Actionable Evidence Initiative Case Study

Improving Career Readiness through Evidence Use in Baltimore City Public Schools

Bi Vuong, Project Evident

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PROJECT EVIDENT

The Actionable Evidence Initiative

Led by Project Evident with funding from the Bill & Melinda Gates Foundation, the Actionable Evidence Initiative seeks to understand and remove barriers to building evidence that is equitable, useful, credible, and relevant for practitioners as they aim to improve the outcomes of students who are Black, Latino/a/x, or experiencing poverty. Please visit https://www.projectevident.org/actionable-evidence to learn more, join our network, and find partners interested in working together on actionable evidence solutions.

Actionable Evidence in Education Cases

This case is one in a series commissioned by the Actionable Evidence Initiative in 2020 and 2021. (Cases are published on the Project Evident website.) The series illustrates how researchers, evaluators, practitioners, funders, and policymakers across the country are exemplifying principles of the Actionable Evidence framework. It profiles a range of settings, actors, learning questions, methods, and products, unified by a commitment to practitioner-centered, timely, practical, equitable, and inclusive evidence building. Each case describes the origins, development, and results of a research or evaluation project, along with the authors' reflections on their experiences. Our hope is that these cases will provide both inspiration and practical guidance for those interested in generating and using evidence that leads to better and more equitable outcomes for youth and communities.

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Actionable Evidence in Education: Improving Career Readiness through Evidence Use in Baltimore City Public Schools

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Executive Summary

In early 2020, two reports drew attention to quality and equity concerns about the Career and Technical Education (CTE) programming offered to students in Baltimore, Maryland. Baltimore City Public Schools (City Schools) launched an initiative to review and ultimately change its CTE programming, with the goal of improving employment and earnings for students after they graduate.

With limited time for an initial analysis of student and labor market demand for CTE pathways, City Schools (with funding support from the Abell Foundation and the Annie E. Casey Foundation) issued a Request for Proposals seeking a research partner, ultimately selecting the nonprofit Project Evident. The City Schools and Project Evident teams undertook a three-month project to examine how current CTE pathways aligned with in-demand, living-wage jobs in the region and trends in student demand and success. This phase of the project resulted in a set of preliminary recommendations about how City Schools' CTE pathways should be realigned and reconfigured in consideration of labor market demand, student interest, and location options to support equitable access for students.

A second phase of the partnership was directed at building out a full four-year career readiness strategic plan and beginning implementation. It included additional data analysis and financial and facilities modeling, as well as an extensive process of stakeholder and community engagement.

This partnership was characterized by a clear and shared understanding that its purpose was to support district leaders in making specific, time-sensitive decisions that would affect current and future generations of City Schools students. This required bringing together data from multiple sources — not just student enrollment and achievement but also geographic, labor market, financial, and facilities data and the perspectives of varied stakeholders. It also demanded strict adherence to timelines coupled with continual evolution of what work needed to be completed and how it should be prioritized. With an understanding of the tradeoffs involved in any strategy, the second phase of the project focused on the interdependencies and implications of possible decisions, including implications for equitable student access.

City Schools' new, evidence-informed approach to career readiness has already resulted in the reallocation of significant financial and human resources in ways that evidence suggests are likely to benefit Baltimore students as well as the local economy and community.

About the Project

Origins

In 2019, two reports on career and technical education (CTE) in Baltimore City Public Schools identified gaps in students' access to high-quality programs aligned with employment opportunities (Education Strategy Group 2019, Schoenberg et al. 2019). One report, commissioned by the Abell Foundation and prepared by Educational Strategy Group, concluded that "none of the current CTE programs incorporate all of the elements of rigorous career programming," and that "the most rigorous CTE programs in career fields aligned to Baltimore's six priority industries are located in the highest performing schools. At the same time, career clusters that connect to lower-level job opportunities are concentrated in schools with lower academic achievement."

Baltimore City Public Schools (City Schools) is committed to improving employment and earnings for graduates, and these reports made clear that there was room to better align the district's CTE offerings with that commitment. City Schools' Office of College and Career Readiness, which oversees implementation of CTE programs, wanted to create a data-driven strategic plan but faced financial and technical capacity constraints on executing the project quickly using only internal resources. Instead, the Fund for Educational Excellence issued a public Request for Proposals (RFP) seeking a partner for a short engagement timed to inform the district's budget for the following academic year. The district sought a deeper review of its CTE programming to understand student demand, labor market demand, and student performance, with the objective of identifying opportunities for improvement and informing a future strategic plan.

The nonprofit Project Evident responded to the RFP and engaged in several follow-up conversations to share its partnership principles and its approach to executing the work. Of particular importance to its ultimate selection as a partner were its commitments to meeting the district's deadlines (completing the work within four months to meet budget and staffing timelines); undertaking a comprehensive review of relevant evidence, including student achievement and personnel data; and providing clear, practical recommendations informed by school and leadership input. This initial phase of the project was completed between January and April 2020. (The partnership was later extended, as discussed in this case.)

Baltimore City Public Schools Overview (2020-21)

Students
- Total enrollment: 77,856
- Low income*: 58%
- English learners: 10%
- Students with disabilities: 15%
- By race/ethnicity: 76% African American, 14% Hispanic/Latino, 7.5% White, 0.8% Asian, 0.2% American Indian, 0.1% Pacific Islander

Proficiency and Graduation
- High school math proficiency (ALG 1): 9%
- High school English Language Arts proficiency (ELA 10): 16%
- 4-year graduation rate (Class of 2020): 70%

Operations
- Schools and programs: 155
- Total staff: 8,497
- Budget: $1.39 billion

* Based on direct certification, which includes students who are homeless, in foster care, or participating in programs for low-income families such as Temporary Assistance for Needy Families (TANF) and Supplemental Nutrition Assistance (SNAP), but excludes Medicaid.

Source: https://www.baltimorecityschools.org/district-overview

Career and Technical Education in City Schools

City Schools' formal Career and Technical Education offerings begin in grade 10. They are organized by clusters and pathways, with most high schools offering at least one pathway. A **career cluster** is a group of jobs and industries that are related by skills or products (e.g., Health Science). Within each cluster, there are multiple **pathways**, each corresponding to a collection of courses and training opportunities that prepare students for a specific career. For example, within a Health Science cluster, there might be a nursing pathway and a dental pathway. Most pathways lead to a **certification** that is accepted by employers. (For example, a nursing pathway might lead to nursing assistant certification.) Information about the pathways currently available in the district is available at https://www.baltimorecityschools.org/cte.

One of the findings that sparked the CTE project was the discovery that very few of the students who enrolled in a pathway ultimately completed the pathway with certification.

	# of Enrolled Students	# of Concentrators	# of Completers	# Certified
SY15-16 9th Grade Cohort	3,157	1,500 (48%)	865 (27%)	253 (8.5%)
	Enrolled = A student who enrolls in a course pathway	**Concentrator =** A student who completes 2 or more courses within a pathway	**Completer =** A student who completes the full 4-course sequence for the pathway	**Certified =** A student who obtains a recognized credential

Source: Baltimore City Public Schools. 2021. *Career Readiness: A New Pathway Forward*. P. 8.

