2016 Bond Planning

Community Planning Advisory Committee (CPAC)
Maintenance Subcommittee Meeting #4

Denver Public Schools

May 2nd, 2016
Agenda

- Public Comment
- Review of CPAC Subcommittee 3 feedback
- Proposed high level allocations
  - Package areas
    - Review of Heat Mitigation
    - Review of Sustainability
    - Review of 1.2 and 1.3s in packages
- Package analysis
- Subcommittee Recommendation
Review of CPAC feedback
## Feedback on the four categories

<table>
<thead>
<tr>
<th>Category</th>
<th>How easy to explain</th>
<th>Importance of funding</th>
<th>What committee still needs to know</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority 1.1s</strong></td>
<td>75% could explain very well</td>
<td>Non-negotiable</td>
<td>Need a cheat sheet as to where the opportunities are located; give a couple of compelling examples; how far will allocated dollars spread?</td>
</tr>
<tr>
<td><strong>Priority 1.2 and 1.3</strong></td>
<td>25% could explain very well</td>
<td>Avg 1.4 on 5 point scale, with 1 being most important</td>
<td>Need reminders and examples; prioritize portions that will be cheaper to replace now than to replace later; need to understand overlaps with other categories</td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td>75% could explain very well</td>
<td>Avg 2.7 on 5 point scale, with 1 being most important</td>
<td>Part of the DPS brand and perception in the community; leads to good stories; hard to prioritize over immediate needs;</td>
</tr>
<tr>
<td><strong>Heat Mitigation</strong></td>
<td>75% could explain very well</td>
<td>Avg 1.7 on 5 point scale, with 1 being most important</td>
<td>“Before/after” studies would be great to address performance; automatic night purging or installed evaporative coolers; important for equity and students first; need to understand impact on maintenance</td>
</tr>
</tbody>
</table>
Results of $100 allocation exercise

Average of subcommittee members’ allocation

- **Priority 1.1, 70%**
- **Heat Mitigation, 13%**
- **Sustainability, 2%**
- **Priority 1.2 and 1.3, 16%**

Feedback on 1.2 and 1.3 priorities

**General advice**
- Look for the intersection between heat mitigation and Priority 1.2s and 1.3s to find sustainability projects.
- Priority 1.2 and 1.3 should fund projects that can be done now to save lots of money before it hits priority 1.1
- Based on greatest need
- Low-cost cosmetic repairs in schools with high FRL

**Important to fund**
- roofs (3), plumbing (3)
- HVAC (2), floor finishes (2), ADA (2)
- building code (1), storm sewers (1), science labs (1), windows (1), and site development (1)
Proposed High Level Allocations
Based on committee feedback, DPS recommends the following base package:

**Proposal: Base Package $220M**

- **Priority 1.1s** $129M
- **Discretionary** $91M

**What you get:**
- Replace all galvanized pipe
- Replace 10 worst roofs
- Substantial investment in every non-AC school
- Eye toward sustainability

*As we refined scopes and identified overlap areas, the total need for funding 1.1s fell to $129M.*
Examples of additional investments that could be added:

Max Package $275M

- Priority 1.1s $129M
- Discretionary $146M

Priority 1.2 and 1.3 $112M

- $6M in additional roofs
- $5M in additional asphalt
- $21M in targeted cooling in our hottest schools

Sustainability $25M

- $7M in priority 1 lighting
- $4M in other lighting to get district to 100% LED

Heat Mitigation $81M

- $44M
- $23M
- $7M in targeted cooling in our hottest schools
- $12M in targeted cooling in our hottest schools

$53M

- $7M
To get to a strong ~$250M package, DPS staff recommends the following add-ons:

**Proposal: Mid Package $252M**

- **Priority 1.1s**: $129M
- **Discretionary**: $123M

**What you get:**
- Base plus:
- Convert entire district to LED
- Classroom-level cooling solutions to hottest schools

- $7M in priority 1 lighting
- $4M in other lighting to get district to 100% LED

**Priority 1.2 and 1.3 $95M**
- $43M
- $38M
- $17M

**Sustainability $25M**
- $4M

**Heat Mitigation $69M**
- $15M in targeted cooling in our hottest schools
- $6M in targeted cooling in our hottest schools
Review of heat mitigation in packages
Heat Mitigation: subcommittee feedback on approach

A. The committee agreed that the hottest buildings should be addressed first.

B. There was a broader distribution of opinion here, but the committee leaned toward a proportional allocation with some money allocated for high impact investments.

