to log direct changes to critical data and security tables or to log the use of critical database privileges although the capability to perform such logging existed within the software for each database. In addition, there was no documentation

Domains	EY Findings	OLA Findings
	<ul style="list-style-type: none"> • No framework for logging, monitoring and reporting on access, database transactions and events. • PGCPS has implemented Audit Vault for logging database events. 	<ul style="list-style-type: none"> • to support any reviews performed of database logs that were generated. • An insecure service was enabled on the student management system database that could allow users to run commands as a privileged user. This service was intended only to accept requests from the database server but local users on the server hosting this database could execute commands using this service without authentication. • Source : OLA Report, February 2014 , Page 28

We have also assessed the potential implication of each observation. The table below lists the possible implications of each analysis finding for PGCPS' systems.

Potential Implication of Findings

IAM Domains	#	Observations	Potential Implications
Governance	FN 1	No governance process is defined, established or documented for the organization.	An undefined governance could lead to reduced management insight into the IAM program and key IAM processes.
	FN 2	Goals for organization's IAM program are not defined.	Lack of clear goals for the IAM program could lead to missed management decisions in terms of people, process and technology.
	FN 3	Most of the performance process is performed on ad-Hoc basis and is not standardized. No program for IAM metrics has been drafted or established.	Lack of performance indicators could lead to the management unable to measure IAM program's clear performance in terms of quality, meeting audit standards and overall risk associated with access.
	FN 4	Lack of documentation for definition and boundaries for processes including provisioning, de-provisioning, Service Level Agreements, policies, standards, etc.	No clearly defined documentation along with management approval, and timely update to reflect changes could affect overall performance of quality, audit and risk associated with access.
	FN 5	No measure in place to assess that standards and policies are consistently followed.	Reduced insight into who is doing what within the organization is a common example of this type of observation. This contributes towards the potential risk of access assigned to an individual.
	FN 6	There is no formal guidelines on IAM compliance program established (with exception around password policies).	Reduced insight into the IAM compliance guidelines can lead to management ignoring key audit and compliance needs that need to be addressed in terms of access.

IAM Domains	#	Observations	Potential Implications
Identity & Credentials	FN 7	Segregation of Duties (SoD) rules were established while implementation of ERP Identity Manager and were never reviewed after that.	Unable to properly mitigate risk associated with access that is not addressed through outdated SoD rules.
	FN 8	Access is granted based on individual user's responsibilities rather than following a role based approach (RBAC).	Potential implication on managing and maintaining risk granular access and permissions
	FN 9	No auto discovery process for correlating user accounts.	Lack of a defined process can lead to ad-hoc management of user accounts and potentially reduced insight into who has and gets what access.
	FN 10	Limited notifications are generated associated with authenticator management	Notifications act as a traceability and managing integrity in terms of who gets what access.
	FN 11	Self-service portal usage is only limited to password reset capabilities.	Potentially impacts administration and help desk time, cost and budget. Can add administration burden to IAM helpdesk processes
	FN 12	Privileged accounts are managed directly by individuals or groups, no privileged access management solution is in place.	High potential risk of access misuse is associated with improper assignment, governance and management of privileged access.
	FN 13	Lack of defined procedures about resetting service or functional accounts credentials managed by individual when they leave the organization.	Potential implication of risk associated with residual and remanence access.
Access	FN 14	User entitlement workflow is not enabled and any additional role other than birthright roles are provisioned using manual request and approval process.	Manual approach of provisioning additional roles is potentially less efficient and could be more prone to error. It could consume more resources and efforts and holds limited accountability for approver. Role assignment may be delayed due to approver's non-availability.
	FN 15	Use of multifactor authentication is not practiced.	Without multi-factor authentication, implementing advanced security options for high privileged accounts and transactions is potentially limited. Also, multifactor authentication helps avoid potential race conditions and protects the organization from security risks like social engineering, session hacking, etc.
	FN 16	Lack of centralized authentication and authorization capabilities.	De-centralized authentication and authorization approaches potentially increases cost and resource utilization for the organization, there is limited insight for current approaches followed and compliance to standards and policies defined becomes difficult to ensure.
	FN 17	Identity federation implementation are configured for cloud applications and configuration documentation is drafted	Lack of ownership and periodic insight into the configuration specifications can have a potential implication on the overall configuration management for PGCPS. There is a need to align the federation configuration specifications with the overall change and

IAM Domains	#	Observations	Potential Implications
			configuration management process to ensure timely and proper updates are made when necessary.
	FN 18	Compliance to policies during the access validation and recertification process can't be guaranteed as it follows manual processes (excel based tool) and lacks documentations	Using current methodology used in PGCPS systems for access validation and recertification process is a complex procedure that requires significant manual intervention at different stages. This approach is likely not very effective, is non-reliable and likely results in limited or no accountability with high cost.
	FN 29	Only a standard set of seeded reports are available through the publisher component through ERP Identity Manager.	Limited set of out of the box reports could result in restricted insight into the system. Also, information presented by these reports may not be relevant or value add to PGCPS. In the existing scenarios custom reports are hard to configure and the reporting system is not capable to meet ad-hoc request (e.g., request by the OLA team).
	FN 20	A large number of roles exist through ERP Identity Manager which are defined at application level but are not mapped at enterprise level. Use of RBAC (Role Based Access Controls) model is also confined to application level.	There could be multiple roles that contribute towards achieving the same goal which introduces redundancy and complexity into the environment. Visibility into the role and user management processes is likely very limited from an enterprise perspective as they are defined and managed at application level. Also, significant efforts are required in order to manage bigger population of roles.
	FN 21	Role ownership is not clearly defined and documented.	There is no or very less accountability for the roles in use which minimizes the scope for role review and improvement. Also, lack of documentation could narrow down the understanding about the available roles.
	FN 22	Very limited data is available regarding role management processes. Review and process improvement analysis of roles are either not performed or are very limited.	Without proper analysis of the existing role management processes, there is potentially very limited control and no scope for role improvement.
	FN 23	Detailed implication analysis for a retiring role is not documented	Lack of detailed analysis before retiring an active role may implicate the functionality of the working system and may introduce risk to the system.
	FN 24	Baseline of approval or denial of a role request by DISA is not documented	As there is no baseline documented there is potentially very restricted insight into the system. There is possibility that the access may be rubberstamped or may lead to inappropriate or unauthorized access.
Authoritative Source	FN25	IAM uses out of the box ERP system E-business connectors from ERP Identity Manager. The system is compliant with HR policies and standards and hence there are no major gaps identified with the Authoritative Source.	There were no major implications observed as PGCPS is managing the authoritative source via an out of the box connector.

IAM Domains	#	Observations	Potential Implications
Administration & Intelligence	FN 26	No governance, standards and processes defined for IAM administration	Lack of governance, standards and processes could lead to ad-hoc IAM administration, making it potentially ineffective towards cost, resources and time.
	FN 27	Lack of process documentation for managing and maintaining IAM administration processes	Lack of proper documentation of IAM processes can have an implication on ownership and accountability of IAM administration activities and initiatives.
	FN 28	Many existing functionalities of the IAM tools are not utilized because of limitations to handle complexity for performing workflows.	This finding is a derivative of having no proper governance, standards and policies. This could lead to administration inefficiency.
	FN 29	No framework for logging, monitoring and reporting on access, database transactions and events. PGCPS has implemented Audit Vault for logging database events.	Implication on administrators unable to detect threats and respond to risks associated with access. Lack of documentation and awareness around database logging and monitoring can increase the potential of malicious transactions that go undetected.

The “Needs Improvement” rating translates into a rating of “Managed” (2) in our IAM Assessment framework. The explanation for this occurs below.

PGCPS Current State Maturity Assessment (Explained in Appendix M-4)

IAM Component	PGCPS current state maturity observation	Key Supporting Observations
Governance	Maturity Assessment 2: Repeatable	<ul style="list-style-type: none"> PGCPS maintains an Ad-hoc IAM operating model, with decisions and requirements made by Information Technology. No established IAM governance, policies and standards. Limited to no documentation around IAM processes and procedures.
Identity and Credential	Maturity Assessment 2: Repeatable	<ul style="list-style-type: none"> An ERP system E-business HR is the standard authoritative source for identity information. Digital identities are managed and maintained in ERP Identity Manager. Authentication using passwords set through AD or self service via ERP Identity Manager. Challenge response questions used as two factor and not consistently applied.
Access Lifecycle (i.e., Request & Approve, Provision & De-Provision, Enforce, Review & Certify, Reconcile, and Report & Audit)	Maturity Assessment 2: Repeatable	<ul style="list-style-type: none"> Basic governance with Access Life-cycle. Automated provisioning via rules and roles for birthright access through ERP Identity Manager. Manual (request) based provisioning for rest of the access via Google Forms. Access provisioned manually by sys admins. Privileged accounts are not managed via current IAM toolset.

IAM Component	PGCPS current state maturity observation	Key Supporting Observations
		<ul style="list-style-type: none"> Segregation of Duties defined during initial implementation of IAM toolset, but has not been reviewed or updated periodically. Manual periodic access certification with no defined process, governance or cadence. PGCPS is looking into developing custom application for access certification and review.
Authoritative Sources	Maturity Assessment 2: Repeatable	<ul style="list-style-type: none"> E-business HR is identified by management as the authoritative source of records for employee and contractors. Student Information System is identified by management as the authoritative source of records for students. Connector documentation developed during implementation for attribute and entitlement mappings.
Administration and Intelligence	Maturity Assessment 2: Repeatable	<ul style="list-style-type: none"> IAM administration is performed by the IT organization No defined governance, operating model or administration processes defined. Ad-hoc and out of the box reporting used without a defined performance framework.

PGCPS's Recommended Future State Maturity Assessment

Below, we describe PGCPS' proposed future state maturity assessment (3-Defined). If PGCPS could make reflect these components, it could potentially bring PGCPS closer to a state that is "Approaching Leading Practices."

IAM Component	PGCPS current v/s proposed state observation	Potential Desired IAM operating state
Governance	Desired Maturity Assessment 3 "Defined"	<ul style="list-style-type: none"> PGCPS maintains an Ad-hoc IAM operating model, with decisions and requirements made by Information Technology. No established IAM governance, policies and standards. Limited to no documentation around IAM processes and procedures. E-business HR is the standard authoritative source for identity information. Digital identities are managed and maintained in ERP Identity Manager. Authentication using passwords set through AD or self service via ERP Identity Manager. Challenge response questions used as two factor and not consistently applied. Basic governance with Access Life-cycle. Automated provisioning via rules and roles for birthright access through ERP Identity Manager.