Partners

Multiple organizations and many individuals came to the table to ensure the project's success. There were three key partner organizations.

Baltimore City Public Schools Office of College and Career Readiness: City Schools' Office of College and Career Readiness is responsible for helping to build "a generation of young people with the skills, knowledge, and understanding to succeed in college, careers, and community, not just here in Baltimore but in any city in the world." Throughout the project, the Office of College and Career Readiness was responsible for sharing data, coordinating site visits, providing contextual information, engaging the community, and actively engaging in decision-making and tradeoff discussions.

Project Evident: Project Evident is a nonprofit organization that harnesses the power of evidence for greater impact. It believes that by empowering practitioners to drive their own evidence building and strengthening the surrounding ecosystem, it can increase the number of effective solutions in the social sector and scale them faster—ultimately producing better outcomes for communities.

Project Evident served as an external consultant to City Schools and was responsible for conducting data analysis, reviewing internal processes and documents, and providing recommendations for implementation. As part of its commitment to improving community outcomes, Project Evident supplemented funding for the engagement with its own resources (see "Resources" below).

[The Fund for Educational Excellence](#): Founded in 1984, the Fund is "an independent nonprofit organization working to close the equity and opportunity gaps for all students in Baltimore City Public Schools." With the support of the Abell Foundation and the Annie E. Casey Foundation, the Fund provided philanthropic support to City Schools to engage Project Evident in undertaking a deeper set of analytics focused on student and labor market demand across CTE pathways as well as student performance outcomes.

Resources
The project required substantial resources, both human and financial.

Project Team

Phase 1: Demand Analysis (Jan.-April 2020)	Phase 2: Strategic Plan Development and Implementation Support (Aug. 2020-June 2021)
Project Evident ● Managing Director, Education Practice (Bi Vuong): Project lead; overall management, analysis, visualization, district operations, recommendation development ● Senior Director of Data and Evidence (Gregor Thomas): Advanced data analytics and visualization (e.g., GIS data and mapping) ● Intern (Javier Hernández López): Data analytics and data cleaning ● Program Associate (Cedric Charlier): Student interviews/focus groups, site visits, project support ● Senior Evidence Advisor (Farhana Hossain): Labor market alignment	**Project Evident** ● Managing Director, Education Practice (Bi Vuong): Project lead; overall management, analysis, visualization, recommendation development, helping to develop implementation structures ● Director, Education Practice (Alyssa Reinhart): Day-to-day project management, data analytics and visualizations, facilitation support ● Senior Director of Data and Evidence (Gregor Thomas): Advanced data analytics and visualization ● Program Associate (Cedric Charlier): Quality control ● Data Analyst (Angie Martinez): Survey setup, quality control

Phase 1: Demand Analysis (Jan.-April 2020)	Phase 2: Strategic Plan Development and Implementation Support (Aug. 2020-June 2021)
City Schools - Manager, College and Career Readiness (Danny Heller): Project lead; contracting, project management, operating guidance for Project Evident - Executive Director, College and Career Readiness (Rachel Pfeifer): Alignment with district strategic initiatives, other departments, and external partners - District senior leadership, principals, teachers, students, and central office staff in areas related to CTE (enrollment, human resources, facilities, etc.) also participated in targeted ways, such as in site visits, interviews, and focus groups	**City Schools** - Manager, College and Career Readiness (Danny Heller): Project lead; contracting, project management, operating guidance for Project Evident[1] - Executive Director, College and Career Readiness (Rachel Pfeifer): Overall CTE strategic plan - Director, Career Readiness (Kumasi Vines; hired during project): Plan implementation - Manager, Career Readiness and CTE (Kyla Thompson-Canzater): School outreach support, implementation - District senior leadership, principals, teachers, students, and central office staff in areas related to CTE (enrollment, human resources, facilities, etc.) also participated in targeted ways, such as in site visits, interviews, and focus groups

For all participants, time and effort ebbed and flowed based on deadlines and availability. For the Project Evident team, the low end of the time commitment was approximately three hours a week for basic project management. During periods that included community meetings, outreach to schools, legislative meetings, or board meetings, this could increase to a combined 40-60 hours a week. The pattern was similar for City Schools staff; it was important to get input from schools, families, and the community, and the phases of the project where this input was being collected were the most intensive.

Multiple sources of funding were combined to make the project possible. The initial phase of work was funded by the Abell Foundation and the Annie E. Casey Foundation, through the Fund for Educational Excellence as a fiscal agent. The Annie E. Casey Foundation also funded the second phase of the work. In addition, Baltimore City Public Schools drew on funds allocated through the Carl D. Perkins Career and Technical Education Act, which is the main

> " It was important for the Annie E. Casey Foundation to provide Baltimore City Public Schools with **the flexibility to determine how best to use our career-readiness investments.** Using those resources, City Schools has worked with Project Evident to develop evidence-based, community-driven strategies that will help more students access living-wage careers."
>
> Sara Cooper
> Senior Associate for Economic Opportunity
> Baltimore Civic Site
> The Annie E. Casey Foundation

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[1] Project leadership transitioned from Danny Heller to Kumasi Vines after Vines' hiring in spring 2021.

source of federal support for career and technical education programs. Project Evident was able to apply its own philanthropic funds to ensure the necessary resources for the project and is grateful to its philanthropic partners for providing flexible investments.

Approach

City Schools and Project Evident entered the partnership with a shared mission and a pragmatic approach. Both teams were focused on improving the opportunities and outcomes of Baltimore students and families. Both also recognized the realities of the task: they would need to work with imperfect information; extensive parent, school, and community input would need to be gathered and synthesized; they faced very real time constraints; and all involved would need to accept that some materials would be works in progress as the team drove collectively toward better decisions about the district's CTE programs. These realities were discussed frankly from the first conversations between City Schools and Project Evident, and they shaped both the initial setup of the partnership and all the work that followed.

To meet City Schools' goals and timeline, Project Evident and City Schools established the following infrastructure and partnership management practices:

Phase 1: Demand Analysis (January-April 2020)

Aligned with the Request for Proposals, the first phase of the project was designed to surface findings that could inform a CTE strategic plan for City Schools. To ensure that the district had the most relevant information to support its decision-making, City Schools partnered with Project Evident over a roughly three-month period to answer several critical questions. These questions were co-developed through a series of conversations about how the district intended to use what it learned and informed by the author's past experience with program changes:

- How do current CTE programs provided by City Schools align with in-demand, living-wage jobs in the region?

- What are the trends associated with student demand and success?

- How should City Schools' pathways be realigned and reconfigured to reflect growing labor market demands and student interest?

- How should City Schools' programs be situated across the city and schools to allow for equitable access and opportunities for students?

Project Setup and Launch
City Schools and Project Evident agreed to and established a shared approach to project management:

1. A single point of contact at each organization for overall project management

2. A team at each organization with enough expertise and historical knowledge to support implementation

3. Regular check-in calls (weekly team meetings and 15-minute daily stand-ups for project leads) to ensure the project was on track

4. Commitment to being accessible and responsive — particularly leading up to key deadlines, when both teams would need to be accessible via phone and text when key decisions were being made

To facilitate the responsible sharing of information, Project Evident also established key infrastructure at the start of the project:

1. A Family Educational Rights and Privacy Act (FERPA)-compliant data transfer process and system (including data encryption at transfer and at rest and a virtual computing environment in which each analyst used a secure VPN and remote desktop) that allowed City Schools to securely upload student-level data for use by Project Evident

2. A shared site to house resources and documents (e.g., financial models, facilities plan, public reports, etc.), check-in notes, and a workplan, and to allow for collaboration on working documents

This approach to the engagement ensured that the work was relevant and timely, as well as compliant with best practices for the treatment of potentially sensitive data.

