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Evaluation Summary

The purpose of the Technology Services department is to support and facilitate all SSD efforts to promote student learning and operate effectively. Since technology has become an integral part of instruction, data management, decision making and communication, Technology Services touches all SSD functions in some way. The Technology Services department plans, develops, implements and supports a wide variety of technology solutions throughout SSD in order to support student learning.

This report reviews performance data pertaining to: Staff and student perceptions of the adequacy of technology resources and supports; customer satisfaction with technology services; timeliness of technology support; project management; cybersecurity; and internet bandwidth sufficiency.

Major Conclusions

- Technology has implemented a number of improvements including a new project/work management system and expanded security protocols. New systems allow for more precise and meaningful performance tracking.
- Staff located in SSD schools largely agreed (around 85% or higher agreement) that computer resources, technology training, and access to technology supports are sufficient. Staff who work in partner district buildings expressed lesser agreement that technology resources, training, and supports are sufficient. While the technology department can respond directly to the technology needs of staff who work in District buildings, its purview over technology elements that impact staff and students in partner districts is considerably narrower. Technology services will continue to collaborate with partner districts’ technology departments to address issues with accessing computer resources.
- Agreement that technology training is adequate is lowest among paraprofessionals working in partner districts, and has declined among paraprofessionals in SSD schools. These trends may reflect recent adoptions of new technology and increasing demands for effective use of technology among staff in the paraprofessional role.
- Over 90% of students at SSD schools reported that their teacher(s) use technology for classroom instruction and that having access to technology helps their learning.
- A high percentage of staff (over 90% each of the last three years) have rated supports received by the technology department positively.
- Resolution of technology support requests has occurred within target timelines since a new tracking system was implemented in April 2017. Prior to this in 2016-17, however, average response time for technology services requests fell well outside the expected time frame.
- Security protocols in place appear largely effective. No known security incidents occurred in 2016-17. Two incidents occurred in 2015-16, in response to which data security measures were increased.
- Over 3 years, the SEIMS department has completed most IEP system updates and changes within the target time frame of 90 days. The proportion of the small number of required changes (14) completed within 90 days in 2016-17 was only 7%, however.
- The technology department continues to refine its capacity to effectively manage and complete projects, as well as more precisely estimate the man hours and resources required for various project types.
- Internet resources appear sufficient based on analysis of bandwidth and usage data, and upgrades to internet connectivity have been made in response to increasing demands. However, less than 80% of teachers expressed agreement that the reliability and speed of the network are sufficient for instructional use (though agreement increased in 2017).
**Program Description**

**Purpose or Mandate**

The purpose of the Technology Services department is to support and facilitate all SSD efforts to promote student learning and operate effectively. Since technology has become an integral part of instruction, data management, decision making and communication, Technology Services touches all SSD functions in some way. Ideally, Technology Services provides transparent services to the end user to enable them to perform their work tasks as efficiently as possible.

Technology Services supports the following CSIP goals and Process Classification Framework (PCF) elements:

- **CSIP Strategy 1.11** Further develop and implement systems to share student data with partner districts to support instructional and operational decision-making.
- **CSIP Strategy 2.7** Enhance knowledge management to support instruction and operations.
- **CSIP Strategy 2.8** Improve the efficiency and effectiveness of critical work processes.
- **CSIP Strategy 2.9** Align and integrate district systems to effectively leverage all district resources to support student performance.
- **CSIP Strategy 3.1** Enhance voice of customer processes for all key stakeholder groups.
- **PCF 7.0** Manage Information Technology

A biennial evaluation of this program is required under Board Policy IM. The previous evaluation report was approved by the Board on June 9th, 2015.

**What this program does**

The Technology Services department plans, develops, implements and supports a wide variety of technology solutions throughout SSD in order to support student learning. The department provides network connectivity in the SSD schools and central office and filters internet traffic for appropriate content as mandated by federal CIPA guidelines. The department also maintains server infrastructure to support SSD databases, e-mail, and data storage requirements. One of the most important databases the department supports is the Exceed database for special education which stores student-level IEP data and facilitates compliance with state and federal guidelines. Technology services provides technical support to users throughout SSD using a tiered model of problem solving.

**How this program works**

The Technology Services department provides services that can be grouped into three main categories:

1. Develop and maintain the infrastructure of networks and servers to provide access to data for instructional and operational functions of SSD. This service includes managing access to the internet, protection from antivirus and hacking attacks, as well providing e-mail services.
2. Develop, improve and maintain databases such as Exceed and Lawson to collect, store and report instructional and operational data. Integration of data from multiple sources is included in this service.
3. Develop and maintain a systematic process for technical support.

Internally the department gathers data on district needs and resources in order to develop a prioritized list of projects that maximizes impact on SSD processes in a cost-efficient manner.