IAM Component	PGCPS current v/s proposed state observation	Potential Desired IAM operating state
		<ul style="list-style-type: none"> Manual (request) based provisioning for rest of the access via Google Forms. Access provisioned manually by sys admins. Privileged accounts are not managed via current IAM toolset. Segregation of Duties defined during initial implementation of IAM toolset, but has not been reviewed or updated periodically. Manual periodic access certification with no defined process, governance or cadence. PGCPS is looking into developing custom application for access certification and review. Identified E-business HR as the authoritative source of records for employee and contractors. Identified Student Information System as the authoritative source of records for students. Connector documentation developed during implementation for attribute and entitlement mappings. IAM administration is performed by the IT organization No defined governance, operating model or administration processes defined. Ad-hoc and out of the box reporting used without a defined performance framework.
Identity and Credential	Desired Maturity Assessment 3 "Defined"	<ul style="list-style-type: none"> Policies governing the processes involved in authenticator and credentials lifecycle are defined. IAM processes documented for different process (generating/initializing, distributing, resetting, storing, expiration, renewal, revocation/disposal) of authenticators or credentials. Account IDs can be clearly associated with global ID Identity proofing practices and approved methods are documented and communicated enterprise-wide.
Access Lifecycle (i.e., Request & Approve, Provision & De-Provision, Enforce, Review & Certify, Reconcile, and Report & Audit)	Desired Maturity Assessment 3 "Defined"	<ul style="list-style-type: none"> Segregation of Duty (SoD) violations are identified and documented clearly and are revisited periodically. Enterprise services and procedures for Request and approval are defined, standardized and documented. Roles are defined, standardized and used at enterprise level. Privileged Access Management policies are documented and practiced. Access review, Certification and Reconciliation processes and procedures are documented and established in an automated way. Procedures for removing inappropriate access are documented Framework of reporting technologies, both manual and automated, is leveraged to generate reports (both custom & standard).

IAM Component	PGCPS current v/s proposed state observation	Potential Desired IAM operating state
		<ul style="list-style-type: none"> Reports are scheduled to be executed and distributed at periodic intervals.
Authoritative Sources	Desired Maturity Assessment of 3 "Defined"	<ul style="list-style-type: none"> Standards and polices are defined and documented. A logically centralized & extensive inventory of the organization's resources exists. Ownership, roles and responsibilities for maintaining the resource inventory and authoritative sources is formally defined.
Administration and Intelligence	Desired Maturity Assessment of 3 "Defined"	<ul style="list-style-type: none"> Policies governing the administration of IAM applications and systems are clearly defined and documented. Role metrics are collected, reviewed and used to identify process improvement opportunities at regular intervals. Logs are maintaining in a centralized way and a set of standard monitoring processes and procedures is documented and practiced.

Key Opportunities for Continuous Improvement in Leading Practices

Based on the observations made during the current state assessment of PGCPS's systems, the table below lists all the potential recommendation proposed by EY from IAM point of view.

#	Recommendation Description	Corresponding IAM Domain	Relevant Observation #
RE # 12.1	<p>Develop an IAM governance and program management framework. Key activities are :</p> <ul style="list-style-type: none"> Define an IAM vision based on business, risk reduction and compliance needs (OLA). Management approved roadmap, timeline and key milestones. Include RBAC (Role Based Access Controls) framework & strategy (detailed in RE # 7) Include Periodic Access Certification framework & strategy (detailed in RE # 8) Include Privileged Access Management (PAM) framework and strategy (detailed in RE # 9) 	Governance	FN # 1, FN # 2, FN # 4, FN # 4 and FN # 5, FN # 6 and FN # 7

#	Recommendation Description	Corresponding IAM Domain	Relevant Observation #
RE # 12.2	Draft an IAM Program Charter document that covers the following: <ul style="list-style-type: none"> • IAM scope and objectives • IAM Program Management Organization Chart • Define IAM steering committee body • Roles and responsibilities (RACI: Responsible, Accountable, Consulted, and Informed) • IAM executive meetings and cadence 	Governance	FN # 2, FN # 3
RE # 12.3	Develop IAM initiatives and prioritization matrix for managing key decisions across governance, operations and implementation.	Governance	FN # 2
RE # 12.4	Develop and document IAM policies and standards for : <ul style="list-style-type: none"> • Identity Management Policies and Standards • Access Management Policies and Standards (includes RBAC and PAM) – also covered in RE # 7 and 9. • IAM Administration Policies and Standards • IAM Logging, Monitoring and Reporting Policies and Standards • IAM Maintenance Policies and Standards 	Governance	FN # 3
RE # 12.5	Conduct a current state “Access Analytics” initiative to identify and report on <ul style="list-style-type: none"> • Identify “Who has access to what systems” • Identify access outliers (users with access they are not supposed to have) • Identify orphan accounts (application accounts without ownership or identity record) • Identify non-interactive accounts (i.e system, service, shared and application accounts) 	Identity & Credentials, Access, Administration & Intelligence	FN # 9, FN # 12, FN # 13, FN # 14, FN # 18, FN # 21
RE # 12.6	Develop and document IAM processes (functional and technical) : <ul style="list-style-type: none"> • Access request process (birthright and post birthright) • Access provisioning lifecycle process (creation, update, deletion) • Periodic access certification process (detailed in RE # 8) • IAM administration processes <ul style="list-style-type: none"> - Support processes (including helpdesk) - Segregation of Duties rules maintenance process - IAM governance and policy maintenance process 	Governance, Identity & Credentials, Access, Authoritative Source, Administration	FN # 13, FN # 14, FN # 17, FN # 18, FN # 23, FN # 24
RE # 12.7	Develop an Enterprise Role Management Framework <ul style="list-style-type: none"> • Develop ERBAC (Enterprise Role Based Access Controls) strategy and vision • Prioritization matrix and scope • Develop role governance framework • Develop role management policies and processes <ul style="list-style-type: none"> - Business role engineering and discovery - Role lifecycle management • Identify an RBAC toolset and solution for managing roles and entitlements. • Conduct pilot role mining and discovery for limited E-Business suite • Perform full rollout of business roles across PGCPS • Implement role maintenance activities 	Access	FN # 14, FN # 20, FN # 21, FN # 23

#	Recommendation Description	Corresponding IAM Domain	Relevant Observation #
RE # 12.8	<p>Develop Periodic Access Certification framework</p> <ul style="list-style-type: none"> • Define and categorized access certification types • Define access review governance • Qualified (high, medium and low) categorization and prioritization of assets and applications • Optimize communication campaign • Develop access certification campaign objectives • Access certification communication plan and standard templates • Define and develop future state access certification processes <ul style="list-style-type: none"> - Application intake and onboarding process (immediate need) - Access review ownership process (immediate need) - User access review (immediate need) - Role composition review process (future state) - Privileged access review process (future state) • Design access certification system <ul style="list-style-type: none"> - Business and functional requirements - Technical and environment requirements - Reason on build v/s buy v/s use hosted or cloud providers • Implement access certification system <ul style="list-style-type: none"> - IAM steering committee and management approvals - Run pilot access certification campaign for limited applications • Onboarding of applications and full rollout 	Access	FN # 7, FN # 12, FN # 18, FN # 22
RE # 12.9	<p>Develop and Implement Privileged Access Management (PAM) framework</p> <ul style="list-style-type: none"> • Define privileged access management governance • Identify and develop key guardrails for PAM and non-interactive accounts • Define PAM standards and policies • Define and categorize privileged identities and non-interactive accounts • Conduct initial inventory of privileged identities and non-interactive accounts • Develop PAM lifecycle processes • Identify and configure technology for PAM and non-interactive accounts. 	Access	FN # 12, FN # 15, FN # 16, FN # 18
RE # 12.10	<p>IAM process transformation and operationalization</p> <ul style="list-style-type: none"> • Develop training material for end-user, administration and operations • Pilot IAM process roll-out for few applications and gather feedback. • Roll out IAM processes across PGCPS business and technology. 	Governance, Identity & Credentials, Access, Authoritative Source, Administration	FN # 13, FN # 14, FN # 17, FN # 18, FN # 23, FN # 24,
RE # 12.11	Develop IAM end-user, administrator and operations training program and material.	Governance	

#	Recommendation Description	Corresponding IAM Domain	Relevant Observation #
RE # 12.12	<p>Develop an IAM Reporting & Intelligence program</p> <ul style="list-style-type: none"> • Define IAM reporting and intelligence framework for Application and Database access. • Identify key performance indicators and measures for the processes defined (immediate) • Draft reporting templates for IAM steering committee and management (immediate) • Identify repository for managing and maintaining report records (immediate) • Identify business intelligence or analytical tools to help drive automated IAM reporting & intelligence (future state) 	Administration & Intelligence	FN # 25, FN # 26, FN # 27, FN # 28, FN # 29

Recommendations with short-term priorities are as below:

Short-Term Priorities

Order	Recommendation #	Recommendation Description
1	RE #12.1	Develop an IAM governance and program management framework
2	RE #12.2	Draft an IAM Program Charter
3	RE #12.3	IAM initiatives and prioritization matrix
4	RE #12.4	Develop and document IAM policies and standards
5	RE #12.5	Conduct a current state Access Analytics for ERP system – E Business and Student Max Systems
6	RE #12.6	Develop and document IAM processes
7	RE #12.5	Access remediation and normalization <ul style="list-style-type: none"> • Perform access remediation on current state based on outcome of RE # 5
8	RE #12.10	IAM process transformation and operationalization <ul style="list-style-type: none"> • Develop training material for end-user, administration and operations • Pilot roll out for few applications, gather feedback and then IAM process roll-out for all applications.
9	RE #12.7	Develop an Enterprise Role Management Framework <ul style="list-style-type: none"> • Develop ERBAC (Enterprise Role Based Access Controls) strategy and vision • Prioritization matrix and scope • Develop role governance framework • Develop role management policies and processes
10	RE #12.8	Develop Periodic Access Certification framework <ul style="list-style-type: none"> • Define and categorized access certification types • Define access review governance • Qualified (high, medium and low) categorization and prioritization of assets and applications • Optimize communication campaign • Define and develop future state access certification processes • Application intake and onboarding process (immediate need) • Access review ownership process (immediate need) • User access review (immediate need)

Order	Recommendation #	Recommendation Description
11	RE #12.12	<p>Develop an IAM Reporting & Intelligence program</p> <ul style="list-style-type: none"> Define IAM reporting and intelligence framework for Application and Database access. (immediate) Identify key performance indicators and measures for the processes defined (immediate) Draft reporting templates for IAM steering committee and management (immediate) Identify repository for managing and maintaining report records (immediate)