Analysis

City Schools' goal was to extract insights from existing data to determine which CTE pathways should be offered going forward and, prioritizing equitable access, how programming should be distributed geographically across the city. To address the district's critical questions, Project Evident conducted several types of quantitative analyses.

For each career cluster and each pathway, is there student demand?

This part of the analysis allowed City Schools to better understand whether current teacher capacity matched student demand. It drew on multiple years of student- and school-level data as well as teacher allocation and teacher-course information. This combination of data allowed the team to identify:

- Student enrollment trends and assess whether student interest had declined, increased, or remained stable over time at the cluster and pathway levels and both the district and school-levels

- The extent to which changes in student enrollment might be explained by changes in staffing (e.g., additional staff making it possible for enrollment to increase)

- Whether there was under- or over-staffing at a school based on course-level student enrollment

For example, the charts below show that enrollment in the Print Education pathway had been relatively stable for the last several years, with enrollment patterns varying by school.

Media & Comms Cluster Enrollment
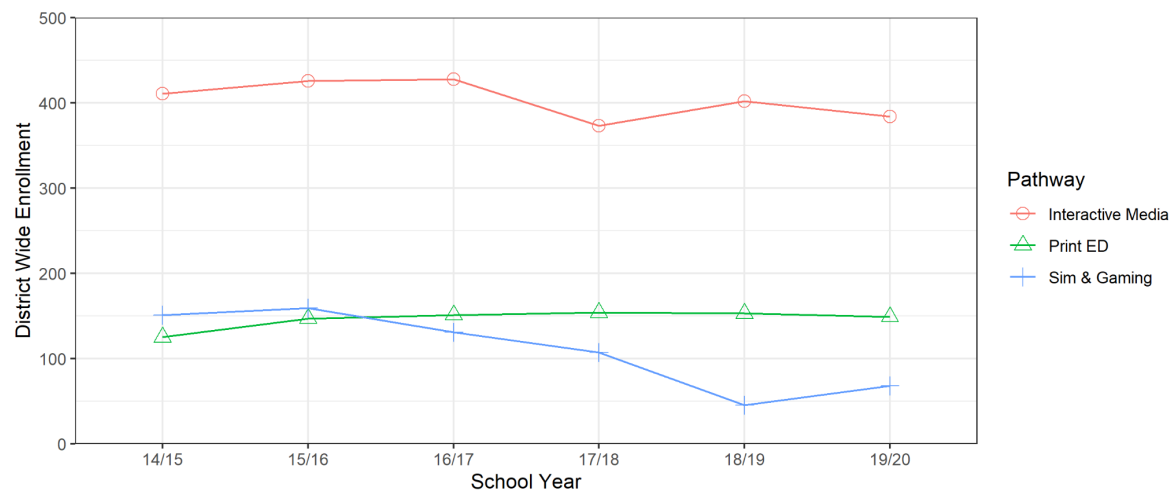
Print ED Path Enrollment
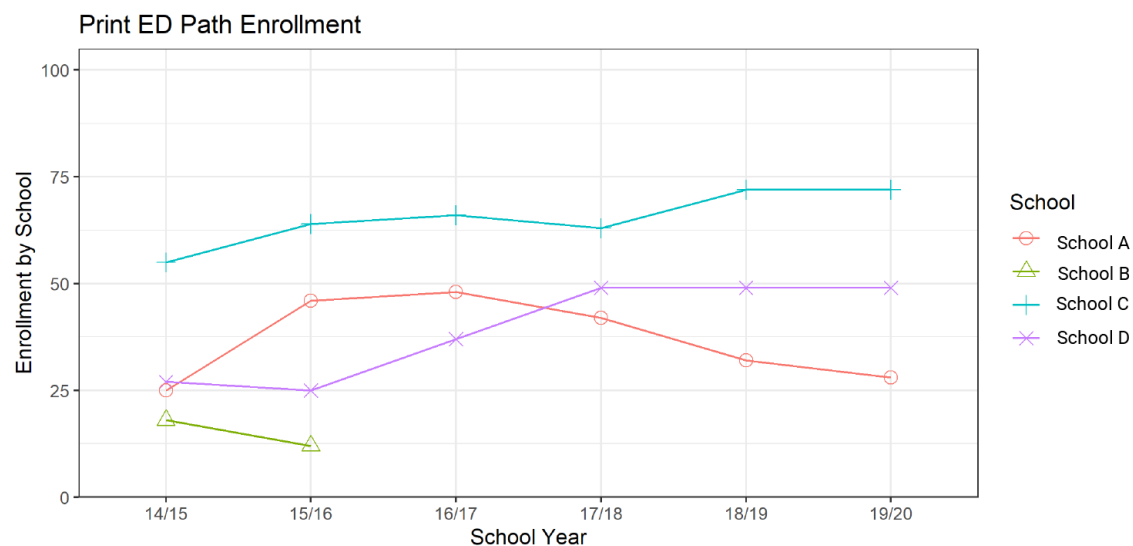
Are our students succeeding in their selected program of study?

In addition to identifying student demand, City Schools wanted to understand how students performed and, by extension, if there was variation in student performance in different clusters and pathways across the set of schools that offered the pathway. Drawing on multiple years of student- and school-level data, Project Evident created cohorts of CTE students by pathways using City Schools' business rules regarding which student would count as an "CTE student" and determined their CTE completion status based on individual course success.

Schools with pathway
Print ED

SY 15/16 9th Grade Cohort
Label indicates % of enrollees certified
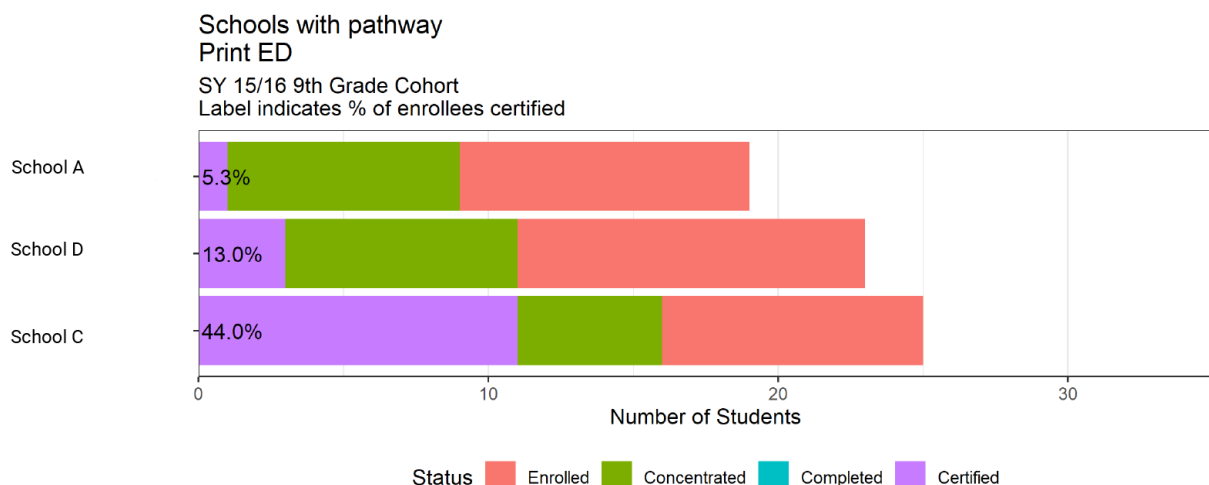
Four status options are reflected in the analysis and chart:
- *Enrolled*: Took the first course in the pathway sequence
- *Concentrated*: Completed at least two courses in the pathway sequence
- *Completed*: Completed all four courses in the pathway sequence
- *Certified*: Passed the certification exam linked to the pathway