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1 The Children's Internet Protection Act (CIPA) requires that K-12 schools and libraries in the United States use internet filters and implement other measures to protect children from harmful online content as a condition for federal funding.
What customers/stakeholders expect

- Reliable network access
- Safe and flexible internet filtering
- Functioning databases
- Efficient technology support and problem solving

The Technology Services department is expected to design and establish a technology infrastructure that provides reliable network access to required data and to the internet. The department is also expected to collaborate with key stakeholders to design and implement data collection, storage and reporting to support district instructional and operational functions. Finally, the department is expected to resolve technical problems in a timely manner.

What were the major accomplishments or benefits of this program?

Technology Services has implemented improvements to project management, customer support, and cybersecurity over the past two years.

The Technology Services Service Desk ensures continued access to technology for all district staff. Through process improvement, department staff have strived to reduce cycle time for resolution of issues while increasing the number of closed tickets. The department has implemented an improved Service Desk system and process using the Atlassian JIRA software package. This new service desk process is more streamlined than the previous system. It integrates with the project management system and software development tracking systems, providing a more comprehensive system to better track all processes for providing and supporting technology solutions for district staff and students.

Additional safeguards have been put into place to ensure the security and cybersecurity of sensitive and privileged electronic and physical data. Technology Services has improved existing security controls and adjusted security policies to better address growing security threats. A Security Incident Event Management system has been implemented that includes a bi-weekly review of potential security issues with an external Security Operations Center who are trained on emerging security threats and best practices for risk remediation. A process for monitoring security controls and documenting any security-related issues has been developed to better address security issues and tune our security controls to prevent future security incidents.

Technology Services has upgraded wireless and network infrastructure in North Technical High School, Northview High School, and Ackerman, adding more wireless coverage and increasing network capacity using E-rate funding. The connection from North Technical High School and Central Office providing internet connectivity was upgraded from 100 Mbps to 250 Mbps to support the 1:1 initiative at North Technical High School. The internet connection for SSD schools located at Central Office was upgraded from 400 Mbps to 750 Mbps.

How well did this program fulfill its purpose or mandate?

☐ Inadequate ☐ Approaching Satisfactory ☒ Satisfactory ☐ Excellent

What factors made essential contributions (+/-) to this rating?

Technology Services has made improvements to its processes over the past two years. Technology Services continues to evaluate the need for and make adjustments necessary to provide support and solutions to all district staff and students.

What is the general level of customer or stakeholder satisfaction with this program?

☐ Not at all Satisfied ☐ Somewhat Satisfied ☒ Satisfied ☐ Completely Satisfied

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2 The E-rate program makes telecommunications and information services more affordable for schools and libraries in America. E-rate provides discounted telecommunications, internet access, and internal connections to eligible schools and libraries, funded by the Universal Service Fund. See [http://www.universalservice.org/sl/](http://www.universalservice.org/sl/).
What factors made essential contributions (+/-) to this rating?

A high percentage of staff (over 90% each of the last three years) have rated supports received by the technology department positively. A high proportion of staff working at SSD schools and buildings expressed positive impressions related to technology via the District Climate Survey (see results below).
Evaluation Results

What is the status of the program’s progress toward achieving its goals?

Goal 1: Technology will enhance instruction and support student success.

Measurable Objective 1.1: The availability and functionality of technology resources meets stakeholder needs.

1.1 Measures:
Teacher climate survey item, “Teachers have sufficient computer resources available for instructional use.”
Teacher climate survey item, “Students have sufficient computer resources available for learning.”
Student climate survey item, “My teacher(s) use technology for classroom instruction.”

Results: Achievement of Objective 1.1 was assessed via the annual District-wide Climate Survey. Relatively ambitious performance targets of 90% agreement have been set for all technology survey items. Results are displayed in the adjacent charts.

Teacher results failed to achieve the 90% targets, though agreement among teachers at SSD schools is approaching 90%. Agreement among SSD teachers located in partner districts that sufficient computer resources are available and students have sufficient computer resources has fallen well below the target in each of the previous two school years.

The 90% target for students attending SSD schools was met each of the last two years, with over 90% of students expressing agreement that their teacher(s) use technology for classroom instruction.

3 Climate Survey response choices for these items are Strongly Agree, Agree, Disagree, and Strongly Disagree. Survey groups include SSD school teachers, partner district teachers, SSD school paraprofessionals, partner district paraprofessionals, and support staff. Certain technology-related items appear on the teacher versions of the survey only. Several technology-specific questions were added to the survey in the 2015-16 school year.
Measurable Objective 1.2: Technology resources demonstrate a positive impact on instruction and student learning.