### Part B: Which investment strategy?

- **Start with the first school and make a high impact investment in as many as you can** (for example, for $20M you could make an impact on the 9 hottest schools)

- Equal distribution (or proportional allocation) of funds among schools

  - All 81 schools without full air conditioning*
  - All 55 schools that have an average daily high above the comfort level (79 degrees)

- **Combo**: set aside $15K to do complete targeted HVAC maintenance at all schools, then make high impact investment in as many schools as you can

  - All 81 schools without full air conditioning
  - All 55 schools that have an average daily high above the comfort level (79 degrees)
Heat Mitigation: District Response

CPAC subcommittee direction to DPS:

Distribute money equitably among all hot schools

Limited targeted investments in hottest schools

DPS recommendation to committee:

boost all schools to the same level (equity)
rather than giving equal money to all schools (equality)

Limited targeted investments in hottest schools
Heat Mitigation: Equitable investment to all schools

DPS recommendation to committee:

boost all schools to the same level (equity) rather than giving equal money to all schools (equality)

Limited targeted investments in hottest schools

Bringing all non-A/C buildings to the same level

- Full or partial controls to automate night purging (35 buildings, $16M)
- Repair all broken exhaust fans and air handlers; add where missing (61 buildings, $25M)
- HVAC tune-up (40 buildings, $600K)
- Programming existing controls (7 buildings, $46k)

Boosting all non-A/C buildings:

- Full HVAC assessment with 30% contingency for minor repairs identified: $3.5M

Based on the last bond, these investments lowered the maximum temperature of the building by 3-6 degrees.

Specific investments have been identified at each school.

Ex. 1 Schenck
Has functional controls, night purging program, and as had recent HVAC maintenance. Needs new exhaust fans ($21K), and will get $32K for assessment and related repairs.

Ex 2 Munroe
Has had recent HVAC maintenance. Needs full controls ($801K), Repaired exhaust fans ($40K) and would get $28K for assessment and associated repairs.
Heat Mitigation: Targeted investment at hottest schools

DPS recommendation to committee:
boost all schools to the same level (equity) rather than giving equal money to all schools (equality)

Limited targeted investments in hottest schools

For our hottest buildings:
- Where possible, replace univents with DX univents (self contained heating and cooling units)
- Cost includes adding space on electrical panels

<table>
<thead>
<tr>
<th># of Schools</th>
<th>Temp cut point</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>88.0</td>
<td>$3.0M</td>
</tr>
<tr>
<td>+7</td>
<td>84.6</td>
<td>$8.7M</td>
</tr>
<tr>
<td>+4</td>
<td>83.3</td>
<td>$4.4M</td>
</tr>
<tr>
<td>+4</td>
<td>83.0</td>
<td>$5.0M</td>
</tr>
<tr>
<td>+5</td>
<td>81.5</td>
<td>$3.6M</td>
</tr>
<tr>
<td>+12</td>
<td>80.6</td>
<td>$4.3M</td>
</tr>
</tbody>
</table>

*some of our hottest 10 schools are landmark buildings with radiators, so the DX units are not possible. For these buildings we are exploring/pricing other options for bringing cool air into the classrooms. In the meantime, we set aside cooling money as if they had univents
Review of sustainability in packages
### Sustainability: District Recommendation of Specific Investment Areas

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Schools where opportunity Exists</th>
<th>Cost Per School</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE motors and VF Drives</td>
<td>~135</td>
<td>$20K - $60K</td>
</tr>
<tr>
<td>DDC HVAC controls</td>
<td>65 +</td>
<td>$2 - $5 per square foot</td>
</tr>
<tr>
<td>Irrigation Controls</td>
<td>~75</td>
<td>$12K - $40K</td>
</tr>
<tr>
<td>LED lighting</td>
<td>Nearly every school and office building</td>
<td>$15k - $120k</td>
</tr>
<tr>
<td>Low Flow Fixtures</td>
<td>~100 schools</td>
<td>$22k - $118k</td>
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</tbody>
</table>

**Base package:** invest in $16M in DDC controls

**Add-on package:** invest in $11M in converting the entire district to LED lighting ($7 M in overlap with Priority 1)
Review of 1.2s and 1.3s in packages
1. We prioritized repairs to the shell of the building (roofs, exterior doors, masonry, eaves) to protect the interior of schools.

2. In addition, each shop re-examined their 1.2 and 1.3 priorities through the following process:

   - Each Shop identified its highest priorities this past winter.
   - We looked at the highest priority opportunity that was *not* a 1.1.
   - Then we compared the repair history to all other opportunities in that class.
   - Lower-ranked opportunities that were requiring more maintenance were re-prioritized.

   **Example**
   - Plumbing
   - Replace galvanized pipes at Asbury elementary
   - Looked at repairs at 12 schools with galvanized pipe of the same age
   - Barnum Elementary had the most, so it moved to the top priority.
## Base Package Priority 1.2 and Priority 1.3