Recommendations with long term priorities are as below:

Long-Term Priorities

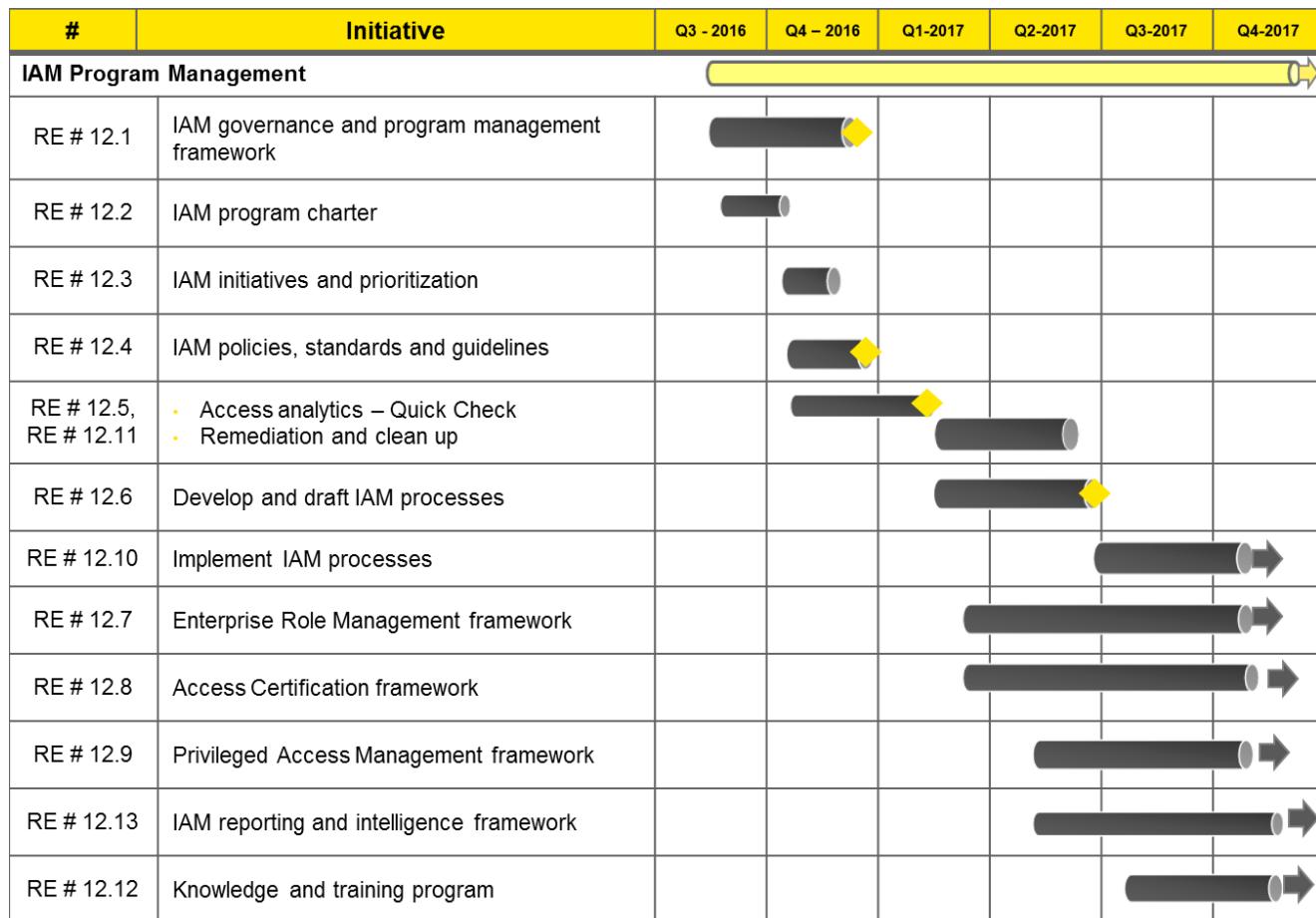
Order	Recommendation #	Recommendation Description
1	RE # 12.10	<p>IAM process transformation and operationalization</p> <ul style="list-style-type: none"> Conduct full rollout of IAM processes across PGCPS
2	RE # 12.11	Develop IAM Training program and conduct training on end-user, administrators, operations and support teams.
3	RE # 12.7	<p>Develop an Enterprise Role Management Framework</p> <ul style="list-style-type: none"> Identify an RBAC toolset and solution for managing roles and entitlements Conduct pilot role mining and discovery for limited E-Business suite Perform full rollout of business roles across PGCPS Implement role maintenance activities
4	RE # 12.8	<p>Develop Periodic Access Certification framework</p> <ul style="list-style-type: none"> Define and develop future state access certification processes Role composition review process (future state) Privileged access review process (future state) Design access certification system Business and functional requirements Technical and environment requirements Reason on build v/s buy v/s use hosted or cloud providers Implement access certification system IAM steering committee and management approvals Run pilot access certification campaign for limited applications Onboarding of applications and full rollout
6	RE # 12.9	<p>Develop and Implement Privileged Access Management (PAM) framework</p> <ul style="list-style-type: none"> Define privileged access management governance Identify and develop key guardrails for PAM and non-interactive accounts Define PAM standards and policies Define and categorize privileged identities and non-interactive accounts Conduct initial inventory of privileged identities and non-interactive accounts Develop PAM lifecycle processes Identify and configure technology for PAM and non-interactive accounts.
7	RE #12. 12	<p>Develop an IAM Reporting & Intelligence program</p> <ul style="list-style-type: none"> Identify business intelligence or analytical tools to help drive automated IAM reporting & intelligence (future state)

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
OLA Report #11 <ul style="list-style-type: none"> Comprehensive assessment of data access. Develop centralized rules outlining allowable combinations of access and if exceptions to segregation of duties are made. Develop of alert systems to inform of inappropriate use of that access. Feasibility study to examine a phased approach to implementing a role based control model for data systems access (rather than the approach we have now which tailor access for each individual employee). 	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> See detail in Summary Perspectives Please refer to Key Opportunity 12.7
OLA Report #12: <ul style="list-style-type: none"> Log use of critical database privileges Create system to generate documentation of electronic review of the Student Information System. 	<ul style="list-style-type: none"> Observations suggest progress made against OLA Report Further progress possible to fully address OLA Report 	<ul style="list-style-type: none"> See detail in Summary Perspectives Please refer to Key Opportunity 12.6

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

A potential high level roadmap, timeline and key milestone recommendation for PGCPS are as below:



Details on Key Opportunities for Improvement

Details on Key Opportunities for Improvement

Initiative #	12.1	Initiative Name	Develop IAM Governance Framework					
Description	The purpose of this initiative would be to develop an IAM governance framework and an IAM program management function that is approved by management and business, and referenced by IT to drive IAM related initiatives and projects.							
IAM Domain Focus	<ul style="list-style-type: none"> Governance 	<ul style="list-style-type: none"> Potential Project Resources 	<ul style="list-style-type: none"> PGCPS IT Manager level (1) Project Manager (1) 	Potential Duration	July 16 – Aug 16			
				Potential Project Start	July 16			
Foundational Initiatives			Jul 16	Aug 16	Sep 16	Oct 16		
<ul style="list-style-type: none"> Define IAM vision and strategy Develop IAM Program Management function Develop IAM Governance Framework 								
Key Milestones			Potential Completion Time		Ownership			
Future state IAM vision and strategy complete			July 2016		PGCPS & IAM SME			
Identified IAM Program Management objectives			August 2016		PGCPS & IAM SME			
PGCPS discussed and approved IAM Governance Framework			August 2016		PGCPS			
Approach								

Step 1	<ul style="list-style-type: none"> Develop IAM vision, strategy and program management objectives : Identify key management stakeholders and resources who will be responsible and accountable for overall decisions made for PGCPS's IAM program. This will be called the IAM steering committee Develop a detailed roadmap with management approved initiatives, budget, timeline and milestones. Consult an IAM Subject Matter Expert (In-house or consulting function) to help develop an IAM strategy for PGCPS that involves (People, Process and Technology)
Step 2	<ul style="list-style-type: none"> Draft the IAM governance framework : Develop documentation and high level definitions for the future state IAM governance framework that will outline the following : <ul style="list-style-type: none"> Key IAM initiatives Key transformational activities Identified gaps in current IAM state
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high as there is key need to get consultation from IAM SMEs, which could be in-house or external (consultants) to develop the IAM Governance Framework.

Initiative #	12.2	Initiative Name	Develop IAM Program Charter				
Description	The purpose of this project would be to develop documentation for the IAM Program Charter that can be used to conduct the initial IAM transformation kick off meeting. This document will then be periodically reviewed and updated.						
IAM Domain Focus	<ul style="list-style-type: none"> Governance 	<ul style="list-style-type: none"> Potential Project Resources 	<ul style="list-style-type: none"> PGCPS IT Manager level SME 	Potential Duration	July 16 – Aug 16		
				Potential Project Start	July 16		
Foundational Initiatives		Jul 16	Aug 16	Sep 16	Oct 16		
<ul style="list-style-type: none"> Draft IAM scope and objectives IAM Program Management Org Chart IAM Program Management Org Chart Roles and responsibilities IAM executive meetings and cadence 							
Key Milestones			Potential Completion Time	Ownership			
Final draft of PGCPS IAM Program Charter			Aug 2016	PGCPS & IAM SME			
Approach							
Step 1	<ul style="list-style-type: none"> Identify IAM program charter owner Owner should be a member of the IAM steering committee who will be responsible for managing and maintaining this document. 						
Step 2	<ul style="list-style-type: none"> Draft IAM Program Charter with the following sections : IAM scope and objectives IAM program management org chart Clear identification of roles and responsibilities (RACI—Responsible, Accountable, Consulted, and Informed) General IAM program charter policies and guidelines for periodic maintenance & update IAM steering committee meeting cadence and schedule for FY 2016, FY 2017. 						
Step 3	<ul style="list-style-type: none"> Conduct IAM program kick off meeting to discuss the IAM program charter and receive IAM steering committee approval. 						