1.2 Measure: Student climate survey item, “Having access to technology helps my learning.”

**Results:** The 90% target for this objective was met. Over 90% of students expressed agreement that having access to technology helps their learning in each of the last two school years.

Measurable Objective 1.3: Staff are proficient in the use of technology and receive adequate professional development in technology applications.

1.3 Measure: Climate survey item, “I have received adequate technology training and resources to do my job.”

**Results:** This question is posed to all employee groups that complete the Climate Survey. Results over 3 years are available, and displayed in the chart below. No employee group reached 90% agreement with this survey item, though the rate of agreement for teachers at SSD schools approached 90% in 2017 and increased over 2016. Agreement among partner district teachers fell at 79.5% in 2017 and has increased marginally each of the last two years. Agreement among support staff groups has increased over 3 years as well. In comparison to other employee groups, paraprofessionals working in partner districts have consistently expressed the lowest rates of agreement with this survey item. Agreement among paraprofessionals working at SSD schools has dropped from 86.4% in 2015 to 79.2% in 2017, potentially representing a trend that should be studied further.
Measureable Objective 1.4: Technology supports meet stakeholder needs.

1.4a Measure: Teacher climate survey item, “Teachers have ready access to technical support.”

Results: Results are pictured at right. Among teachers at SSD schools, the rate of agreement in 2017 both exceeded 90% and increased from the prior year. Agreement among teachers in partner districts failed to meet the 90% target but was still quite high at 86.4% in 2017.

1.4b Measure: Technology support satisfaction survey (5-point satisfaction scale)

Results: Following resolution of a Technology Services support request, customers are asked to assess their satisfaction with the support provided on a scale of 1 to 5. The invitation to complete this brief satisfaction rating is sent to customers via email. A screenshot of the survey appears below.

A new system for Technology Services support requests and tracking (coordinated through the JIRA software system) was implemented in April 2017 following a year-long improvement cycle. The new system has resulted in a higher rate of response from customers. This is due to improvements in both service logging/tracking and customer feedback solicitation that the new system allows.

The target for this performance measure is 90% of respondents rating the technology support services provided as either a “4” or “5” on the satisfaction survey. This target was met in 2016 and 2017, and is on track to be met in 2018. Results are pictured in the chart below. Note that the 2015-16 result is based on a small number of survey responses due to data loss that occurred during an archiving process. 2016-17 results represent responses collected via both the previous and the current work-tracking systems.

Technology Support Satisfaction Survey
% of "4" or "5" responses on 5-point scale

Note. *2015-16 rate is based on only 73 responses; most data was lost during an archiving process. 2016-7 and 2017-18 rates are based on 3,057 and 2,192 responses, respectively. **The system used to collect this data changed in April of 2017.
Goal 2: Technology services will facilitate operational efficiency and effectiveness.

Measurable Objective 2.1: Technology support requests will be resolved in a timely manner.

2.1 Measure: Average time to close service desk tickets.

Results: As discussed above, a new electronic system used to manage the work of technology services was implemented in April of 2017. This new system (JIRA) tracks time to resolution of service requests differently that the old system (KACE). Whereas JIRA calculates timespans in hours and bases the calculation on regular work hours only, KACE tracked resolution in days and did not exclude non-work time (e.g., weekends, holidays) from its calculation. Thus the new system tracks work time more precisely. Unique performance targets for results from each system were established due to the measurement differences. An additional change initiated with the new system involves the categorization of work requests. Under the previous system, service tickets were differentiated by those pertaining to (1) the Exceed IEP database, and (2) technology service requests related to other issues. Work is categorized in the new system as either an “incident” (i.e., a functionality issue or repair) response or a service request (generally a new software or hardware request). The expectation is that incidents be resolved in 30 work hours or less and service requests be resolved in 50 work hours or less. A broader range of support request types are tracked under the new system.

Results, differentiated for the former and current systems, appear in the charts at right. Note that 2015-16 results from the previous system are unavailable due to the data loss described under Objective 1.4. Based on results from the previous work management system, average resolution time targets for the Exceed system were met each year. The technology services average request resolution time in 2016-17 fell well beyond the 3-day target.

Under the new JIRA system, average resolution time for both incidents and service requests has met the respective targets in 2016-17 and 2017-18 (through 10/4/17). Service request timelines have fallen well below the target. Time to resolution for each category has increased this school year, though this trend might be expected given that a large proportion of total annual requests are submitted near the beginning of the school year.

Measurable Objective 2.2: Cybersecurity measures will be implemented that prevent/minimize incidents that would compromise district data, corrupt software systems, or interrupt work processes.