Are City Schools' pathways leading to living-wage occupations in fields with a demand for talent? Are its credentials recognized by industry?

It was important to understand to what degree City Schools' existing pathways were helping students earn recognized credentials and access living-wage occupations for which there was demand in the local economy. The district also wanted to consider whether other pathways should be added based on labor market demand and interest from students, families, principals and policymakers. This set of analyses drew on City Schools' own data (pathway and cluster listings, course-to-pathway listings, pathway certifications) as well as Maryland Bureau of Labor Statistics data on employment projections by occupation. The team used the MIT living wage calculator to determine whether a given occupation met local living wage standards.

For example, the table on the following page shows a sample of data on occupations in the Arts, Media, and Communications cluster that do not require a bachelor's degree for entry-level positions. Projections showed that print-related occupations were projected to decline across the county (as shown by the yellow cells in the middle of the table). Entry-level wages in these occupations also fell short of the living wage threshold. Web developers, by contrast, were projected to experience increased demand and also offer an entry wage that is above living wage level.

Employment Projections, 2016-2026

Pathway	Occupation	Baltimore City		Baltimore County		Maryland		Education	Entry wage (000s) in the city, 2018
		2026 (#)	Growth	2026 (#)	Growth	2026 (#)	Growth		
Across Arts	Art and Design Workers			2,098	0.1%	13,253	5.3%		$35
	Merchandise Displayers/Window Trimmers			232	0.0%	2,062	6.0%	HSD/HSE	$32
Multimedia Production	Desktop Publishers					539	8.7%	Associate's	$38
	Web Developers	544	7.7%	499	11.6%	5,616	7.7%	Associate's	$53
Print ED	Printing Workers			476	-9.7%	4,445	5.5%		$22
	Printing Press Operators	223	0.9%	199	-2.9%	2,615	4.7%	HSD/HSE	$22
	Print Binding and Finishing Workers			101	-10.6%	1,020	7.5%	HSD/HSE	$20
	Prepress Technicians and Workers			176	-15.8%	810	5.9%	PostSec Cred	$28
	Desktop Publishers					539	8.7%	Associate's	$38

Are current pathways accessible and equitably distributed? Is there likely to be sufficient enrollment if the pathway is relocated?

Where pathways are physically located has important implications for student access and was a significant component of the analysis. The team used several sources of information to develop the final data visualization, including the Community Condition Index shape file (allows resources to be mapped to geography), facilities master plan (to understand district's future facilities vision), student addresses, student enrollment by district/school and year, student enrollment duration within a particular school, student grade level, student course enrollment, pathway course sequence (to determine the courses a student must complete as a part of the pathway curriculum). Google Maps analytics were used to calculate average ride time on public transportation.

As shown on the next page, these datasets allowed the team to create a map that could show the geographic distribution of each pathway in the district, including whether programs are located in high-resource neighborhoods (blue) or low-resource neighborhoods (dark pink). The map was built and shared with City Schools as a dynamic .html file, enabling the district to review results of individual pathways or of multiple pathways (a cluster).

Geographic distribution of pathways
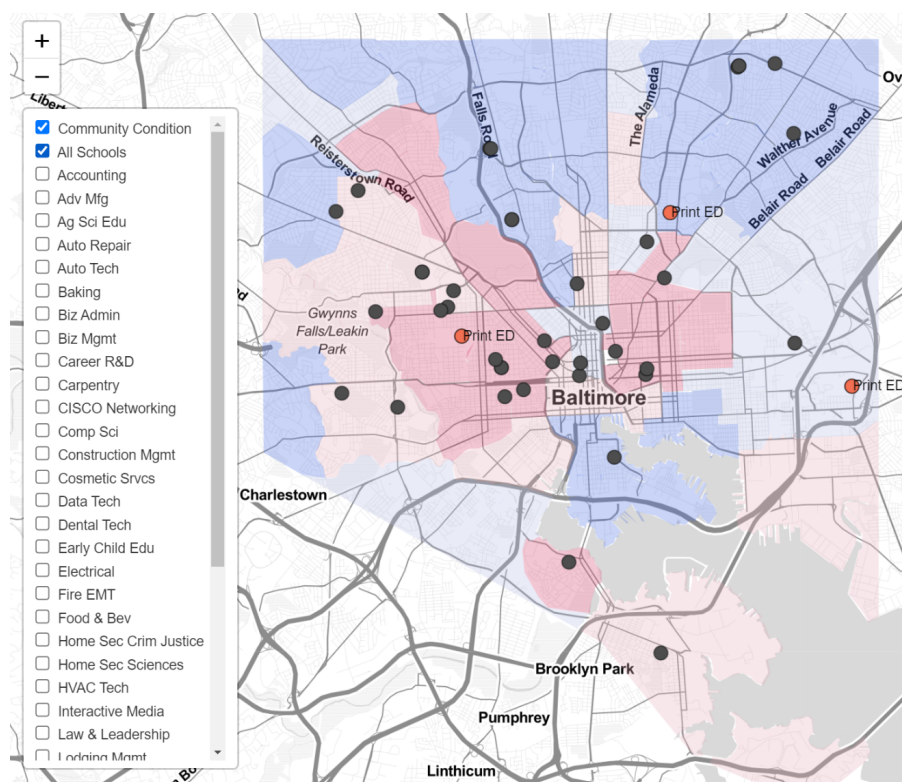
It also allowed the district to hover over each school (i.e., dot) and see key statistics about the school and its students (see chart below). The available information included:

- **School**: School ID and school name

- **Enrollment**: Pathway enrollment, indicating the number of students who might be affected by pathway changes

- **Facility**: Facility utilization rate, indicating whether there is space to relocate or build a new pathway

- **Equitable access**

  ○ The percentage of students attending the school from a neighborhood with a low or medium-low Community Condition Index rating, an indicator of who is accessing the pathway