Potential Fiscal Implication	The potential fiscal implication of this initiative could be somewhere between high and low—there is some investment required, mainly in terms of time from resources and also to identify a team to help run this initiative. However, the cost would vary as this could be done in house or could be outsourced.
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Initiative #	12.3	Initiative Name	IAM initiatives and prioritization matrix								
Description	The purpose of this initiative would be to develop a systematic list of IAM initiatives that are aligned with PGCPS's future state IAM vision and prioritized based on business needs.										
IAM Domain Focus	Governance	Potential Project Resources	<ul style="list-style-type: none"> PGCPS IT Manager level SME 	Potential Duration	Aug 16– Sep 16						
				Potential Project Start	Aug 16						
Foundational Initiatives			Jul 16	Aug 16	Sep 16	Oct 16					
<ul style="list-style-type: none"> Identify immediate (tactical) and strategic transformational activities. Identify business and compliance requirements Identify qualified application risk levels (high, medium, low) Enlist IAM processes and its implementation priority 											
Key Milestones			Potential Completion Time		Ownership						
IAM initiatives and prioritization matrix			Sep 2016		PGCPS & IAM SME						
Approach											
Step 1	<ul style="list-style-type: none"> Develop an IAM initiatives document that lists out the key initiatives for development and implementation with approved budget, resource and time allocations 										
Step 2	<ul style="list-style-type: none"> Develop a prioritization matrix based on business, compliance and risk needs. 										
Step 3	<ul style="list-style-type: none"> Receive approval from IAM steering committee prior to start of initiatives. 										
Potential Fiscal Implication	The potential fiscal implication of this initiative could be low, as the department could use in-house competency to run this initiative.										

Initiative #	12.4	Initiative Name	Develop IAM policies and standards								
Description	The purpose of this initiative would be to develop IAM policies and standards to reflect the future state IAM operating model.										
IAM Domain Focus	Governance	Potential Project Resources	<ul style="list-style-type: none"> PGCPS IT Manager level SME 	Potential Duration	Sep 16 – Oct 16						
				Potential Project Start	Sep 16						
Foundational Initiatives			Aug 16	Sep 16	Oct 16	Nov 16					
<ul style="list-style-type: none"> Develop IAM policies and standards Identify IAM policy and standards ownership Identify IAM policy and standards repository 											
Key Milestones			Potential Completion Time		Ownership						
IAM policies and standards complete			September 2016		PGCPS & IAM SME						
Approach											
Step 1	<ul style="list-style-type: none"> Identify and list all policy and standard areas within IAM 										
Step 2	<ul style="list-style-type: none"> Develop documentation for IAM policies and standards 										

Step 3	<ul style="list-style-type: none"> Identify repository for storing and maintaining these policies 		
Step 4	<ul style="list-style-type: none"> Review and receive approval from key stakeholders and IAM steering committee 		
Step 5	<ul style="list-style-type: none"> Plan strategies on communicating these policies across PGCPS. 		
Potential Fiscal Implication	The potential fiscal implication of this initiative could be somewhere between high and low, as there is an investment required in terms of time from resources and also to identify a team that will help to run the initiative. However, costs will vary as this can be done in house or can be outsourced.		

Initiative #	12.5	Initiative Name	Access quick check analytics and remediation						
Description	The purpose of this initiative would be to get a quick insight into the current access landscape for E-business suite and student information system. The objective is to understand current user to access insight, inappropriate access insight and orphan accounts information. Results from this initiative will help draft future state IAM processes and perform current state access clean-up.								
IAM Domain Focus	<ul style="list-style-type: none"> Access, Administration & Intelligence 	Potential Project Resources <ul style="list-style-type: none"> PGCPS IT Manager level SME 	Potential Duration Oct 16 – Feb 17						
				Potential Project Start Oct 17					
Foundational Initiatives			Oct 16	Nov 16	Dec 16	Jan 17	Feb 17		
<ul style="list-style-type: none"> Conduct Access Quick Check on E-Business Conduct Access Quick Check on Student Info System Develop Access Quick Check Analytics report Access clean up 									
Key Milestones			Potential Completion Time		Ownership				
Access Quick Check for E-Business completed			November 2016		PGCPS + Consultant				
Access Quick Check for Student Info System completed			November 2016		PGCPS + Consultant				
Access Quick Check report & results completed			December 2016		PGCPS + Consultant				
Access clean-up and remediation			February 2016		PGCPS + Consultant				
Approach									
Step 1	<ul style="list-style-type: none"> Conduct identity correlation with ERP system E-Business Suite, AD and Student Info System to get an insight into users and their access. Goal of this step is to get a report of users and their corresponding accounts. 								
Step 2	<ul style="list-style-type: none"> Generate report to identify access outliers i.e., users who have access that is incorrect. 								
Step 3	<ul style="list-style-type: none"> Generate report to identify orphan accounts. i.e., application accounts that do not have a corresponding identity or ownership. 								
Step 4	<ul style="list-style-type: none"> Generate report to identify list of non-interactive accounts, example – system accounts, service accounts, application accounts. 								
Step 5	<ul style="list-style-type: none"> Results from the report will help address gaps in current state provisioning, access certification and access management processes. 								
Step 6	<ul style="list-style-type: none"> Perform access remediation, clean-up and correction activities across E-business suite, AD and Student Information System using initiative 								
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high due to the dependency of identifying internal competency that can help run IAM analytics, or seek external help in terms of IAM SMEs (consultants, etc.)								

Initiative #	12.6	Initiative Name	Develop & Document IAM processes				
Description	The purpose of this initiative would be to define, develop and document IAM processes for request & provisioning Lifecycle, periodic access certification and IAM administration processes in order to support building a stronger IAM program.						
IAM Domain Focus	<ul style="list-style-type: none"> • Governance • Identity & Credentials • Access • Authoritative Source • Administration 	Potential Project Resources	<ul style="list-style-type: none"> • PGCPS IT • Manager level • SME 	Potential Duration	Feb 17 – May 17		
				Potential Project Start	Feb 17		
Foundational Initiatives		Feb 17	Mar 17	Apr 17	May 17		
<ul style="list-style-type: none"> • Draft IAM processes 							
Key Milestones			Potential Completion Time	Ownership			
Access Request & Provisioning Lifecycle process is developed and documented			May 2017	PGCPS + Consultant			
Periodic Access Certification process is implemented and documented			May 2017	PGCPS + Consultant			
IAM administration process is formulated and documented			May 2017	PGCPS + Consultant			
Approach							
Step 1	<ul style="list-style-type: none"> • Develop and document access request & provisioning Lifecycle processes. 						
Step 2	<ul style="list-style-type: none"> • Formulate periodic access certification process and document. 						
Step 3	<ul style="list-style-type: none"> • Define and document IAM administration processes for the following activities: • Support processes (including helpdesk) • SoD rules maintenance process • IAM governance and policy maintenance process 						
Step 4	<ul style="list-style-type: none"> • Review and receive approval from key stakeholders and IAM steering committee 						
Step 5	<ul style="list-style-type: none"> • Plan strategies on communicating and enforcing these processes across PGCPS. 						
Potential Fiscal Implication	The potential fiscal implication of this initiative could be somewhere between high and low, as there is an investment required in terms of time from resources and also to identify a team that will help to run the initiative. However, costs will vary as this can be done in house or can be outsourced.						

Initiative #	12.7	Initiative Name	Role Management Framework		
Description	Develop a consistent RBAC model that outlines the overall boundaries on how to categorize and group access into a role. Information about the users, identities and the application and platform resources to which they have access will form the basis for the RBAC model.				
IAM Domain Focus	<ul style="list-style-type: none"> • Access 	Potential Project Resources	<ul style="list-style-type: none"> • PGCPS IT • PGCPS Application • Manager level • Consultant 	Potential Duration	Feb 17 – Dec 17
				Potential Project Start	Feb 17
Foundational Initiatives		Q1 17	Q2 17	Q3 17	Q4 17
<ul style="list-style-type: none"> • Develop strategy and vision for enterprise role management framework 					
<ul style="list-style-type: none"> • Finalize prioritization matrix and scope 					
<ul style="list-style-type: none"> • Develop role governance framework, management policies and processes 					

• Identify an RBAC toolset and solution for managing roles and entitlements.						
• Conduct pilot role mining and discovery for limited E-Business suite						
• Perform full rollout of business roles across PGCPS						
• Implement and document role maintenance activities						
Key Milestones		Potential Completion Time	Ownership			
Enterprise role management strategy and vision is formulated and documented.		May 2017	PGCPS + RBAC SME			
Application prioritization matrix and scope is prepared.		May 2017	PGCPS + RBAC SME			
Framework and policies for role governance, management and associated processes are prepared and documented.		May 2017	PGCPS + RBAC SME + consultant			
Pilot role mining results are available.		August 2017	PGCPS + consultant			
An extensive list of business roles after full role mining is prepared.		October 2017	PGCPS + consultant			
Role management procedures are implemented and documented.		Q4 2017 and beyond	PGCPS + consultant			
Approach						
Step 1	• Sketch the strategy and vision for enterprise based role management framework.					
Step 2	• Prepare a prioritization matrix and determine the scope taking inputs from all associated departments, applications team and stakeholders.					
Step 3	• Develop and document role governance framework					
Step 4	• Determine policies and processes related to role management as below: • Business role engineering and discovery • Role lifecycle management					
Step 5	• Identify and finalized an RBAC toolset and solution for managing roles and entitlements.					
Step 6	• Define, document and implemented role management policies.					
Step 7	• Perform pilot role mining and discovery limited to E-Business suite					
Step 8	• Analyze the results from pilot rollout and receive approval from key stakeholders and IAM steering committee for full rollout.					
Step 9	• Socialize the upcoming changes across PGCPS.					
Step 10	• Perform full rollout of business roles across PGCPS.					
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high as it involves multiple people/teams to be involved at various levels to define and develop the role management framework.					