2.2 Measure: Number of security incidents (also report number of incidents prevented/avoided).

Results: Data security includes three components: (1) data availability (i.e., staff have access to data required), (2) data confidentiality, and (3) data integrity (i.e., accuracy). SSD’s cybersecurity measures are designed to address each of these components. A security “incident” is defined as there being an insufficient security protocol in place to prevent a failing in any of these three areas. A new security event management system was implemented in July of 2016. Prior to this there was no proactive method of identifying nefarious events.
The performance target for measure 2.2 is zero incidents. There were no known security incidents in fiscal year 2017. There were three known potential incidents that were averted by security controls put in place.4

Two known incidents were identified in fiscal year 2016, while none were formally documented as being averted/prevented. Security incidents included: (1) unauthorized individuals gaining access to the employee self-service site in August of 2015, and (2) a ransomware incident resulting in data loss that impacted a limited number of employees.

Measurable Objective 2.3: SEIMS5 will rapidly initiate and complete required IEP form and process changes.

2.3a Measure: Proportion of SEIMS projects for which cycle time projections (based on estimated man hours) fall within the expected range of accuracy.

Results: The rationale for this measure relates an ongoing effort to evaluate the extent to which SEIMS staff are able to accurately estimate work requirements, with the ultimate goal of building capacity to project timelines and better allocate resources.

The target established for this measure is 80% of projects being completed within the expected range of accuracy (which itself is +/- 10% of projected cycle time based on estimated man hours). Of the six projects completed during the 2015-16 and 2016-17 school years, none fell within +/- 10% accuracy, and thus the target was not met. Actual completion time exceeded projections in all cases; on average, cycle time exceeded estimates by 87% (53% excluding the most inaccurate projection). All six projects were, however, completed and released by the assigned due date, fully tested and supported. In addition, the accuracy of cycle estimations has improved considerably in comparison to the accuracy of the single estimate reported upon in the previous Technology Services evaluation report (363% of projected cycle time in that case).

Assessing the accuracy of cycle time projections has led to learning that will inform future improvements:

- Several of the projects completed entailed development work that was novel for SSD technology staff and as such challenging to estimate. Future estimates for similar work should be more precise.
- Form revisions required for several Exceed projects took longer than anticipated.
- Project work includes a number of distinct phases: Design, development, testing, support, and implementation. In formulating estimates, staff initially placed greater focus on the development facet. Estimating time required for testing and support has been challenging and variances associated with these phases has contributed disproportionately to imprecision in cycle time estimates.
- New staff members in the department are gradually learning how to accurately project work time.
- Estimating and tracking time at a very granular level (i.e., sub-task by sub-task) as prescribed by the new JIRA system may be overly cumbersome for technology staff. Thus moving forward the department is reexamining how projects are planned and estimated.

Ultimately, once cycle time estimates consistently meet an expected standard of accuracy, the extent to which projects are completed within the estimated timeline will serve as a more optimal metric for Objective 2.3.

4 Note that there are literally 1000s of attempts daily by external parties to log onto SSD systems. Those reported here as averted represent attempts at access for which it can be proven that an SSD security protocol prevented.

5 The Special Education Information Management and Support (SEIMS) Group is a division of the Technology Services Department focused on the Exceed IEP and Exceed Student Integration (ESI) applications.
2.3b Measure: Calendar days between DESE/SSD requested change or feedback provided from file reviews and SEIMS completion of work required for release of change

Results: SEIMS staff aim to complete necessary modifications to the Exceed system within 90 days. As such, the target for measure 2.3b is 90% of required changes completed within 90 days. Generally SSD issues 3-4 releases of changes per year (each release typically includes multiple changes). Critical releases are often assigned an accelerated timeline for completion.

Results are displayed in the table below. The 90% goal has been met so far through September of 2017-18 but was not met the two prior school years. The small number of requested changes in 2016-17 was due to DESE issuing no back-to-school release of updates to their model forms (typically, DESE releases updates to model special education forms in July and August). The changes not completed within 90 days pertain to a single, SSD-initiated IEP form revision request. The changes were ultimately completed in 121 days and released in December.

<table>
<thead>
<tr>
<th>School Year</th>
<th>Requested Changes</th>
<th>Completed Within 90 Days</th>
<th>Completion Percentage</th>
<th>Goal Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>67</td>
<td>60</td>
<td>90%</td>
<td>Yes</td>
</tr>
<tr>
<td>2016-17</td>
<td>14</td>
<td>1</td>
<td>7%</td>
<td>No</td>
</tr>
<tr>
<td>2015-16</td>
<td>73</td>
<td>54</td>
<td>74%</td>
<td>No</td>
</tr>
</tbody>
</table>

Measurable Objective 2.4: Technology services will provide adequate network access to meet stakeholders’ needs.

2.4a Measure: Internet bandwidth utilization percentage by connection.

