2016 Bond CPAC
Technology Subcommittee

April 20, 2016
7:30-9:30 am
North High School
Room A285 - Uplift Room
What Will We Do?

**Kickoff & review list of technology project recommendations;** confirm meeting schedule. *March 7th*

**Explore 3 Categories of DPS technology needs.** *April 6th*
- a. Gain further insight into **Student Safety & Improved Services for Families, Ops. Efficiencies & Internal Cust. Svc. Improvements**, and **IT Infrastructure & System Modernization** technology projects;
- b. Gather committee input re: highest/lowest priorities through discussion and dot voting activity

**Visit a school;** see classroom technology in action. *April 20th, 7:30-9:30 am*
- a. Hear from school leaders, educators, and students about importance of technology and their needs
- b. Discuss recommended **student technology implementation approach** and other **Personalized Learning & Great Teachers in Every Classroom** technology needs.
- c. Gather committee input re: highest/lowest priorities through ranking/scaling discussion

4. Coordinate with **Mill-Levy Sub-committee** regarding the student technology recommendation. *April 25th*
- a. Gain alignment on scope/scale for MLO tech investment as a partner to the bond investment recommendation.

5. Refine **overall technology recommendation.** *May 2nd*
- a. Review refined recommendation options that include gathered committee input.
- b. Discuss approach to obtain **balance between Ops needs and Academic needs**.
- c. Incorporate input from offline community member discussions.
## Technology Sub-Committee Meeting Schedule

<table>
<thead>
<tr>
<th></th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPAC #1</td>
<td>(Feb 17)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPAC #2</td>
<td>(Feb 29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPAC #3</td>
<td></td>
<td></td>
<td>(April 14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPAC #4</td>
<td></td>
<td></td>
<td></td>
<td>(May 9)</td>
<td></td>
</tr>
<tr>
<td>CPAC #5</td>
<td></td>
<td></td>
<td></td>
<td>(May 23)</td>
<td></td>
</tr>
<tr>
<td>Sub #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub #3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub #4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub #5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Sub #1: March 7
- Sub #2: April 6
- Sub #3: April 20th
- Sub #4: April 25th
- Sub #5: May 2nd
Agenda

- Public Comment *(placeholder)* 7:30-7:40 am
- Agenda Review & Introductions 7:40-7:45 am
- North High Principal - Scott Wolf 7:45-7:50 am
- Category 1 - Technology Projects 7:50-8:15 am
  - # 1 Student Technology
  - Proposed Mill Levy Supplement
- Classroom Visit & Student Panel 8:15-8:45 am
- Remaining Category 1 Technology Projects 8:45-9:25 am
- Wrap Up & Next Steps 9:35-9:30 am
- Appendix
Principal, Scott Wolf

- **Stats.**
  - Grades 9-12
  - Enrollment - 885 (as of 15/16)
  - FRL - 81% (as of 15/16)
  - ELL 45% (as of 13/14)
  - Minority - 90% (as of 13/14)
  - SPED 27% (as of 13/14)

- **Achievements**
  - In 2015, North High was recognized by Denver Public Schools as having the largest increase in the on-time graduation rate of any traditional DPS high school, nearly 13% increase in a single year.
  - For the 3rd year in a row, North posted the highest median growth percentile on the 2014 state assessments of all traditional 9-12 grade DPS high schools.
  - North has posted an increase in the percentage of students meeting the college readiness benchmark on ACT for Math and English for the 4th consecutive year.
  - Up 11 points from last year, North’s 9th grade reading median growth percentile posted at 71.
## Recommended Technology Investments