Initiative #	12.8	Initiative Name	Access Certification Framework		
Description	The idea behind this initiative is to develop and implement an access certification framework for PGCPS. It shall enable automated access certification process and ensure appropriateness of user access privileges which will eventually lead PGCPS effectively meet requirements and improve its overall risk posture				
IAM Domain Focus	• Access	Potential Project Resources	• PGCPS IT • Manager level • SME	Potential Duration	Feb 17 – Dec 17
				Potential Project Start	Feb 17
Foundational Initiatives	Q1 17		Q2 17	Q3 17	Q4 17
• Define and categorized access certification types					
• Define access review governance					

• Qualified (high, medium and low) categorization and prioritization of assets and applications				
• Optimize communication campaign				
• Define and develop future state access certification processes				
• Design access certification system				
• Implement access certification system				
• Onboarding of applications and full rollout				
Key Milestones	Potential Completion Time		Ownership	
Future state periodic access certification is implemented	Q4 2017		PGCPS + IAM SME + Consultant	
Approach				
Step 1	<ul style="list-style-type: none"> Define and categorized different types of access certifications 			
Step 2	<ul style="list-style-type: none"> Define policies and standards for access review governance 			
Step 3	<ul style="list-style-type: none"> Categorize and prioritize assets and applications as per their importance and usage 			
Step 4	<ul style="list-style-type: none"> Optimize communication campaign Develop access certification campaign objectives Develop access certification communication plan and standard templates 			
Step 5	<ul style="list-style-type: none"> Define and develop future state access certification processes as below: Application intake and onboarding process Access review ownership process User access review Role composition and privileged access review process 			
Step 6	<ul style="list-style-type: none"> Design access certification system considering the following: Business and functional requirements Technical and environment requirements Finalize approach to implement i.e., build v/s buy v/s use hosted or cloud providers 			
Step 7	<ul style="list-style-type: none"> Implement access certification system Seek approvals from IAM steering committee and management Run pilot access certification campaign for limited applications 			
Step 8	<ul style="list-style-type: none"> Onboard applications and perform full rollout 			
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high as it needs involving IAM consultants and other teams to establish the Access Certification Framework over a period of time.			

Initiative #	12.9	Initiative Name	Privileged Access Management			
Description	The purpose of this initiative would be to develop and implement a framework for privileged identity management in order to protect and monitor the privileged accounts throughout the organization.					
IAM Domain Focus	Access	Potential Project Resources	<ul style="list-style-type: none"> PGCPS IT Manager level SME Application Team 	Potential Duration	Apr 17 – Dec 17	
				Potential Project Start	Apr 17	
Foundational Initiatives		Q1 17	Q2 17	Q3 17	Q4 17	
<ul style="list-style-type: none"> Define privileged access management governance model. 						
<ul style="list-style-type: none"> Identify and develop key controls for PAM and non-interactive accounts 						
<ul style="list-style-type: none"> Define PAM standards and policies 						

• Define and categorize privileged identities and non-interactive accounts				
• Conduct initial inventory of privileged identities and non-interactive accounts				
• Develop PAM lifecycle processes				
• Identify and configure technology for PAM and non-interactive accounts.				
Key Milestones	Potential Completion Time			Ownership
Privileged access management implemented	Q4 2017			PGCPS + IAM SME
Approach				
Step 1	Step 1: Create privileged access management (PAM) policies for Application access and Database access.			
Step 2	Step 2: Define privileged access management governance model to ensure that the above policies are enforced.			
Step 3	Step 3: Identify and develop key controls for PAM and non-interactive accounts.			
Step 4	Step 4: Develop PAM lifecycle processes for Application access and Database access.			
Step 5	Step 5: Define and categorize privileged identities and non-interactive accounts.			
Step 6	Step 6: Develop segregations of duties rules for privileged access based on business environment, risk and compliance needs.			
Step 7	Step 7: Conduct initial inventory of privileged identities and non-interactive accounts			
Step 8	Step 8: Identify and configure technology for PAM to be used for privileged identities and non-interactive accounts.			
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high as it needs multiple teams to be involved and work together to define and establish a Privilege Access Management solution.			

Initiative #	12.10	Initiative Name	Implement IAM future state processes					
Description	The purpose of this initiative is to review the developed IAM processes with business and IAM steering committee prior to implementation of processes using people and technology.							
IAM Domain Focus	<ul style="list-style-type: none"> • Governance • Access • Administration 	Potential Project Resources	<ul style="list-style-type: none"> • PGCPS IT • Manager level • SME 	Potential Duration	Jun 17 – Dec 17			
				Potential Project Start	Jun 17			
Foundational Initiatives	Q1 17		Q2 17	Q3 17	Q4 17			
• Identify process owners								
• Receive approval from IAM steering committee, business and IT								
• Run pilot process implementation using people and technology								
• Roll out full implementation of processes								
Key Milestones	Potential Completion Time			Ownership				
Implemented future state IAM processes	2017			PGCPS + Consultant				
Approach								
Step 1	<ul style="list-style-type: none"> • Assign process owners to the developed processes 							
Step 2	<ul style="list-style-type: none"> • Develop process governance for periodic updates, reviews and version control. 							
Step 3	<ul style="list-style-type: none"> • Conduct process walk through meetings with business and IT to receive feedback and update. 							
Step 4	<ul style="list-style-type: none"> • Conduct table top meeting with IAM steering committee to receive approval prior to implementation. 							

Step 5	<ul style="list-style-type: none"> Conduct a pilot initiative to run through some of the IAM processes in development and test environments. 		
Step 6	<ul style="list-style-type: none"> Conduct full roll-out of processes in production environment. 		
Potential Fiscal Implication	The potential fiscal implication of this initiative could be high as it needs multiple stakeholders to work together and implement the future state processes using people and technologies.		

Initiative #	12.11	Initiative Name	Knowledge and Training					
Description	Develop a training program for future state IAM with continuous end user, administration, business and IT trainings. This should be aligned with overall PGCPS's change management and corporate training & learning function.							
IAM Domain Focus	<ul style="list-style-type: none"> Governance, Administration & Intelligence 	Potential Project Resources	<ul style="list-style-type: none"> Manager (1) Additional FTE (2) 	Potential Duration	Aug 17 – Nov -17			
				Potential Project Start	Aug 17			
Foundational Initiatives			Q1 17	Q2 17	Q3 17			
<ul style="list-style-type: none"> Develop knowledge and training program for IAM Conduct IAM process trainings 								
Key Milestones			Potential Completion Time		Ownership			
IAM training program established			November 2017		PGCPS			
Approach								
Step 1	<ul style="list-style-type: none"> Develop training material 							
Step 2	<ul style="list-style-type: none"> Review training material with IAM Steering committee 							
Step 3	<ul style="list-style-type: none"> Conduct analysis to align training material with PGCPS's training and knowledge program. 							
Step 4	<ul style="list-style-type: none"> Conduct training and knowledge workshops with end-user, administrators, support and operations team. 							
Step 5	<ul style="list-style-type: none"> Schedule periodic training (annual or quarterly) frequency with end-user, administrators, support and operations team. 							
Potential Fiscal Implication	The potential fiscal implication of this initiative could be low as in house resources can be used.							

Initiative #	12.12	Initiative Name	IAM Reporting & Intelligence				
Description	Develop an IAM reporting & intelligence program that is not only able to produce and deliver customized IAM reports in an automated way but is also capable of handling any ad-hoc request						
IAM Domain Focus	<ul style="list-style-type: none"> Administration & Intelligence 	Potential Project Resources	<ul style="list-style-type: none"> PGCPS IT Manager level SME Application Team 	Potential Duration	May 17 – Nov 17		
				Potential Project Start	May 17		
Foundational Initiatives			Q1 17	Q2 17	Q3 17		
<ul style="list-style-type: none"> Define IAM reporting and intelligence framework Identify key performance indicators and measures for the processes defined Draft reporting templates for IAM steering committee and management 							

• Identify repository for managing and maintaining report records			 0%			
• Identify business intelligence or analytical tools to help drive automated IAM reporting & intelligence			 0%			
Key Milestones		Potential Completion Time	Ownership			
IAM Reporting and Intelligence framework established		June 2017	PGCPS + IAM SME			
IAM Reporting templates developed		August 2017	PGCPS + consultant			
IAM Reporting and Intelligence program implemented		November 2017	PGCPS + IAM SME			
Approach						
Step 1	Define IAM reporting and intelligence framework for Application and Database (Audit Vault) access.					
Step 2	Identify key performance indicators and measures for the processes defined					
Step 3	Draft reporting templates for IAM steering committee and management					
Step 4	Identify repository for managing and maintaining report records					
Step 5	Identify business intelligence or analytical tools to help drive automated IAM reporting & intelligence					
Step 6	Implement the reporting framework and schedule periodic execution for reports					
Potential Fiscal Implication		The potential fiscal implication of this initiative could be somewhere between high and low, as there is an investment required in terms of time from resources and also to identify a team that will help to run the initiative. However, costs will vary as this can be done in house or can be outsourced.				

13. Disaster Recovery

Section 1: Overview of the Scope of Work:

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of PGCPS' Disaster Recovery (DR) system and procedures. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess one *OLA Report* Corrective Actions/Recommendation, and provide observations on the extent to which the recommendation appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). The recommendation is listed below.

Second, the team was asked to assess, as a result of their observations, how the Department appeared to be utilizing existing practices that reflect current known leading practices.

OLA Report Items

Finding or Recommendation	Description
<i>OLA Report</i> Finding #13 Corrective Action	Work already under way to complete a comprehensive disaster recovery plan

The EY DR Assessment methodology focused on the concepts of keeping the business operating, getting technical infrastructure up and running in the event of a disaster, and managing a disaster event. Our approach utilized documentation assessment, interviews with key Department personnel, and a maturity framework based on Disaster Recovery Institute ("DRII"), Business Continuity Institute ("BCI"), and industry (e.g., ISO 27001 and 22301, ASIS, NIST 800-34) standards. The holistic framework was organized into the areas of governance, business implication analysis, risk assessment, strategy development, plan development, exercising, and maintenance. For more details regarding the DR Assessment methodology, please refer to **Appendix N**.

Section 2: Summary Perspectives:

Based on the results of the assessment, the PGCPS Information Technology Department DR program was assessed as "**Needs Improvement**" in a majority of the key areas in the maturity framework. Below is a summary of each of the maturity framework areas and our observations for the Department.

Current Situation Assessment

Governance

- PGCPS IT mission and objectives (including those related to DR) appear to be established and handled by the IT Governance Committee. The IT Governance Committee consists of the CIO, CFO, CHR, and Budget Director. The IT Governance Committee reportedly decides DR requirements, acceptable levels of risk, and approves new DR initiatives/projects.
- The DR policy (based upon the Maryland DoIT DR Guidelines) appears to supplement the IT Governance Committee in establishing the standards and guidelines for the PGCPS DR Program.
- PGCPS DR policy is approved by the IT Governance Committee and supplements the IT Governance Committee in establishing the standards and guidelines for the PGCPS DR Program.
- DR recovery responsibilities are reportedly based upon existing application/system/infrastructure competencies.

- Application/System/Infrastructure owners are responsible for adhering to the DR policy and objectives determined by the IT Governance Committee. The IT Governance Committee is ultimately accountable for the DR policy and compliance of that policy.

Business Implication Analysis (BIA)

- A formal BIA has not been conducted with the business. However, the IT Governance Steering Committee did decide that ERP system, SIS, and the PGCPS website are the 3 most critical systems within the environment.

Risk Assessment

- Risk assessments are conducted periodically as part of compliance initiatives.