Results: The target for this measure - average bandwidth utilization falling below 70% - was met. Results appear in the table below. The results reported represent performance from October 2016 through September 2017. SSD’s internet connection located at Central Office maintains an average utilization during hours of operation (6 am to 6 pm) of 51.9% for inbound internet traffic and 15.6% for outbound traffic. Connections between central office and SSD school buildings also maintain an average utilization below 70%. There are peak periods during the day which exceed 70% for short periods of time; however, there are no extended periods above 70% during normal operating hours. Since 2015, we have doubled the speed of our internet connection, increasing the speed each year to accommodate more online resources used by the district.

<table>
<thead>
<tr>
<th>Building</th>
<th>Circuit Size</th>
<th>Avg. inbound utilization rate</th>
<th>Avg. outbound utilization rate</th>
<th>Note: Southview contains the district disaster recovery site; more frequent peaks occur when data is being transferred from the CO data center to the disaster recovery data center. Internet traffic is given priority on the network over the disaster recover data transfers. Technology Services is currently evaluating moving the disaster recovery site. North Tech has a faster connection to CO than other sites; the average utilization is much lower than other sites due to this increased speed. The speed was increased to accommodate the 1:1 initiative launched at North Tech this school year. We anticipate the network utilization to increase as the 1:1 initiative expands.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSD Central Office</td>
<td>750 Meg</td>
<td>52%</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Ackerman</td>
<td>100 Meg</td>
<td>5%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Central Garage</td>
<td>20 Meg</td>
<td>2%</td>
<td>0.5%</td>
<td></td>
</tr>
<tr>
<td>Juvenile Detention Center</td>
<td>50 Meg</td>
<td>2%</td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>SSD Learning Center</td>
<td>100 Meg</td>
<td>2%</td>
<td>0.6%</td>
<td></td>
</tr>
<tr>
<td>Litzsinger</td>
<td>100 Meg</td>
<td>5%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td>Northview</td>
<td>100 Meg</td>
<td>5%</td>
<td>0.5%</td>
<td></td>
</tr>
<tr>
<td>North Tech</td>
<td>250 Meg</td>
<td>3%</td>
<td>0.4%</td>
<td></td>
</tr>
<tr>
<td>South Tech</td>
<td>100 Meg</td>
<td>5%</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>Southview</td>
<td>100 Meg</td>
<td>40%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>SSD Warehouse</td>
<td>20 Meg</td>
<td>3%</td>
<td>0.5%</td>
<td></td>
</tr>
</tbody>
</table>
2.4b **Measure:** Teacher climate survey items, “Reliability and speed of the network are sufficient for instructional use, such as web video or progress monitoring.”

**Results:** Agreement among teachers that the reliability and speed of the network are sufficient failed to meet the 90% agreement target and fell below 80% in 2017. This was true for both teachers assigned to SSD schools and teachers assigned to partner district schools. However, rates of agreement increased in 2017, suggesting that satisfaction with network speed and reliability may be improving.
Evaluation Results Summary

Strengths and opportunities for improvement

Strengths:

1. Around 85% of teachers in SSD schools expressed agreement that sufficient computer resources are available and students have sufficient computer resources.

2. Over 90% of students at SSD schools reported that their teacher(s) use technology for classroom instruction and that having access to technology helps their learning.

3. Though the 90% target was not met, most (87.6%) teachers at SSD schools reported receiving adequate technology training and resources. Over 80% of support staff expressed agreement with this item in 2017 as well.

4. In 2017, most teachers (93.9% in SSD schools and 86.4% in partner district assignments) reported having ready access to technical support.

5. Over 90% of recipients of technology support rated their satisfaction with the support provided as either a 4 or 5 on a 5-point scale in each of the last three years.

6. Average time to resolution for both incidents and service requests has met performance targets since a new and more precise work management system was implemented in April of 2017. Technology services requests failed to meet resolution timeline targets in 2016-17 under the previous system, however.

7. No known security incidents occurred over the course of the 2016-17 school year. Three potential incidents were known to have been prevented.

8. To date in 2017-18, 90% of requested Exceed system changes have been completed within 90 days.

9. Internet connectivity is monitored and connections have been upgraded to accommodate increasing demands for internet content. Technology Services has been able to upgrade and increase performance of internet connections using E-rate funding each year. Technology Services is in the third year of a 5-year plan to upgrade wireless and network infrastructure in each of our school buildings.

Opportunities/Weaknesses:

1. Only around 70% of SSD teachers in partner districts expressed agreement that sufficient computer resources are available and students have sufficient computer resources. Rates of agreement with these climate survey items did increase from 2016 to 2017, however.