  ○ Students' median commute time, the share of students who live within a 45 minute commute, median commute distance, and students who live within 1.5 miles, indicating whether the pathway and school are truly accessible to City Schools students
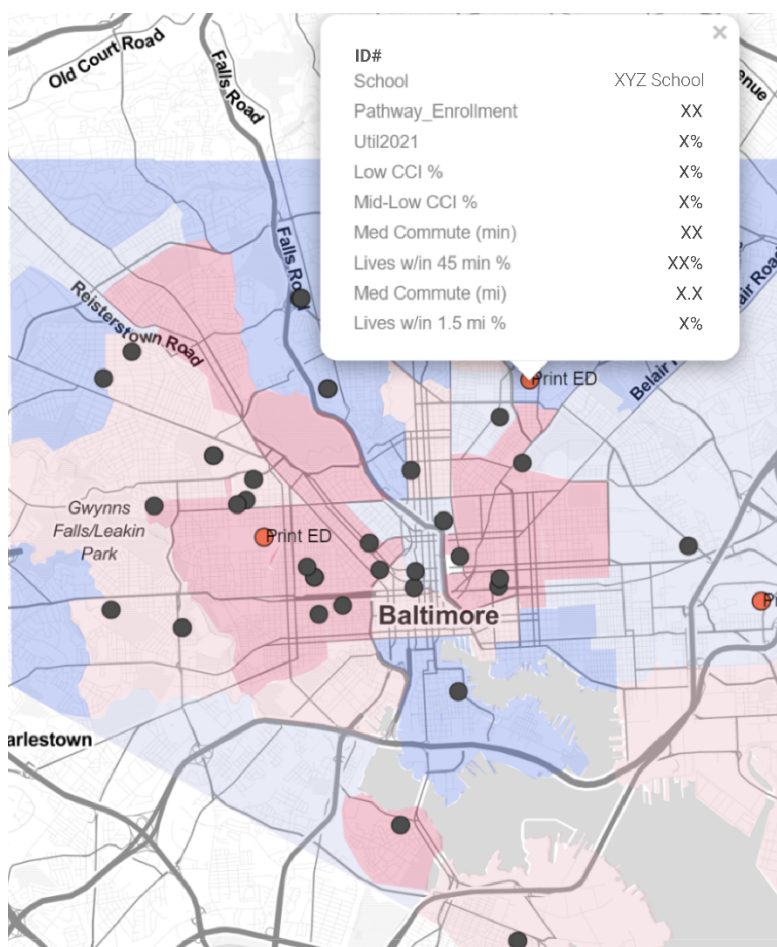
While the quantitative analyses were crucial, the team also wanted to ensure that the work considered the multiple perspectives of individuals who would play roles in implementing changes and/or would be affected by them. To that end, Project Evident:

- Conducted school-site visits and spoke with students, teachers, and principals to capture their experiences with the pathway and learn about their support needs and priorities related to CTE programming

- Interviewed district leaders, staff from multiple district offices, and CTE staff to capture their perspectives on existing policies and processes and recommended improvements

This qualitative input surfaced historical and other context that was not apparent in the quantitative data analysis but was likely to affect whether changes in CTE programming would be well-received and successful. For example, the team heard from students who were "stuck" in the pathway they chose in 10th grade because of course requirements and course availability. Based on this, City Schools is looking to pilot a model in which 9th graders could take a core course that introduces multiple pathways within a career cluster. Students would select a

specific pathway in 10th grade, but could switch to a different pathway as late as 11th grade while remaining on track to complete their course sequence and obtain certification. In another case, a principal wanted to sunset one CTE pathway and use the staff allocation to build out a different pathway that he believed would be a better fit based on his knowledge of the school's student body and local industry. Because student demand analysis indicated that this request was aligned with living wage and occupational opportunities in Baltimore, it was approved and the district is working with the principal to design the new pathway.

Finally, to facilitate actionable decision-making, Project Evident:

- Developed recommendations (based on the quantitative and qualitative analysis) to sunset, scale back, maintain, or expand CTE offerings over the next three years with a lens towards equity
- Led decision-making workshops with leaders and staff to discuss recommendations, trade-offs, and implementation factors

At the conclusion of this phase, City Schools received:

- All the data analyses and visualizations listed above, including the dynamic map that City Schools could use to assess student demand and outcomes based on CTE pathways
- A full set of recommendations on which pathways to grow, maintain, reduce/consolidate, or sunset
- A recommended timeline for moving forward

City Schools now had detailed information about the state of its current CTE offerings. The demand analysis confirmed mismatches between some pathways and labor market demand or certification requirements, and areas in which student access should be improved. The district also now had in hand a set of evidence-supported recommendations to bring those offerings into better alignment with its goal that district students have equitable access to well-designed pathways to living-wage careers.

Phase 2: Strategic Plan Development and Implementation Support (August 2020-June 2021)
With approval from district leadership to proceed based on the evidence generated during the demand analysis phase, City Schools turned its attention to developing and implementing a four-year career readiness plan. It re-engaged Project Evident as a partner for this second, longer phase of work to provide support around data analysis, community engagement, a review of physical facilities, and financial modeling. To ensure that the public and Board was aware of its plans, City Schools shared its plan to improve its career-readiness strategy with the school board at the December 2020 working session.

Analysis
Although the demand data generated in the first phase of work provided the foundation for the district to take a fresh look at its career readiness strategy, City Schools wanted additional

analysis to inform a complete strategic plan to guide its decisions. In particular, the focus in this stage was on feasibility (e.g., if moving a pathway to a different location would increase access for students, was there a building that could accommodate the pathway in that new location?) and on the contingencies and tradeoffs under different possible scenarios.

To support this complex planning process, Project Evident undertook several streams of analysis:

- Simulations of how student opportunity would be affected by decisions about which pathways to sunset, expand (within a site or to new sites), and relocate

- Facilities feasibility analysis: The team examined whether, for example, a given building had enough space for a pathway at the new enrollment level and whether that space met the specifications of that pathway (e.g., kitchen facilities for a culinary program). If the existing facilities weren't sufficient, the team looked at whether they could be renovated, how long that would take, and what it would cost.

- Human resources feasibility analysis: This component focused on whether there were enough teachers to staff a pathway at the planned enrollment level, how well the district had been able to recruit or retain teachers within the pathway in the past (e.g., did past recruitment challenges suggest that it would be difficult for the pathway to expand quickly?), and whether teachers could be relocated or upgrade their certifications to meet projected future needs.

- Capacity feasibility analysis: Because the district was looking at multiple changes to CTE programming, it was particularly important to look comprehensively at capacity and its implications for sequencing changes. This part of the project looked at questions such as how the time of curriculum designers could be prioritized, how long it would take to secure industry representatives for new advisory boards, and how facilities projects could be sequenced.

- Financial analysis: The team examined not only whether there would be sufficient total funding to implement the plan, but how general operating funds, federal grants, and private philanthropic funds could be blended, considering the allowable uses of different forms of funding.

Community Engagement
City Schools and Project Evident shared an understanding that, no matter how many simulations had been run, no strategic plan was likely to be accepted and successfully implemented if it was not informed directly by the perspectives of stakeholders. This included formal decision makers but also the communities attached to each school, pathway, and neighborhood that would be affected by the district's CTE strategy.