<table>
<thead>
<tr>
<th>Investment Category</th>
<th>Prioritized Projects Included</th>
<th>Low $ Estimate</th>
<th>High $ Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personalized Learning &amp; Great Teachers in Every Classroom</strong></td>
<td>Student Technology - $22M - $32M, IMS/LMS Implementation, Assistive Tech for Special Education Students, SLO/SPF Enhancements/Continuation, Student Library Resources Digital Curricula/Content, Personalized Learning tools for ELLs, LEAP/LEAD Enhancements, Teacher Prof Learning Tech Toolkits</td>
<td>$29.2M</td>
<td>$43M</td>
</tr>
<tr>
<td><strong>Student Safety &amp; Improved Services for Families</strong></td>
<td>Intercom/Camera/Alarm/Bus Video System Replacement, Communication &amp; Translation Tools for Families, Online Fee Payment for Families, Transportation Tech (Zonar) Tablet Implementation, Improved Online SchoolChoice</td>
<td>$4.6M</td>
<td>$6.3M</td>
</tr>
<tr>
<td><strong>Operations Efficiencies &amp; Internal Customer Service Improvements</strong></td>
<td>Physical Network Infrastructure, ELA Ops Improvement, HR Systems Improvements (Recruiting, On/Off-boarding), Tablet Support for Breakfast in the Classroom</td>
<td>$5.2M</td>
<td>$8.1M</td>
</tr>
<tr>
<td><strong>IT Infrastructure &amp; System Modernization</strong></td>
<td>Wireless Network / DC-Network Infrastructure, Improved Cyber Security Tools &amp; Identity Access Mgmt., ERP Optimization, Time Entry System, Primary/Secondary Data Center Backup Generator, Integrated Building Automation System</td>
<td>$19.6M</td>
<td>$27.4</td>
</tr>
<tr>
<td><strong>Project Resources</strong></td>
<td>Implementation (10%) Oversight/Accountability (5%)</td>
<td>$8.8M</td>
<td>$12.7M</td>
</tr>
</tbody>
</table>

**TOTAL** $67.4M $97.2M

*Refer to Excel document for full list of projects (v3)*
Category 1 Projects - Review, Discussion, Q & A Roundtable

- What questions do you need DPS to answer to gain your support for this recommendation?

- Which projects are the highest priority from your perspective?

- Which projects are the lowest priority from your perspective?

- Which projects do you recommend we adjust +/- potential funding amounts to support the subcommittee’s priorities?

- What other information do you need, if any, to better respond to these questions?

This is what we discussed with the projects on 4/6.
Prioritization Considerations - How does the investment...

- Contribute to the realization of the Denver Plan 2020 goals?

- Support the following:
  a. Operational efficiency?
  b. Student safety?
  c. Student achievement?
  d. Educator effectiveness?
  e. Parent engagement?
  f. Student engagement?

- Balance estimated cost with anticipated benefits?

- Balance cost across total target investment of $60-80M?

This is what we discussed with the projects on 4/6.
Category 1 Projects

#1. Student Technology

* Refer to Excel document for full list of projects (v3)
Student Technology Supports the Vision of a DPS Classroom

ProjectRED finding 7: Schools must incorporate technology into daily teaching to realize the benefits. The daily use of technology in core classes correlates highly to the desirable education success measures (ESMs). *Daily technology use is a top-five indicator of better discipline, better attendance, and increased college attendance.*

Mooresville Graded School District increases student engagement and outcomes as a result of 1:1 initiative.

ProjectRED Finding 3: 1:1 schools employing key implementation factors outperform all schools and all other 1:1 schools.

In Hamilton County Schools, grades using blended learning in Math outpaced their expected gains by 169%, compared to non-blended grades that outpaced their expected gains by 120%. In reading, grades using blended learning outpaced their expected gains by 130%, compared to non-blended grades that outpaced their expected gains by 107%.

ProjectRED Finding 6: Online collaboration increases learning productivity and student engagement.
Comparison of Student Technology Implementation Models - Outcomes

Outcomes

**>1:1 Student to Device Ratio**
*Devices deployed around their usage (e.g., labs) rather than assigned to students.*

- Exposure to use of tech for educational purposes
- Opportunity to build tech skills outlined in our district guidance

**1:1 Student to Device Ratio**

*Devices deployed around their usage (e.g., labs) rather than assigned to students.*

- Increased exposure to use of tech for educational purposes
- Increased variety of tech exposure
- Ability to integrate tech into most classroom activities
- Increased opportunity to build tech skills outlined in our district guidance

**1:1 In School Implementation**

*Students assigned a specific device while at school.*

- Ability to integrate tech into any classroom activity
- Proven positive impact on student engagement and student outcomes
- Increased student ownership of learning