2. Only 74% of paraprofessionals working in partner districts reported receiving adequate technology training and resources to do their job in 2017. In addition, the extent to which paraprofessionals in SSD schools reported receiving adequate technology training has decreased in each of the previous two years. These trends may reflect recent adoptions of new technology and increasing demands for effective use of technology among staff in the paraprofessional role.

3. In each of the previous two years, less than 80% of teachers expressed agreement that reliability and speed of the network are sufficient for instructional use. However, rates of agreement with this survey item increased around 3 percentage points in 2017 for teachers in both SSD school assignments and partner district assignments.

4. SEIMS staff failed to estimate project cycle times within the desired range of accuracy. However, all projects tracked were completed by the assigned due date, and learning that occurred as a result of cycle time tracking will inform future work planning and projections.

5. Only 1 of 14 (7%) requested/necessary Exceed modifications were completed within the 90-day target range in 2016-17.
6. While the internet connections between sites are operating under the 70% average utilization target (meeting the target set for Measure 2.4a), connectivity within the buildings can limit the performance of the network. Technology Services is in the process of expanding internal connectivity with the addition of wireless access points, new network equipment and faster connections with the buildings. The addition of greater network access within the buildings may require upgrades to the connections between buildings.

How well aligned are the program’s processes with the goals of the program?

The program’s processes are well aligned to the goals of the program.

Deployment Level of Program Services

☐ Little or no deployment of program services.
☐ The program services are in the early stages of deployment in most areas or schools.
☐ Services are deployed, although some areas or schools are in early stages of deployment.
☒ Services are well deployed, although deployment may vary in some areas or schools.
☐ Services are well deployed, with no significant gaps.
☐ Services are fully deployed without significant weaknesses or gaps in any areas or schools.

Should resources be changed to improve this program? ☒ Yes ☐ No
If Yes, describe changes.

Additional resources will be added to address opportunities for improvement. These changes will be requested in the FY 2019 Technology Services budget.

Should goals be changed, added or removed? ☐ Yes ☒ No
If Yes, describe changes.

Goals will remain the same for the program; however, more specific measures will be added to the next evaluation cycle to address opportunities for improvement.
Evaluation Implications

What are the costs of this program?

Fiscal Year 2016-17 Budget:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary and Benefits</td>
<td>$2,615,947</td>
</tr>
<tr>
<td>Other Costs</td>
<td>$4,980,981</td>
</tr>
<tr>
<td>Total Costs</td>
<td>$7,596,928</td>
</tr>
</tbody>
</table>

Personnel resources for the department include the chief technology officer, two directors, two administrators, three managers, and twenty-seven tech support staff, engineers, facilitators, database analysts, and receptionists. Other resources include the server, network and desktop hardware, software, and third party services necessary to support their purposes.

What are the major sources and amounts of Funds?

SSD Budget and E-rate funding. All expenditures are paid from the current SSD budget. Federal funds from the E-rate program are collected yearly based on FCC approved technology projects and services. E-rate reimbursement funds are originally allocated to a liability account, and the Board of Education approves budget transfers from the liability account to the Technology Services budget.

How many customers are served by this program?

Approximately 24,000 students and 6,300 employees.

What is this program's annual cost per customer?

Approximately $250 per customer, including students and employees.

Estimated Cost Effectiveness

- ☑ Mandated program; costs cannot be significantly reduced.
- ☐ Mandated program; costs could be reduced (include in Action Plan, below).
- ☐ Benefits greatly outweigh costs.
- ☐ Benefits outweigh cost, but improvement appears possible (include in Action Plan, below).
- ☐ Costs outweigh benefits (include in Action Plan, below).

Explanation

Technology will continue to be an integral part of district operations and instruction for the foreseeable future. As innovations in technology increase so will the demands to develop, deploy, and support new technology solutions. Technology Services is committed to maintaining cost-effective and efficient technology solutions for the district as well as providing innovative technology solutions to support student success.

General Recommendation Resulting from this Evaluation

- ☐ Continue the program as is. It is meeting or Exceeding all expected outcomes.
- ☑ Continue the program with specific action plans for improvement.
- ☐ Expand the program, replicating effective components.
- ☐ Streamline, refine, or consolidate elements of the program.
- ☐ Redesign the program.
- ☐ Reevaluate the purpose and/or goals of the program.
- ☐ Discontinue ineffective or nonessential program components.
- ☐ Discontinue the program.
## Review of Previous Action Plans