Project Evident helped prepare for and facilitate more than 100 stakeholder meetings led by the City Schools team and fielded a survey to gather community input. These stakeholder meetings included, but were not limited to, meetings with the staff at individual schools, council members, the teachers' union, teachers across different pathways, community town halls, and alumni

groups. The preparation for each meeting varied based on the stakeholder group to ensure that relevant information was being shared. For example, citywide town hall meetings included data at the district level, school-level meetings included data specific about each school, and council meetings included data relevant to the set of schools in each councilmanic district. In addition to providing relevant information, because the goal of each session was to obtain meaningful feedback for decision-making, the sessions were all designed to include time for stakeholder discussions, feedback, and recommendations about what they would like to see for their child/student, school, or community.

Plan Release

City Schools released its four-year career readiness strategy, "Career Readiness: A New Pathway Forward," in spring 2021. Because of the intensive community engagement process described above, the core content of the plan had been developed and continually shared with relevant stakeholders. The team also provided district leadership with frequent updates throughout the process; the district's leadership helped to identify risks or challenges that might not otherwise have been readily apparent. The development of the final written report was an iterative process between City Schools and Project Evident to ensure that the plan reflected what the data showed and what the team heard throughout the process. Board members received embargoed copies of the report prior to the public release to ensure that they were fully informed.

The strategy laid out a set of high-level goals and associated metrics:

- Improve the alignment of City Schools' CTE offerings to the demand for skills in the regional labor market that pay a family-sustaining wage

    ○ Increase the number of in-demand living wage seats from ~3,800 to 7,950 by the end of the four-year plan

    ○ Increase the number of programs that put students on a path to in-demand occupations (e.g., construction trades)

- Strengthen the quality and rigor of programs to align with employer needs, particularly their connection to industry-recognized certifications, work-based learning opportunities, and supports for transitions after high school, to increase the rate of program completion and credential attainment

    ○ Establish short-certification programs for students in alternative pathways

    ○ Create greater alignment with college readiness efforts, including career-specific dual enrollment opportunities

    ○ Strengthen partnerships with industry and workforce

- Improve the distribution of programs and resources across the city to ensure equity in student access to training and supports that lead to in-demand, living wage careers

    ○ Relocate programs and/or build out new programs across the city to ensure more equitable distribution and to allow students the ability to more easily access a program of choice.

- Increase "career readiness" resources for middle school students and improve 9th grade transitions
  - Maximize the use of existing resources
    - More efficiently allocate resources by aligning teacher allocation with student enrollment
    - Reallocate funding across four years to ensure the effective use of resources and successful implementation
    - Leverage external funding to support implementation planning for select pathways, such as information technology and construction trades

The plan includes changes at the pathway level. For example, within the Arts, Media, and Communications cluster, the plan recommendation is to keep both existing pathways but to close Interactive Media Production at one school and Print Education at two schools.

Recommendations for Arts, Media & Communications cluster

Cluster	Pathways	Current School	Final Recommendation
Arts, Media, and Communications	Interactive Media Production	• Augusta Fells Savage Institute of Visual Arts • Baltimore Design School • Digital Harbor High • Edmondson-Westside High • Frederick Douglass High	• Baltimore Design School • Carver Vocational-Technical High • Digital Harbor High • Patterson High
	Print ED	• Carver Vocational-Technical High • Mergenthaler Vocational-Technical High • Patterson High	• Mergenthaler Vocational-Technical High

Implementation Support

The adoption of the new strategic plan was not the end of the process. Project Evident continued to work with City Schools to ensure the necessary pieces were in place for successful implementation. For example, the rough financial model included in the plan was refined. The four-year financial model that was built out informed the budget for the 2021-22 school year and can help leaders understand the tradeoffs involved in future decisions, review the allocation of their federal Perkins Act funding, and ensure that savings realized in one area are reallocated to another that advances plan goals. Project Evident also helped City Schools develop detailed implementation timelines that highlighted key milestones.

At the conclusion of this second phase of work, City Schools was equipped not only with a strategic plan but with a suite of materials and tools that had informed plan development or would support future implementation:

- Presentations to its school board
- Presentations (and workshops) for the community
- Survey instrument to gather community feedback

- Four-year financial model

- Action plan (project management tool)

- One-page profile of each school that had (or was slated to add) a CTE program, which summarized plan implications and could be shared with families

- Timeline of key milestones

In addition to the tools, Project Evident and City Schools began the implementation phase by completing a series of kickoff meetings to develop the implementation plan and assign roles and responsibilities. These kickoff meetings eventually evolved to bi-weekly implementation team meetings.

Challenges and Responses

The partnership navigated challenges, including contracting and data sharing against a tight timeline, data quality, and an evolving scope of work.

Tight Timeline for Contracting, Data Sharing, and Analysis

Because Project Evident needed to access five years of student-level data to conduct the Phase 1 demand analysis, data sharing agreements and contracts were required. However, the project team knew that district processes could be long, and therefore, that waiting to begin work until after contract execution would make it extremely difficult to complete all of the necessary analyses by the time the district needed the information for decision-making. Anticipating this challenge, Project Evident and City Schools agreed to begin their respective work before a contract or data sharing agreement was signed. Taking this step required both partners to have a realistic understanding of the time that each step of this project would take and to agree to work beyond the parameters laid out in the RFP to achieve the goals of the project. It also required faith that the agreements would ultimately be signed and willingness by both teams to devote time and attention to the work without an ironclad guarantee that it would move forward.

Before the official project start date, City Schools:

- Gathered background documents requested by Project Evident
- Worked with its internal Office of Accountability to start the data collection/compilation process (note: data was not transferred to Project Evident until after the agreements were signed)
- Participated in check-in calls with Project Evident about the history of the work and requirements (e.g., site visits)
- Shared publicly available documents

During this same period, Project Evident:

- Set up check-in calls and clarified processes and materials
- Sent the district a document outlining data requests
- Set up a secure data sharing infrastructure and tested the system with City Schools
- Established a team to work on different components of the engagement

Once the contract was signed, data was transferred through a secure process and Project Evident and City Schools immediately started to work on scheduling interviews, site visits, and working sessions with different leadership team members based on prior discussions.

In Phase 2 of the project, the team took a similar approach, continuing work in good faith while the funding and contract were being assembled.

Data Quality

The data assembled for the project contained inconsistencies; for example, there were differences across years in course codes and names, course requirements for pathway concentration and completion, and possible credits per course. With only three months allotted for the demand analysis in Phase 1, the need for substantial data cleaning could have presented an obstacle. Project Evident did have to dedicate considerable time to data cleaning; however, this process was facilitated by City Schools' responsiveness in helping Project Evident make sense of the data and offer recommendations for how to proceed. By the second phase of the project, data quality issues were more manageable as the team was familiar with the quirks and could reuse existing code for much of the work.

Evolving Scope of Work

The partnership between City Schools and Project Evident evolved throughout the two phases of work. These shifts allowed the partners to respond as circumstances changed and different priorities emerged, but it also presented challenges for planning, communication, and resource allocation.