Strategy Development

- Recovery strategies are reportedly based upon guidance and approval from the IT Governance Committee. The costs of implementing the solution and consequences of inaction are considered.
- Recovery strategies appear to consider current IT workforce levels and key third-parties and contractors.
- There are two (2) redundant data centers in place for DR. The sites are geographically diverse (20 miles apart). The secondary site acts as a functioning data center. Therefore, applicable third-parties, contractors and primary workforce (including supplies and logistics) can be accommodated.
- Recovery strategies employed were based upon RTO (recovery time objective), data RPO (recovery point objective), location and distance between sites, alternate site failover capability, and telecom and power redundancy.
- Data backups appear to be secure and redundant between the data center sites.

Plan Development

- PGCPS Incident Responses for Mission Critical applications (ERP System EBS, SIS, and PGCPS Website), network, and infrastructure appear to be defined within IT Incident Management Plan - Disaster Recovery.
- PGCPS Application Recovery, Recovery Procedures, Instance Validation, and Incident Response Plans for Mission Critical applications (ERP System EBS, SIS, and PGCPS Website), network, and infrastructure appear to be documented.
- Per the Incident Management Plan, internal and external communications are handled by Crisis Communications Liaison.
- PGCPS Application Recovery, Recovery Procedures, Instance Validation, and Incident Response Plans for Mission Critical applications (ERP System EBS, SIS, and PGCPS Website), network, and infrastructure appear to have defined RTO's.
- Reconstitution procedures appear to be defined within Application Recovery and Incident Management Plans for Mission Critical applications (ERP System EBS, SIS, and PGCPS Website), network, and infrastructure.

Exercising

- There does not appear to be a formal DR test/exercise plan. However, PGCPS IT does try at least perform a tabletop exercise of the plans annually. Also, plans are tested in real-time. There have been numerous instances where the recovery strategies of their critical systems have been tested during live operations.

- Exercises are primarily tabletop and functional failover between redundant data centers.

Maintenance

- There does not appear to be a formal maintenance or change management process for DR. Change management and maintenance are the responsibility of the individual plan owners and ad hoc compliance assessments are conducted to assess the quality of the DR plans in place.

Key Opportunities for Further Continuous Improvement in Leading Practices

- Key Opportunity 13.1: Develop DR Program metrics and scorecards to measure risks and overall progress of DR program initiatives
- Key Opportunity 13.2: Establish reporting communication and accountability protocols among DR team members (this could be in conjunction with IT Governance Committee initiatives)
- Key Opportunity 13.3: PGCPS needs to conduct a formal BIA for critical business functions
- Key Opportunity 13.4: Leveraging output from the BIA, PGCPS should conduct a thorough dependency analysis
- Key Opportunity 13.5: Leveraging BIA output to define process/application RTOs, RPOs, and Service Level Agreements (SLAs) (both internal and external)
- Key Opportunity 13.6: Conduct annual integrated DR plan exercises/tests in order to ensure that they meet business requirements
- Key Opportunity 13.7: Develop exercise/test processes
- Key Opportunity 13.8: Perform maintenance activities to the DR Program lifecycle (plans and policy) to improve the effectiveness of the DR program

Section 3: OLA and Transition Team Recommendations

OLA Report Items	Summary of Observations	Commentary
Disaster Recovery Plan OLA Report Finding #13: Work already under way to complete a comprehensive disaster recovery plan	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none">• PGCPS IT Incident Response, Application Recovery Procedures, Instance Validation, and Reconstitution Procedures for Mission Critical applications (ERP System EBS, SIS, and PGCPS Website), network, and infrastructure appear to be appropriately defined within the IT Incident Management Plan – Disaster Recovery.• The IT Incident Management Plan – Disaster Recovery has gone through an initial tabletop test and a functional test is scheduled for the summer due to ongoing data center projects.• However, while the recommendation has been met in the sense that work is being done to complete the comprehensive DR plan, there appears to be room for improvement in terms of how the DR plan is being implemented.• See Key Opportunities for Further Continuous Improvement 13.1-13.8 for additional recommendations to mature the DR plans and the DR program.

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 13.1: Develop DR program metrics and scorecards to measure risks and overall progress of DR program initiatives

Background/Rationale

Observed Governance Gap with Leading Practices: Beyond compliance assessments and ad hoc IT Governance Committee meetings, DR status is not regularly reported. Scorecards, KPIs, KRIs (Key Risk Indicator), or basic program metrics do not appear to have been established.

Implementation Strategy

Based upon guidance and approval from business area and IT leadership, develop DR program metrics and scorecards to measure risks and overall progress of DR program initiatives.

Potential Fiscal Implication

There is likely no fiscal implication to develop DR program metrics and scorecards.

Key Opportunity 13.2: Establish reporting communication and accountability protocols among DR team members (this could be in conjunction with IT Governance Committee initiatives)

Background/Rationale

Observed Governance Gap with Leading Practices: Beyond compliance assessments and ad hoc IT Governance Committee meetings, DR status is not regularly reported. Scorecards, KPIs, KRIs, or basic program metrics do not appear to have been established.

Implementation Strategy

- a. Based upon guidance and approval from business area and IT leadership establish reporting, communication, and accountability protocols among DR team members (this includes the core DR team, IT Governance Committee, Leadership, and business area teams).

Potential Fiscal Implication

There is likely no fiscal implication to establish reporting communication and accountability protocols among DR team members.

Key Opportunity 13.3: PGCPS needs to conduct a formal BIA for critical business functions

Background/Rationale

Observed Business Implication Analysis Gap with Leading Practices: Management reports that a formal Business Implication Analysis has not been conducted by the business (or in conjunction with the business by IT DR).

Implementation Strategy

The BIA should validate the following:

- a. Upstream and downstream business processes/applications and data dependencies;

- b. Applications and underline infrastructure technology dependencies;
- c. Suppliers and outsources partners on whom critical processes/applications depend, and determined what BC/DR arrangements are in place for the relevant products and services they provide; and
- d. Resources that each critical business process/application will require for resumption of (1) Key personal; (2) Workspace; (3) Personal tools; and (4) Personal records [paper and electronic].

Potential Fiscal Implication

There is likely no fiscal implication to conduct a formal BIA for critical business functions.

Key Opportunity 13.4: Leveraging output from the BIA, PGCPS should conduct a thorough dependency analysis

Background/Rationale

Observed Business Implication Analysis Gap with Leading Practices: Management reports that a formal Business Implication Analysis has not been conducted by the business (or in conjunction with the business by IT DR).

Implementation Strategy

The Dependency Analysis is defined as the activity of identifying upstream and downstream dependencies required for a business process or an application to function properly. This process is performed in conjunction with the business implication analysis.

There are two types of dependency analysis.

- a. The first is a non-technical analysis (i.e., identifying dependent upstream and downstream business processes and applications.).
- b. The second type of dependency analysis is an application recovery capability assessment which will require input from the Enterprise Infrastructure Managers regarding the technical dependencies of business processes and applications (i.e., Network, Storage, etc...).

Potential Fiscal Implication

There is likely no fiscal implication to conduct a dependency analysis.

Key Opportunity 13.5: Leveraging BIA output to define process/application RTOs, RPOs, and Service Level Agreements (SLAs) (both internal and external)

Background/Rationale

Observed Business Implication Analysis Gap with Leading Practices: Management reports that a formal Business Implication Analysis has not been conducted by the business (or in conjunction with the business by IT DR).

Implementation Strategy

This process is performed in conjunction with the business implication analysis.

- a. Determine the Recovery Time Objective (RTO) for any given capability before revenue, customer satisfaction, the competitive edge, legal issues and other critical areas are severely affected. The RTO represents the maximum amount of time that a business capability can be idle before a serious business implication would result.

- b. Determine the Recovery Point Objectives (RPOs) for critical data. This represents the maximum amount of data loss the business area can absorb and still be able to recreate.
- c. Based upon the RTOs and RPOs established within the BIA, work with business area and IT leadership to validate and develop service level agreements for both internal and external DR dependencies.

Potential Fiscal Implication

There is likely no fiscal implication to define process/application RTOs, RPOs, and Service Level Agreements.

Key Opportunity 13.6: Conduct annual integrated DR plan exercises/tests in order to ensure that they meet business requirements

Background/Rationale

Observed Exercising Gap with Leading Practices: There appears to be no formal DR test/exercise program currently in place and minimal business integration during exercises/tests.

Implementation Strategy

- a. Work with the business to develop the annual exercise charter that will be used to govern exercises within the business area within the upcoming 12 months.
- b. Identify exercise participants and develop exercise evaluation criteria.
- c. Develop exercise evaluation criteria.
- d. Schedule the exercise with all dependent teams and third parties depending on the exercise's scope and type.
- e. Develop the exercise plan and scripts.
- f. Train applicable team members on exercise plan and execute exercise.

Potential Fiscal Implication

There is likely no fiscal implication to conduct annual integrated DR plan exercises/tests.

Key Opportunity 13.7: Develop exercise/test processes

Background/Rationale

Observed Exercising Gap with Leading Practices: There appears to be no formal DR test/exercise program currently in place and minimal business integration during exercises/tests.

Implementation Strategy

The DR exercise/test processes should include the following:

- a. Exercise/test types and procedures;
- b. Pre-exercise/test planning and activities;
- c. Exercise/test activities;
- d. Post exercise/test activities;

- e. Post-exercise/test evaluation and action plan; and
- f. Senior Leadership exercise/test results approval process

Potential Fiscal Implication

There is likely no fiscal implication to develop DR exercise/test processes.

Key Opportunity 13.8: Perform maintenance activities to the DR program lifecycle (plans and policy) to improve the effectiveness of the DR program

Background/Rationale

Observed Maintenance Gap with Leading Practices: There does not appear to be a formal maintenance or change management process currently in place for DR. Change management and maintenance are the responsibility of the individual plan owners.

Implementation Strategy

The DR program maintenance activities should include the following:

- a. Review and challenge any assumptions made to any of the components of DR throughout the organization;
- b. Distribute updated, amended or changed DR policy, strategies, solutions, processes and plans to key personnel under a formal change control process;
- c. Document evidence of the proactive management and governance of the PGCPS DR program;
- d. Verify that key people who are to implement the DR strategy and plans are trained and competent;
- e. Verify the monitoring and control of DR risks faced by PGCPS; and
- f. Document evidence that material changes to the organization's structure, services, activities, purpose, staff and objectives have been incorporated into PGCPS DR plans.

Potential Fiscal Implication

There is likely no fiscal implication to perform maintenance activities to the DR program lifecycle.