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Description</th>
<th>Status of Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action Plan 1</strong></td>
<td>Implement the JIRA system project tracing software package for estimating timeline for upgrades to Exceed. This system will incorporate time for planning, research and testing. (short-term plan)</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Status of Action Plan 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 2</strong></td>
<td>Add MORENET* spam filtering service to our system to filter internet traffic before it reaches us. (short-term plan)</td>
<td>Complete. Added “ProofPoint” filtering to filter email traffic prior to reaching internal servers.</td>
</tr>
<tr>
<td><strong>Status of Action Plan 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 3</strong></td>
<td>Implement strategy 3.1.2 and 3.2.3 to provide avenues for teachers to suggest improvements to technology. (short-term plan)</td>
<td>On schedule, ongoing</td>
</tr>
<tr>
<td><strong>Status of Action Plan 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 4</strong></td>
<td>Enhance the survey process to capture more detail on teacher concerns about technology. Use that information to address identified topics. (short-term plan)</td>
<td>On Schedule, ongoing. Incorporated survey questions into Climate survey, disaggregated results. Pilot project with PD department utilizing a solution called “Kick Up” to capture more feedback from teachers and self-assessment of technology use and access.</td>
</tr>
<tr>
<td><strong>Status of Action Plan 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 5</strong></td>
<td>Explore ways to publish information on current technology projects and the rational for pursuing them to improve transparency of Technology Services to SSD staff. (short-term plan)</td>
<td>On Schedule. Incorporated JIRA into project planning process, integrated Service Desk into JIRA platform. Developed dashboards for project status reporting.</td>
</tr>
<tr>
<td><strong>Status of Action Plan 5</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 6</strong></td>
<td>Standardize on using JIRA system for all software development. (medium-term plan)</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Status of Action Plan 6</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Action Plan 7</strong></td>
<td>Standardize Technology Services project reporting practices and publish reports to SSD staff. (medium-term plan)</td>
<td>On Schedule, using JIRA dashboards to report project status. Currently working on process to expand use of dashboards to staff outside Technology Services department.</td>
</tr>
<tr>
<td><strong>Status of Action Plan 7</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Plan 8</td>
<td>Work with Communications department to improve communications between Technology Services and SSD. (medium-term plan)</td>
<td></td>
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<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Status of Action Plan 8</td>
<td>Complete. Processes created and documented with Communications Department. Technology services has a category we monitor on the “Let’s talk” voice of customer system.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Plan 9</th>
<th>Expand use of ITIL’s tiered model of service support from tech support to all elements of Technology Services. (long-term plan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status of Action Plan 9</td>
<td>On schedule, ongoing. Continuing to document processes and create ITIL based improvements to existing processes. Currently working on Service Transition processes and creating a service catalog for service management.</td>
</tr>
</tbody>
</table>
**Forward Planning**

What specific actions are needed in the next evaluation cycle?

**Short-term (within the next school year)**

1. Work with CFO, Assistant Superintendent of Partner Districts, Assistant Superintendent of College and Career Readiness, and Executive Director of Schools to develop a more streamlined process for identifying technology needs, budgeting for technology procurement, and planning the deployment of technology solutions to support student success. (Objective 1.1; OFI 1)
   
   Anticipated Date of Completion: August 2018

2. Develop plan to streamline and improve the process for procuring, tracking, and replacing technology assets to improve equitable access to technology in all settings. (Objectives 1.1 and 1.2; OFI 1)
   
   Anticipated Date of Completion: August 2018

3. Developed a plan to provide more training to paraprofessionals in SSD buildings and partner districts to ensure staff are well trained when new technology initiatives are rolled out to district staff. (Objective 1.3; OFI 2)
   
   Anticipated Date of Completion: August 2018

4. Collaborate with technology directors of partner districts to adjust technology support agreements to streamline technology support processes and provide SSD teachers and paraprofessionals ready access to technology support (Objective 1.4; OFI 1)
   
   Anticipated Date of Completion: August 2018

5. Continue to develop and improve existing process maps for Information Technology Service Management and identify opportunities to increase efficiency using ITIL based best practices. (Objective 2.1)
   
   Anticipated Date of Completion: August 2018

6. Add additional cybersecurity controls and monitor existing controls to provide better protection against information technology security incidents. (Objective 2.2)
   
   Anticipated Date of Completion: August 2018

7. Improve tracking of SEIMS change requests to improve estimates of time needed to implement requested changes. (Objective 2.3; OFI 4 and 5)
   
   Anticipated Date of Completion: August 2018

8. Continue wireless and network infrastructure upgrade E-rate projects to upgrade internal connectivity within SSD schools. (Objective 2.4; OFI 3 and 6)
   
   Anticipated Date of Completion: August 2018

**Medium-term (1-2 years)**

9. Expand ITIL based processes and implement formal service transition processes and technology change management processes. (multiple objectives)
Anticipated Date of Completion: August 2019

10. Expand project management processes and metrics to improve delivery of technology solutions. (Objective 2.3)

Anticipated Date of Completion: August 2019

11. Implement improvements to technology asset procurement, tracking, and replacement to provide equitable access to technology resources. (Objectives 1.1 and 1.2)