In Phase 1, the primary challenge was the short timeframe and limited funding, coupled with an ambitious scope of work. The project originated with a written Request for Proposals that included a description of planned work and set an end date for the engagement based on planning timelines for the following academic year (e.g., when staff allocations would need to be finalized). As indicated above, the short duration of the engagement did not allow adequate time to navigate the processes of contracting and data sharing before substantive work could begin. Once the work was underway, Project Evident and City Schools were in constant discussion about the scope of work and deadlines based on available time and capacity as well as what had been learned and what questions were most important to answer next. The analyses needed for the district to make informed decisions about career readiness programs extended beyond what was described in the Request for Proposals. For example, owing to City Schools budget deadlines and City Schools' desire to use existing data to inform SY2021-2022 budgets, Project Evident engaged in a teacher allocation analysis, which was beyond the original scope of work and available funding. City Schools knew that this request would delay other activities and agreed to push out final deliverables by two weeks to provide Project Evident with time to complete the additional analysis. Based on this analysis, City Schools was able to reallocate $600,000 in resources for SY2021-2022.

Evolving scope of work
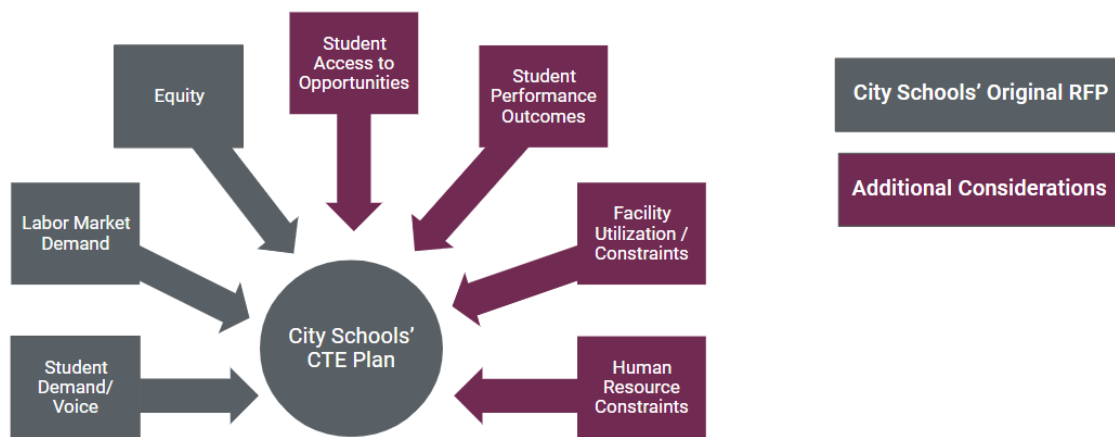
In Phase 2, the engagement began without a written Request for Proposals, so the process was more organic from the start. In general, the scope of work during this phase expanded from primarily data collection and analysis to include substantial roles for Project Evident in facilitation, communication, project management, and resource allocation support. For example, it was originally envisioned that City Schools would rely on internal communications capacity (or bring in other external resources). However, through weekly project check-ins, it became apparent that more communications support was needed given the importance of engaging stakeholders such as City Council members. After discussing this challenge, the teams agreed that Project Evident would expand its scope to include supporting the district's stakeholder and

communication strategy. The contract amount was increased to reflect the additional responsibilities, and Project Evident subsequently helped to prepare materials and co-facilitate many of the more than 100 stakeholder meetings that were convened to gather input on the plan. The funder was flexible in allowing resources to be allocated to the activities that the team determined were most important.

Ultimately, the partners were able to evolve together to meet the needs of the project. Broadly, this was a result of both parties' shared commitment to the end goal of moving City Schools' career strategy forward to increase student opportunity and looser commitment to the specific activities they undertook along the way. It was also a result of how the partners communicated. City Schools and Project Evident checked in regularly and used that time to share preliminary findings and discuss the strategies that would allow the work to move forward. Potential additions or changes to the work were transparent and openly discussed to reach agreement about the best way to use the time and resources at hand. Teams jointly decided which tasks would be dropped in order to take on something new, or where an overall increase to the scope of work would require more resources.

Philosophically, this deep commitment to adaptability, resourcefulness, and transparency in service of practitioner needs was consistent with the author's general approach to education agency partnerships. Practically, a few factors allowed Project Evident to accommodate City Schools' evolving needs. One was that the organization had in-house expertise spanning multiple areas (e.g., data analysis, implementation, finance and budget). Another was its own mission and financial model. The district's goals for students were aligned with

> " Whenever I am touting your work… I highlight the fact that **you all understand what it is to work with a district.** You have flexed with our crazy schedules, you have helped us make our case in the strongest way possible, and you have recognized the value of and supported us in meaningfully engaging our community."
>
> Rachel Pfeifer
> Executive Director,
> College & Career Readiness
> Baltimore City Public Schools

Project Evident's values, and this project was an opportunity to demonstrate that Project Evident could support districts in making evidence-based decisions. As a nonprofit, Project Evident also has some flexible philanthropic funding in addition to fee-for-service revenue. Because the project was mission-aligned and there was room to maneuver financially and with respect to talent, the organization was willing and able to make the project work — even when that meant being flexible with payment timelines or contributing its own resources.

Results

Resource Reallocation

As a result of the first phase of this work, City Schools reallocated approximately $1,000,000 in SY2020-2021 to bolster the equipment, materials, and curricular resources available to students and teachers in high-demand, high-wage pathways.[2] During the same year, City Schools eliminated some positions while allocating additional teachers to schools where there was demonstrated student demand. As of early 2022, the district has largely (95%) completed a curriculum refresh for pathways in Carpentry, Electrical, Home Builders Institute, Masonry, Welding, Autobody Collision, and Automotive Technician, with funds made available through reallocation.

Strategic Plan Reception

When the full strategic plan was released, it was generally well-received, with little pushback from stakeholders. In the context of rolling out a significant strategic initiative affecting staff and students across a large urban school district, the team views this as a success. Key players such as the district's human resources and facilities teams were on board because they had been meaningfully included in the development of the strategy and in implementation planning. The cabinet, which had to approve some of the larger changes within the plan, was supportive because of the cross-functional design process. Both the cabinet and finance teams allowed the savings from the plan's first year to be reallocated within CTE programs rather than reabsorbed, a signal that they found the plan clear and compelling. Philanthropic partners who helped to fund the planning work particularly valued the detailed financial modeling that they believed would improve the chances of successful multi-year implementation. Among school leaders, there was appreciation for — and in some cases surprise at — the transparency of the process. Even principals who lost staff as a result of the changes generally accepted that the new approach would better serve their students, and are now engaged in designing new CTE pathways.

Plan Implementation

Implementation of City Schools' career readiness strategy is ongoing. In addition to the resource allocation mentioned above, highlights include:

- Expansion of City Schools' CTE team, including the addition of a work-based learning team and added oversight of the district's Junior Reserve Officers' Training Corps (JROTC) program

- Submitting a Capital Improvement Plan for new facilities and facility improvements

- Implementing Career Ready Fridays, internships, and other opportunities for information technology pathways

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[2] The district reallocated approximately $600,000 from its staffing budget based on the teacher analysis described on p. 19, along with $400,000 in other funding that was redirected to support the strategy.