14. IT Security and Student Cybersecurity

Section 1: Overview of the Scope of Work:

Student Cybersecurity

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of Student Cybersecurity. The objectives for this portion of the study were defined in the RFP.

The team was asked to assess the safeguards related to student access to inappropriate content in cyberspace. In support of this objective, the team performed an assessment of the policies, processes and technology supporting student access to cyberspace at PGCPS. This assessment was mapped to the requirements set forth by the Children's Internet Protection Act (CIPA). This was accomplished through inquiry with information technology personnel, inspection of relevant policy documentation and a walk-through of the web content filtering tool.

Additionally, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to explain in what ways student cybersecurity could be further improved.

IT Security

The team was also asked to assess the current state of IT security, and PGCPS' current state of information technology functions and the protection of school system data. The team leveraged the EY Cyber Program Management (CPM) methodology to assess PGCPS against 13 agreed-upon information security domains (detailed in **Appendix O-3**). The team evaluated each domain by analyzing PGCPS's current state through inquiry with information technology personnel and inspection of relevant documentation. Our team assigned a maturity assessment to each domain using a maturity framework aligned to best practices.

The team was also asked to address one *OLA Report* Corrective Action and determine the extent to which the Action appeared to have been implemented (and if not, to identify if there was a viable action plan in place). This recommendation is detailed below.

Finally, the team was asked to assess how the Department is utilizing existing practices that reflect current known leading practices, and to explain in what ways student cybersecurity could be further improved

Finding or Recommendation	Description
<i>OLA Report</i> Finding #14 Corrective Action	<ul style="list-style-type: none">• Implement the following additional controls in its current network infrastructure<ul style="list-style-type: none">- Traffic to the publicly accessible servers will be subject to Intrusion Detection/Prevention Systems after decryption by the load balancer- Traffic will be subject to an application layer firewall after decryption but before the traffic hits the publicly accessible servers• Implement a Network Access Control (NAC) solution to all the Students and Staff users, that incorporates role based routing technology. PGCPS will plan to test and roll this out to a pilot population during FY15, and fully implement the solution by the end of FY16

Section 2: Summary Perspectives:

Student Cybersecurity: Current Situation Assessment

As part of the assessment against student access to cyberspace, EY assessed the requirements set forth by the Children's Internet Protection Act (CIPA) and mapped these requirements to safeguards which were observed within the PGCPS environment. EY assessed the overall suite of safeguards to be designed effectively and PGCPS practices to be "*Reflective of Leading Practices*." Refer to **Appendix O2** for the requirements set forth by the Children's Internet Protection Act (CIPA).

Student Cybersecurity: Key Opportunities for Further Continuous Improvement in Leading Practices

The team observed one control mapped to the CIPA requirements which was not designed effectively as policy documentation received did not contain verbiage to support the CIPA requirements. This control relates to the requirement for PGCPS to have an Internet Safety Policy which includes monitoring of online activities for minors. The team did not observe supporting documentation to meet this criteria within the PGCPS Acceptable Use Policy or any other published IT policies. PGCPS should amend the Acceptable Use Policy to include provisions around the monitoring of internet use. Furthermore, additional process improvements are described in this report which could enhance the effective operation of the controls in place around student access to cyberspace. These potential process improvements include the following: Enhancing the change management process by utilizing a formal ticketing tool with a built-in approval workflow process; Implementing segregation of duties into the change management process so that individuals with administrative access to the tool are not the same individuals responsible for approving change requests; Having the HR termination process include the Lightspeed tool to make sure user access is removed timely in the event a system administrator is terminated; Centralizing the collection of daily student usage and monthly system reviews.

IT Security: Current Situation Assessment

The team leveraged EY's Cyber Program Management (CPM) methodology to assess the current state maturity of PGCPS's cyber program. The scope of the assessment included the following 13 domains: Policy and standards framework, awareness, incident response, security monitoring, data protection, network security, third party management, host security, operations, vulnerability identification and remediation, identity and access management, asset management and privacy. Please refer to **Appendix O3** for an overview of the CPM framework and the corresponding domain definitions for the in-scope domains looked at as part of our assessment. Overall, the team observed that the current state of the cyber program at PGCPS is "*Approaching Leading Practices*." There appear to be significant technologies and tools in place supporting some of the key resources, people and processes within PGCPS. Observed tools include but are not limited to: AlienVault, Lightspeed, Absolute Manage MDM, and What's Up Gold. Opportunities do exist to further enhance the program and bring the environment up to leading practice.

IT Security: Key Opportunities for Further Continuous Improvement in Leading Practices

Through fieldwork interviews, the team observed the guardrails in place for all of the 13 domains identified above. For each domain, the team identified leading practices that have been implemented as well as areas which could be further enhanced by continuous improvement as applicable. The following improvement areas are suggested: A formal policy review process should be implemented to require that all IT policies be reviewed and updated annually; strategies and policies surrounding the secure use of mobile, cloud and social media should be put in place and aligned to business objectives; A data classification standard should be established to classify assets and their respective data according to predefined criteria; Formal IT security awareness training should be made mandatory for all PGCPS employees.

Key Opportunities for Continuous Improvement

Through our work with both IT Security and Student Cybersecurity, we identified the following key opportunities, which are further elaborated in Section 4.

- Key Opportunity 14.1: Implement a formal policy review process to update and sign off on all IT policies each year
- Key Opportunity 14.2: Define strategies and policies surrounding the secure use of mobile, cloud and social media
- Key Opportunity 14.3: Develop a data classification standard
- Key Opportunity 14.4: Mandate IT security awareness training for all PGCPS employees
- Key Opportunity 14.5: Amend the Acceptable Use Policy to include provisions around the monitoring of internet use

Section 3: OLA and Transition Team Recommendations

OLA Report Findings	Summary of Observations	Commentary
OLA Report Finding #14 Corrective Action <ul style="list-style-type: none"> • Implement the following additional guardrails in its current network infrastructure <ul style="list-style-type: none"> - Traffic to the publicly accessible servers will be subject to Intrusion Detection/Prevention Systems after decryption by the load balancer - Traffic will be subject to an application layer firewall after decryption but before the traffic hits the publicly accessible servers • Implement a Network Access Control (NAC) solution to all the Students and Staff users, that incorporates role based routing technology. PGCPS will plan to test and roll this out to a pilot population during FY15, and fully implement the solution by the end of FY16 	Observations suggest OLA Report recommendation has been addressed	<ul style="list-style-type: none"> • See above assessment for observed consistency with maturity framework for leading practices • See Key Opportunities 14.1-14.5 for further suggestions for improvement

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Through our assessment of both the IT Security and Student Cybersecurity departments, the team has outlined the following key opportunities for further continuous improvement in leading practices across both areas:

Key Opportunity 14.1: Implement a formal policy review process to update and sign off on all IT policies each year

Background/Rationale

There appears to be an ad hoc policy review process in place at PGCPS with each policy being updated at least every three years. Per review of the IT policies in place, there are policies that exist with time stamps greater than three years (Procurement, installation, use and development of software; Data Warehouse Sensitive Data Security; E-Rate Procedures; Remote Access Procedures; ERP Password Procedures).

Implementation Plan

The policy review process should require that all policies be reviewed and signed off at least once a year and as warranted by the occurrence of significant events or incidents within the environment. Policy updates should be proactively communicated.

Potential Fiscal Implication

There should likely be no potential fiscal implication resulting from this potential opportunity.

Key Opportunity 14.2: Define strategies and policies surrounding the secure use of mobile, cloud and social media

Background/Rationale

Stand-alone IT policies covering the secure use of mobile, cloud and social media do not currently exist at PGCPS. Policies should be put in place and reviewed as part of the formal policy review process.

Implementation Plan

Formal strategies for the secure use of these technologies and their alignment to PGCPS business needs should be defined and communicated.

Potential Fiscal Implication

There should likely be no potential fiscal implication resulting from this potential opportunity.

Key Opportunity 14.3: Develop a data classification standard

Background/Rationale

According to Management, PGCPS does not currently have a data classification standard in place to classify data that exists within the environment according to predefined criteria (i.e., internal, public, sensitive). Data dictionaries exist for each application, but there is no centralized data inventory system in place to track assets and their data contents according to risk level.

Implementation Plan

PGCPS should implement a data classification standard and use this standard to track data that exists in the environment according to risk level. This can be done by first identifying the information which should be protected in the PGCPS environment and then document a standard to outline the requirements for data protection, disclosure, handling and disposal.

Potential Fiscal Implication

Depending on what system or procedure that is used to control classified or sensitive data, there may be a cost associated. It is recommended that a Data Loss Prevention assessment from EY be completed to get a good status on the data at PGCPS.

Key Opportunity 14.4: Mandate IT security awareness training for all PGCPS employees

Background/Rationale

The current PGCPS security awareness program offers an optional security awareness course. Plans are in place to make this course a mandatory requirement for higher-risk business units. Due to the constantly evolving threat landscape and increase in complexity of attacks, end users need to be educated against security leading practices.

Implementation Plan

The security awareness training at PGCPS should be made mandatory for all employees each year and subsidized by the use of internal security communications and real-time exercises.

Potential Fiscal Implication

There should likely be no fiscal implication resulting from this potential opportunity.

Key Opportunity 14.5: Amend the Acceptable Use Policy to include provisions around the monitoring of internet use

Background/Rationale

The Children's Internet Protection Act requires that internet safety policies contain provisions surrounding the monitoring of online activities of minors. To meet the CIPA requirements, PGCPS should amend the Acceptable Use Policy to cover the monitoring of online activities for minors.

Implementation Plan

This policy should communicate the scope of the monitoring program and the scenarios where monitoring may be bypassed or temporarily disabled (CIPA allows web filtering to be bypassed by adult employees).

Potential Fiscal Implication

There should likely be no fiscal implication resulting from this potential opportunity.

15. IT Investment

Section 1: Overview of the Scope of Work

From March through July of 2016, the Continuous Business Process Improvement Study team worked with Prince George's County Public schools to perform an assessment of IT Investment. The objectives for this portion of the study were defined in the RFP.

First, the team was asked to assess several *Transition Team Report* Recommendations, and provide observations on the extent to which the recommendations appeared to have been implemented (and if not, to observe whether there was a potentially viable action plan in place). These recommendations are listed below.

Second, the team was asked to assess, as a result of their observations, how the Department appeared to be utilizing existing practices that reflect current known leading practices.