Anticipated Date of Completion: August 2019

12. Improve Technology Service Desk and knowledge management processes to improve access to technology support. (Objective 1.4)

Anticipated Date of Completion: August 2019

13. Monitor and improve existing security controls. (Objective 2.2)

Anticipated Date of Completion: August 2019

14. Complete wireless and network infrastructure upgrades in remaining SSD Schools. (Objective 2.4)

Anticipated Date of Completion: August 2019

**Long-term (3 years and more)**

15. Implement information technology service design processes based on ITIL best practices. (multiple objectives)

Anticipated Date of Completion: August 2019

16. Create control plan for technology asset procurement, tracking, and replacement to ensure all students and staff have adequate access to technology resources to support student success in all settings. (multiple objectives)

Anticipated Date of Completion: August 2020

What are future goals, objectives, measures, and targets that will be used to monitor and evaluate this program?

**Goal 1:** Technology will enhance instruction and support student success.

**Measurable Objective 1.1:** The availability and functionality of technology resources meets stakeholder needs.

1.1a **Measure:** Teacher climate survey item, “Teachers have sufficient computer resources available for instructional use.”
1.1a **Target:** 90% agreement
1.1a **Monitoring Schedule:** Annually in spring

1.1b **Measure:** Teacher climate survey item, “Students have sufficient computer resources available for learning.”
1.1b **Target:** 90% agreement
1.1b **Monitoring Schedule:** Annually in spring
1.1c Measure: Student climate survey item, “My teacher(s) use technology for classroom instruction.”
1.1c Target: 90% agreement
1.1c Monitoring Schedule: Annually in spring

**Measurable Objective 1.2:** Technology resources demonstrate a positive impact on instruction and student learning.

1.2 Measure: Student climate survey item, “Having access to technology helps my learning.”
1.2 Target: 90% agreement
1.2 Monitoring Schedule: Annually in spring

**Measurable Objective 1.3:** Staff are proficient in the use of technology and receive adequate professional development in technology applications.

1.3 Measure: Climate survey item, “I have received adequate technology training and resources to do my job.”
1.3 Target: 90% agreement
1.3 Monitoring Schedule: Annually in spring

**Measurable Objective 1.4:** Technology supports meet stakeholder needs.

1.4a Measure: Teacher climate survey item, “Teachers have ready access to technical support.”
1.4a Target: 90% agreement
1.4a Monitoring Schedule: Annually in spring

1.4b Measure: Technology support satisfaction survey (5-point satisfaction scale)
1.4b Target: 90% of survey respondents will rate service as either a 4 or 5
1.4b Monitoring Schedule: Quarterly review of satisfaction data from service desk system

**Goal 2:** Technology services will facilitate operational efficiency and effectiveness.

**Measurable Objective 2.1:** Technology support requests will be resolved in a timely manner.

2.1 Measure: Average time to close service desk tickets
2.1 Targets: 30 hours for “Incidents” and 50 hours for “Service Requests”
2.1 Monitoring Schedule: Monthly

**Measurable Objective 2.2:** Cybersecurity measures will be implemented that prevent/minimize incidents that would compromise district data, corrupt software systems, or interrupt work processes.

2.2 Measure: Number of security breach incidents (also report number of incidents prevented/avoided)
2.2 Target: Zero
2.2 Monitoring Schedule: Quarterly review of documented security incidents vs. risks mitigated via security controls. Bi-weekly review of Security Incident management System (SOCView) with Security Operation Center team to discuss best practices and recommendations for remediation.

**Measurable Objective 2.3:** Technology Services will rapidly initiate and complete projects including IEP form and process changes.

2.3a Measure: Proportion of technology services projects completed on time (based on estimated man hours; disaggregate by SEIMS vs. non-SEIMS projects)
2.3a Target: 80% of projects completed on time
2.3a Monitoring Schedule: Reviewed at the completion of each project
2.3b Measure: Calendar days between DESE/SSD requested change or feedback provided from file reviews and SEIMS completion of work required for release of change
2.3b Target: 90 days
2.3b Monitoring Schedule: Reviewed quarterly from backlog list

Measurable Objective 2.4: Technology services will provide adequate network access to meet stakeholders’ needs.

2.4a Measure: Internet bandwidth utilization percentage by connection
2.4a Target: Average Utilization below 70%
2.4a Monitoring Schedule: Monthly

2.4b Measure: Internal network/wireless bandwidth utilization by building
2.4b Target: Average utilization below 70%
2.4b Monitoring Schedule: Monthly

2.4c Measure: Teacher climate survey items, “Reliability and speed of the network are sufficient for instructional use, such as web video or progress monitoring.”
2.4c Target: 90% agreement
2.4c Monitoring Schedule: Annually in spring