**1:1 Take Home Implementation (MyTech)**

*Students assigned a specific device for the school year and allowed and encouraged to take the device home.*

- Best for support of student ownership of learning - Personalized Learning
- Supports anywhere, anytime learning
Bond Proposal: Continue Investing in technology for all students and build proof points for 1:1 Take Home Implementation

**Description:** Provide a base per pupil allocation for student technology to all schools. Additionally, provide district-managed schools with the opportunity to apply for a competitive grant for a 1:1 student technology implementation program. Grants to be evaluated based upon criteria such as ProjectRED’s success factors, ISTE Standards, and/or school technology need, school leader vision for technology, readiness for digital transformation, willingness/ability to meet school level requirements for technical support, etc.

**Benefits:**
- Provides technology allocation to all schools
- Increases access to student technology overall
- Aligns with DPS philosophy of school autonomy and flexibilities
- Enables ability to build proof points and quantify demand for 1:1 model
- Increases student engagement, attendance, and outcomes for 1:1 schools

**Assumptions/Concerns:**
- Competitive process for Opt-in model may generate more interest than can be supported
- Will not fully resolve inequities of tech access by school
- Assumes low-cost devices (i.e. Chromebooks) for students and teachers
At $23M, this model supports:
- $100/pp for all K-12 students
- 25% of all 6th-12th graders with the opportunity to opt-in to 1:1
- 50% allocation to refresh

<table>
<thead>
<tr>
<th>Cost Factor / Lever</th>
<th>$23M PPA + Competitive Opt-In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Pupil (K-12) Allocation Amount</td>
<td>$100/pp = $8.9M</td>
</tr>
<tr>
<td>Per Pupil (ECE) Allocation Amount (or exclusion)</td>
<td>$0/pp = $0M</td>
</tr>
<tr>
<td>Teacher Allocation (for 1:1 schools)</td>
<td>$300/Teacher in 1:1 (650 Teachers) = $.2M</td>
</tr>
<tr>
<td>Refresh Cycle Included for PPA and 1:1 (none, partial, or total)</td>
<td>50% = $5.1M</td>
</tr>
<tr>
<td>% of Students/Schools supported for Opt-In Option &amp; grade level eligibility</td>
<td>25% 6th - 12th graders; district-managed schools (7,700 students) = $1.5M</td>
</tr>
<tr>
<td>Implementation Support</td>
<td>= $3.8M</td>
</tr>
<tr>
<td>Contingency</td>
<td>15% = $2.8M</td>
</tr>
</tbody>
</table>
Anticipated Impact of 2016 Bond Investment in Student Technology

Current State

>1:1 Student to Device Ratio
Devices deployed around their usage (e.g., labs) rather than assigned to students.

1:1 Student to Device Ratio
Devices deployed around their usage (e.g., labs) rather than assigned to students.

1:1 In School Implementation
Students assigned a specific device while at school.

1:1 Take Home Implementation
Students assigned a specific device for the school year and allowed and encouraged to take the device home.

Future State

>1:1 Student to Device Ratio
Devices deployed around their usage (e.g., labs) rather than assigned to students.

1:1 Student to Device Ratio
Devices deployed around their usage (e.g., labs) rather than assigned to students.

1:1 In School Implementation
Students assigned a specific device while at school.

1:1 Take Home Implementation (MyTech)
Students assigned a specific device for the school year and allowed and encouraged to take the device home.
Supporting Mill Levy Proposal - $6M (Annual Funding)

$1M to be utilized centrally to fund 8-10 Digital Coaches + 1 Supervisory/District Integration role

$500k to be used centrally to fund eBooks

$700k to be used centrally to fund Digital Curriculum

$500k to be used centrally to fund Professional Development

$3.96M to be allocated directly to schools per pupil ($44/pp)
  School must meet minimum required STR time before funds can be used for other purposes
  After minimum STR release time is met, schools can use remaining funds for:
    Purchasing partially dedicated Site Support resources from DoTS
    Student or Teacher Device replacement
    Technology related staff (Tech Teacher, etc.)
    Online content to personalize student learning