Transition Team Report Items

Finding or Recommendation	Description
<i>Transition Team Report Operations and Finance Recommendation #6 (OF6)</i>	Review purchasing of major investments in IT projects and equipment, consultants, and approval levels needed to make large purchases
<i>Transition Team Report Operations and Finance Recommendation #8 (OF8)</i>	Institute purchasing card (P-card) to reduce number of purchase orders issued and processed and revise the purchasing manual and procedures to conform to board policies, state laws, etc.; increase training in automated purchasing tools.

The methodology for this assessment consisted of interviews with the PGCPS CIO, CFO, and Purchasing Director. The assessment also involved a document analysis. Further detail on the methodology can be found in Appendix P1.

Section 2: Summary Perspectives

This area has been assessed as "***Approaching Leading Practices***," which equates to an assessment of "3" or above on the EY Maturity Framework for IT Investment. We have divided this assessment into two sections according to the two Transition Team Recommendations.

Current State Observations and Continuous Improvement: Transition Team Recommendation 6

(Note: More details on the "score" can be found in the **[Appendix P2](#)**).

Category	Current State Observations	Score
Strategy	<ul style="list-style-type: none">PGCPS 2016-2020 Strategic Plan includes 18 initiatives. Some of them have IT components – but currently, not all IT projects align directly with the 18 strategic initiativesPGCPS is working on a 5 year comprehensive technology plan to support the Strategic PlanIT investment prioritization criteria for Business projects and Curriculum & Instruction projects is captured in the IT Governance FrameworkSenior leadership receives updates through the Enterprise PMO and directly from the CIOIT is still working to implement a number of process improvement initiativesIT has been using ActPoint KPI (developed by the Council of the Great City Schools (CGCS)) for the last 6 years	2.75

Category	Current State Observations	Score
Governance	<ul style="list-style-type: none"> On January 23rd, 2013, the first version of the IT Governance Framework (the Framework) was drafted and disseminated The Framework has not been updated since 2013 after the initial feedback and has not been reviewed in the last 12 months The Framework clearly spells out its purpose, levels of authority, governance process, roles and responsibilities, and funding process IT Governance Committee Position Control weekly meeting includes the CFO, the CIO, Chief of HR, Budget Director, Technology Applications Director, Purchasing Director and additional solution-driven staff Not all divisions are currently aware and/or following the governance process for IT investments Not all purchasing requirements are submitted in a timely manner (minimum 1 year prior to execution/implementation) Not all purchasing requirements are submitted with the required documentation for justification and/or prioritization (i.e., Project One-Page Summary, Business Case Template) Due to turnover of leadership, the new hires are not always aware of the governance process; the current process of governance communication for new hires is limited to the CIO inviting new executives to the weekly IT Cabinet meeting to introduce them to the IT management team and share information with them at that time 	3.5
Organization and Capabilities	<ul style="list-style-type: none"> Changes in IT (e.g., information security, student data privacy, etc.) are driving the realignment of resources to address these challenges Currently there is a need for additional resources – some positions remain unfilled for up to 9 months Compensation packages are not always comparable to those in the private sector making it challenging to attract the right talent Current job postings are limited to more traditional channels (e.g., PGCPS website) 	3.5
Data & Tools	<ul style="list-style-type: none"> Weekly meetings occur for managers to report on the status of the IT projects Each manager selects their own tool to monitor their projects The CIO has access to each manager's individual report Weekly updates from IT are provided to the COO by cutting and pasting the information from the individual reports Google Docs are used for the meeting agenda and notes capture; the department is starting to roll out these templates across all divisions and offices The CIO attends monthly meetings with the Enterprise PMO 	3

Current State Observations and Continuous Improvement: Transition Team Recommendation 8

PGCPS was directed to institute a purchasing card (P-card) to reduce the number of purchase orders issued and processed and revise the purchasing manual and procedures to conform to board policies, state laws, etc. and to increase training in automated purchasing tools.

The team conducted a performance assessment of PGCPS' progress regarding Recommendation 8 by gathering relevant information (e.g., PGCPS utilizes a status report to track progress against the Transition Team Recommendations) and conducting interviews with the PGCPS stakeholders.

The assessment was conducted in March 2016. According to interviews done at that time with the Director of Purchasing, purchasing was still being done in the traditional ways through requisitions and purchase orders (POs). The P-card has not been implemented yet and was scheduled for the rollout with a small pilot in April 2016 in the areas of HR, Maintenance and a few others. PGCPS plans to roll out the P-card to the remaining areas in July 2016. The P-card will be used for high volume/low dollar purchases. They are also working on a Proof of Concept (PoC) for the Vendor Catalog.

As of March 2016, the manual for the P-card was being finalized. PGCPS is planning to apply the same hierarchy of approval for the P-card process as the one that currently exists in the Purchasing Guidelines (last updated January 5, 2015). The difference with the P-card implementation will be the ability to review and approve purchasing on the front end versus the back end, which will allow for greater control and prevention of any attempted fraud.

PGCPS Management anticipates the following potential benefits from the P-card implementation:

- Freeing up of resources to focus on more strategic initiatives versus transactional purchasing
- Allowing for more autonomy for the schools
- Streamlining the procurement process
- Reducing the amount of paper
- Creating an automated trail of purchasing, improving reporting capabilities
- Creating an ability to look at the spend from a strategic lens
- Creating efficiencies which will result in tangible monetary savings

Section 3: OLA and Transition Team Recommendations

Transition Team Report Items	Summary of Observations	Commentary
Transition Team Report # 6: Review purchasing of major investments in IT projects and equipment, consultants, and approval levels needed to make large purchases.	<ul style="list-style-type: none"> • Observations suggest Progress made against Transition Team Report • Further progress possible to fully address Transition Team Report 	<ul style="list-style-type: none"> • See above assessment for consistency with maturity framework • Please refer to Key Opportunities 15.1-15.4
Transition Team Report Operations and Finance Recommendation #8– Institute purchasing card (p-card) to reduce number of purchase orders issued and processed and revise the purchasing manual and procedures to conform to board policies, state laws, etc.; increase training in automated purchasing tools.	<ul style="list-style-type: none"> • Due to the fact that the P-card was not yet implemented during the time of EY's assessment, we could not conduct an analysis of its effectiveness (N/A) 	<ul style="list-style-type: none"> • PGCPS has not yet implemented the P-Card, but as of March 2016, the manual for the P-card was being finalized

Section 4: Key Opportunities for Further Continuous Improvement in Leading Practices

Key Opportunity 15.1: Develop a standardized and comprehensive IT investment portfolio selection that directly aligns to strategy and delivers the most value

Background/Rationale

Although PGCPS has a strategic plan with IT components, based on our observations, not all IT projects directly align with strategic initiatives.

Implementation Plan

PGCPS should work with stakeholders and, based on the strategic plan, put together a comprehensive investment portfolio. Another important step is to develop internal metrics to track benefits (e.g., ROI) for the investment projects and their linkage to mission goals and strategies. This will allow PGCPS to ensure that the portfolio is delivering the most value. PGCPS should also develop a continuous improvement framework that measures IT investments for value of the integration with the overall mission and IT.

Potential Fiscal Implication

There should likely be no fiscal implication associated with developing a standardized and comprehensive portfolio, although PGCPS may realize potential cost savings from selecting projects that deliver the most value.

Key Opportunity 15.2: Regularly review and utilize the IT Governance Framework

Background/Rationale

The IT Governance Framework was drafted and disseminated in January 2013, but has not been updated since, and has not been reviewed in the last 12 months according to Management.

Implementation Plan

PGCPS should establish regular review of the IT Governance Framework with key stakeholders, and update the IT Governance Framework every 12 months. Additionally, PGCPS should establish a robust communication practice for any changes to the IT Governance Framework, and any necessary training for submitting timely documentation for IT investment requirements.

To make the Framework fully effective, PGCPS can also develop an onboarding packet that clearly spells out the guidelines from the Framework for new hires. One such guideline is the timely submission of the investment requirements (which PGCPS should inforce). This guideline helps to prioritize projects and sequence projects for effective execution (Key Opportunity 15.1). Finally, PGCPS should also appoint project managers for high visibility projects and investments of \$150K or more.

Potential Fiscal Implication

There should likely be no fiscal implication associated with regularly reviewing and utilizing the IT Governance Framework.

Key Opportunity 15.3: Work closely with HR to develop necessary justification for resource funding, and ensure sourcing of the right capabilities

Background/Rationale

There is a need for additional resources in the department. Some positions have remained unfilled for up to 9 months. This is potentially due to the fact that compensation packages are not always comparable to those in the private sector and because current job postings are limited to more traditional channels.

Implementation Plan

The department should work closely with HR, with the hope of developing an appropriate justification to better fund positions. This could help to source candidates with the skills needed for these roles. Additionally, the department can expand recruiting efforts beyond traditional channels (e.g., social media and online platforms).

Potential Fiscal Implication

There should likely be no fiscal implication associated with expanding recruiting efforts beyond traditional channels. There may be a potential fiscal implication from devoting more resources to positions (depending on what PGCPS decides to devote).

Key Opportunity 15.4: Develop and utilize one template for reporting on the status of IT projects

Background/Rationale

Each manager currently selects their own tool to monitor just their projects, and the CIO has access to each manager's report individually. Summary reports are created by copying and pasting these individual reports.

Implementation Plan

PGCPS should develop an integrated Master Schedule for the IT portfolio that enables greater visibility into projects lifecycle and inter-dependencies, and also develop an executive level dashboard for status reporting to the COO and the Enterprise PMO (Project Management Office).

Potential Fiscal Implication

There should likely be no fiscal implication associated with developing and utilizing a single template.

Key Opportunity 15.5: Ensure effective roll-out of P-card

Background/Rationale

The P-card has not yet been implemented, so EY could not conduct an analysis of its effectiveness. The P-card is scheduled for roll-out during the summer of 2016.

Implementation Plan

PGCPS should keep the following in mind when rolling out the P-card:

- Ensure the implementation of the P-card occurs on time with the projected completion date of July 2016
- Refine the P-card Manual to incorporate any changes from the pilot
- Update the Purchasing Guidelines and the IT Governance Framework to reflect the new process, procedures and roles & responsibilities

- Provide necessary training to the personnel for the P-card usage
- Include the updated guidelines into the onboarding packet
- Conduct an analysis of the P-card's effectiveness by the end of 2016
- Develop KPIs to measure the program's progress (e.g., purchasing volume before and after implementation; length of time for fulfillment, etc.)

Potential Fiscal Implication

There should likely be no fiscal implication associated with implementing the P-card, though it could lead to some potential cost efficiencies and better tracking of spending. We anticipate that there may be potential net cost savings from this initiative.