<table>
<thead>
<tr>
<th>Investment Area</th>
<th>Base Package</th>
<th>$250 Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofs</td>
<td>$4,508,255.80</td>
<td>$4,508,255.80</td>
</tr>
<tr>
<td>Electrical-Lighting</td>
<td>$</td>
<td>$7,198,059.51</td>
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<tr>
<td>Structural-Exterior Walls</td>
<td>$1,088,106.57</td>
<td>$1,088,106.57</td>
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<tr>
<td>Structural-Exterior Doors</td>
<td>$308,733.55</td>
<td>$308,733.55</td>
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<tr>
<td>Structural-Floors</td>
<td>$2,189,328.56</td>
<td>$2,189,328.56</td>
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<tr>
<td>Structural-Ceiling Finishes</td>
<td>$18,545.91</td>
<td>$18,545.91</td>
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<tr>
<td>Plumbing-Plumbing Fixtures</td>
<td>$14,839,355.22</td>
<td>$12,173,167.34</td>
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<tr>
<td>Plumbing-Domestic Water Distribution</td>
<td>$2,666,187.88</td>
<td>$2,666,187.88</td>
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<tr>
<td>Plumbing-Sanitary Waste</td>
<td>$48,713.74</td>
<td>$48,713.74</td>
</tr>
<tr>
<td>Grounds-Sanitary Sewer</td>
<td>$148,258.43</td>
<td>$148,258.43</td>
</tr>
<tr>
<td>HVAC-Heat Generating Systems</td>
<td>$1,720,181.08</td>
<td>$1,720,181.08</td>
</tr>
<tr>
<td>HVAC-Cooling Generating Systems</td>
<td>$712,891.55</td>
<td>$712,891.55</td>
</tr>
<tr>
<td>HVAC-Distribution Systems</td>
<td>$20,099,965.01</td>
<td>$20,099,965.01</td>
</tr>
<tr>
<td>HVAC-Controls &amp; Instrumentation</td>
<td>$12,100,456.40</td>
<td>$12,100,456.40</td>
</tr>
<tr>
<td>Grounds-Parking Lots</td>
<td>$4,827,681.61</td>
<td>$4,827,681.61</td>
</tr>
<tr>
<td>Grounds-Site Development</td>
<td>$8,892,455.10</td>
<td>$8,892,455.10</td>
</tr>
<tr>
<td>Grounds-Storm Sewer</td>
<td>$2,678,333.22</td>
<td>$2,678,333.22</td>
</tr>
</tbody>
</table>

### Committee feedback Important to fund
- roofs(3), plumbing (3),
- HVAC (2), floor finishes (2), ADA (2),
- building code(1),storm sewers (1) science labs(1); windows (1); and site development (1)
Packages in Broader context
Geographical distribution of Base Package

Northwest: $34.4M
Southwest: $58.3M
Southeast: $35.1M
Near Northeast: $45.1M
Far Northeast: $17.8M

An additional $29.6M is designated for district-wide work
(e.g. fire code upgrades, Hot water circulation compliance, Centralized control for HVAC)

<table>
<thead>
<tr>
<th>District</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>All District</td>
<td>$29.6M</td>
</tr>
<tr>
<td>FNE</td>
<td>$17.8M</td>
</tr>
<tr>
<td>NNE</td>
<td>$45.1M</td>
</tr>
<tr>
<td>NW</td>
<td>$34.4M</td>
</tr>
<tr>
<td>SE</td>
<td>$35.1M</td>
</tr>
<tr>
<td>SW</td>
<td>$58.3M</td>
</tr>
<tr>
<td>Grand Total</td>
<td>$220M</td>
</tr>
</tbody>
</table>
Overall Construction Investment

Base Packages for New Capacity, Quality Learning Environments, and Maintenance
Committee Feedback
Reminder: What is the Role of CPAC in this Sub-Committee?

<table>
<thead>
<tr>
<th>CPAC</th>
<th>DPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review and understand the assessment methodology used to prioritize needs</td>
<td>Clear vision of facility maintenance and current state of facilities</td>
</tr>
<tr>
<td>Review and understand the estimating methodology used to cost projects</td>
<td>Share assessment process used and prioritization criteria for facility maintenance needs.</td>
</tr>
<tr>
<td>Evaluate and recommend appropriate level of funding and priorities within and across facility maintenance categories given overall funding constraints.</td>
<td>Transparency and Trust</td>
</tr>
<tr>
<td>Assist the team in working through options for projects with more than one potential solution</td>
<td>Pertinent Information and Data</td>
</tr>
<tr>
<td>Advocate for facility needs to stakeholders and the public</td>
<td>Timely and Responsive</td>
</tr>
</tbody>
</table>
Table Discussion

<table>
<thead>
<tr>
<th>Reflect</th>
<th>Reflecting on the information over the last 4 meetings, what stands out as the compelling story?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommend</td>
<td>What add-ons to the base package would you recommend and why?</td>
</tr>
<tr>
<td></td>
<td>• What are the tradeoffs for each add-on investment?</td>
</tr>
<tr>
<td></td>
<td>• What size package is most likely to fit into the overall bond brought forward by DPS, considering the range for all sub-groups?</td>
</tr>
<tr>
<td></td>
<td>• Is the regional allocation of investments fair? If not, what is needed?</td>
</tr>
<tr>
<td></td>
<td>• Do the investment amounts and opportunities chosen reflect the compelling need? If not, what more is needed?</td>
</tr>
<tr>
<td>Plan</td>
<td>How do we advocate for the package brought forward?</td>
</tr>
</tbody>
</table>
Next Steps

- **Monday, May 9**
  Overall CPAC Meeting to Combine Envelopes at GW at 5pm
- **Monday, May 23**
  Final CPAC Meeting to Finalize Recommendation to DPS Board at DCIS at 5pm