If schools already meet minimum STR release time, then $44.00/pp is enough to replace 1 device per every 7 students each year (low cost devices). Assuming a 3 year refresh cycle and a 50% refresh allocation built into the bond, then this will be sufficient funding to maintain 94% of device counts resulting from 2016 bond for at least 6 years.
Enable an increased number of Schools at 1:1 Ratio or Implementation from 34 schools to 77 schools

Enable an increased number of Students served with 1:1 Ratio or Implementation from ~15,500 students to ~43,500 students

Provide schools with ability to refresh technology for at least 6 years

Build 12-20 whole school proof points of Take Home 1:1 Implementation success and gather learning for other schools

Build and fund eBook/Digital Content library on an annual basis

Expand capacity of DPS teachers to deliver digitally enabled lessons through coaching and support
Classroom Visit & Student Panel
1. Divide into 2 groups (A & B).

2. **8:15-8:30:**
   a. **Group A** will visit Carly Buch’s 9th Grade Physics classroom. (Rm ??).
   b. **Group B** will remaining in our meeting room (Rm A285) for a student panel discussion.
      i. What can students tell us about technology as a part of their learning experience?
      ii. What do they like? What don’t they like?
      iii. What do they need?

3. **8:30-8:45** groups will swap locations:
   a. **Group A** will return to our meeting room (Rm A285) for a student panel discussion.
      i. What can students tell us about technology as a part of their learning experience?
      ii. What do they like? What don’t they like?
      iii. What do they need?
   b. **Group B** will visit Carly Buch’s 9th Grade Physics classroom. (Rm ??)
Category 1 Projects
#2-9 Remaining Personalized Learning & Great Teachers in Every Classroom Investments

* Refer to Excel document for full list of projects (v3)
Wrap-Up & Next Steps

DPS

- Distribute meeting notes and open Qs for next meeting.
- Incorporate this morning’s prioritization input into the Tech Bond recommendation.
- Provide pre-read materials to the subcommittee prior to our next meeting.

Subcommittee Members

- Send robin_stehle@dpsk12.org additional questions related to this evening’s discussion.
- Complete the electronic survey response regarding Category 1 priorities.
- Next Meeting - Wednesday, April 25th, 5:30-7:30 pm @ Manual HS, Rm 115
Contact Information

- **Robin Stehle**, Deputy Chief Information Officer robin_stehle@dpsk12.org
- **Sharyn Guhman**, Chief Information Officer sharyn_guhman@dpsk12.org
- **Cheri Wrench**, Executive Director, Personalized Learning cheri_wrench@dpsk12.org
- **Dustin Kress**, Manager of Bond & Mill-Levy Programs dustin_kress@dpsk12.org
APPENDIX
Category 1 Priority Input Survey

- [https://www.surveymonkey.com/r/WC7XS2K](https://www.surveymonkey.com/r/WC7XS2K)
- Complete by end-of-day, Friday 4/22.
Questions from Last Meeting

● What is the cost of seasonal surge support for the annual SchoolChoice process (re: Project #)? For the last 3 years we have run the online tool and internal algorithmic process we’ve averaged ~$100k/year in temporary help and overtime. Initial estimates looking at potential resource efficiencies moving to a totally only process with simplified processing could save $100-300k in internal temporary resource time.

● What is the anticipated ROI if we build a Dark Fiber data network vs. continue to contract through a local vendor (e.g., Centurylink)? Based on DPS financial models, the District could realize savings $8-12M over a ten-year period if we are able to fund a private dark fiber network versus continuing to lease circuits from CenturyLink. The savings estimate is based on budgetary pricing models that are subject to change when the project is funded.

● Separate of student English Language Learners, what is the count/% of families that require translation services? The number of Parents with a primary language other than English correlates directly to our student population, however overall family counts are lower as some families have more than one DPS student.
  ○ Spanish-speaking ELLs - 34,306 (40%)
  ○ Other language ELLs - 6,321 (7%)
  ○ English - 45,990 (53%)
Current State of Student Tech in DPS

![Student to Device Ratio vs FRL](image_url)

NOTE: Data pulled from device management systems - margin of error not yet determined - known to be missing some devices not yet enrolled in MDM system