- Launching regular stand-up meetings with Career Readiness, Facilities, and Human Resources teams focused on plan implementation

- Releasing several Requests for Proposal to build out the programs that are in the plan

- Securing a grant to create a "pre-construction" class to expose 9th grade students to the different construction trades

With any implementation effort, it is important to set the systems and conditions for student access and success; therefore, in Year 1 of the plan, City Schools' focus is on ensuring that it is creating those systems and processes for school and students. In Year 2, as some pathways are given a "refresh," others are relocated, and more information about work-based learning opportunities is available to students, families, and staff, the district expects to see increased enrollment in pathways. After enrollment, with appropriate supports, students will successfully progress through their CTE pathway courses and ultimately graduate with a certification (if applicable) — a process that will be the focus in Years 3-5.

Expected plan outcomes

Year 1	Year 2	Year 3	Year 4	Year 5
Setting up the Conditions	*Ensuring Access*	*Course Completion and Pathway Success*		
Operational Outcomes • Shifts in funding • Shifts in teacher allocations • Preparing to relocate pathways • Kicking off work-based learning opportunities • Beginning setup of data infrastructure	**Enrollment Outcomes** • Continued resource reallocation • More pathways "refreshed"; redesign of other pathways begun • Schools have new pathways • Students enrolled in new pathways and enrollment increases in existing pathways • Student opportunities for work-based learning opportunities increase	**Progression Outcomes** • Increased # of students who complete two pathway courses/are on track for program completion	**Progression Outcomes** • Increased # of students who complete two courses (new cohort) • Students who complete three courses • Increased enrollment	**Completion, Certification, and Graduation** • # of students who complete all four courses (full pathway) • Student graduation • # of students who become certified

In their regular meetings, the implementation team is tracking these indicators and others to understand whether the plan is being executed as intended and how it is affecting the experiences and outcomes of students.

Alignment with Actionable Evidence Principles

Principle	In This Case...
Centers on Community Needs and Voices *Addresses the context, perspectives, priorities and assets of students and families, along with the challenges they face*	The project centered on a community need that previous research had established was not being met: CTE programs that offer equitable access to living-wage, in-demand careers. The quantitative analyses reflected this focus, examining factors such as how CTE pathways mapped to labor market needs and living wage employment and how long students had to travel to program locations (with a goal of no more than 45 minutes of commuting time). Both phases of the project also included direct conversations with a variety of community members, including principals, teachers, students, and families, to understand their desires and concerns. This input was integral to the content of the plan, not a procedural box to check.
Prioritizes Practitioner Learning and Decision Making *Answers questions that are highly relevant to policy and practice, and that help practitioners prioritize decisions in service of students and families*	This project was deeply practitioner-centered, directed squarely at City Schools' desire for an evidence-informed CTE strategy and a feasible plan for implementation. The partnership began with the district (via a funding partner) issuing a Request for Proposals outlining the analysis that it believed would inform its decision making. As the work unfolded, elements were added in response to district needs, such as stakeholder meetings, a review of physical facilities, detailed financial modeling, and contingency/tradeoff analyses.
Enables Timely Improvements *Allows practitioners to make evidence-informed decisions in a timely manner*	At a high level, the project was designed to meet City Schools' timing milestones related to budgeting, staffing decisions, cabinet or board approvals, etc. For example, by early March 2020, Project Evident completed an initial set of work to inform budget decisions. This included providing City Schools with a set of recommendations for workforce reductions based on low student enrollment as well as with a memo on how to reallocate resources in a budget-neutral way to bolster existing programs without creating a budget deficit. The full final report from Phase 1 was provided in late March 2020 for internal use and in April 2020 to share with philanthropy, aligning with the relevant funding cycle. The Project Evident team also worked with City Schools to accommodate time-sensitive demands for information that cropped up along the way, such as preparing materials for council briefings.

Credible and Transparent *Uses high-quality data and analysis, aligning methods with practitioner questions, timeline and context*	The team's intent was to use approaches that were methodologically credible and also produced outputs that could be understood by relevant audiences. The project prioritized the district's own data and indicators, information used regularly in its work, along with transparently gathered community input. For example, the Community Conditions Index was a tool already used by Facilities and district leadership. The goal of not exceeding a 45-minute "commute" for high school students was adopted as the extension of an existing district policy of not exceeding a 1.5-mile walk for elementary school students. Analytical techniques were selected to fit the questions at hand. For example, the team used descriptive statistics to highlight trends and geo-mapping to assess pathway access and placement.
Responsive to Operational Context of Practitioners *Reflects the context in which practitioners operate, including organizational settings, relationships and resources, and political and policy environment*	An important factor in the ultimate success of the project was the team's appreciation for the complex environment in which the CTE strategic plan would be developed and implemented. Based on their past experience, both Project Evident and City Schools understood that organizational, political, operational, historical, and funding dynamics all needed to be taken into consideration. This understanding manifested in a set of important choices. For example, the team brought multiple district offices that did not typically communicate together in the same meetings. They sought input from constituents through school site visits, interviews, small-group meetings, and large "town hall" events. They made sure to engage with key stakeholders who were outside of the direct decision making process but whose buy-in was important, such as members of the city council. They undertook in-depth financial modeling that took into account limitations on how funding from different sources could allowably be spent. Although these activities required a great deal of time and effort, they resulted in a plan that was better-informed and better set up for successful implementation.

Accessible and User-Centered *Clearly communicates research design, analysis, and findings to facilitate practitioner understanding and use*	Throughout the project, preliminary findings were "pressure tested" with City Schools to ensure that the analysis was coherent and responsive to their questions. Results were presented in different formats for different audiences to ensure that they were accessible and aligned with the authority that a given actor had to make change. For example, in Phase 1: 1. The Career Readiness team received a detailed deck with pathway-by-pathway details in addition to a dynamic map allowing them to look at different pathways and placement. 2. The district leadership team and instructional leadership executive directors received a high-level short presentation with key overall findings, along with findings relevant to their specific areas. 3. Funders received a summary of key findings and an appendix with extensive details.
Builds Practitioner Capacity for R&D *Provides practitioners with data, products, tools and trainings to own and advance their evidence agenda*	At the conclusion of Phase 1, all raw (cleaned) data were returned by Project Evident to City Schools. Project Evident provided all outputs (graphs, maps, etc.) as editable slides so they could be used in future presentations. Other "leave-behind" tools were designed to be usable by City Schools without external support, such as a project management plan built in Excel because that software was already widely employed by district staff. The Career Readiness team continues to use processes that were established during the project. For example, a cross-functional team meets biweekly to monitor progress on plan implementation and troubleshoot together based on quantitative and qualitative data. They are building out their process for measuring implementation in an evidence-based way. City Schools also continues to use the financial tools that allow them to explore tradeoff decisions.
Attends to Systemic and Structural Conditions *Considers systems, policies, practices, cultural norms, and community conditions that drive inequity, including those related to poverty and racism*	From the start, it was understood that systemic and historical dynamics had resulted in an inequitable CTE program, and that the new strategy needed to correct this pattern. The first part of the project fleshed out the nature and extent of the problem. For example, recognizing the geographic and spatial components of access to career readiness programming, the analyses included mapping how long it would take students to travel to the schools where CTE programs were located. As the team moved toward a forward-looking plan, the primary consideration was whether a given decision would give students more equitable access to living-wage, on-demand careers that interested them. Models that allowed the team to play out the implications of different choices were an important tool to look at equitable access in a data-informed way.

Reflections and Conclusion

This project illustrates key elements of the actionable evidence approach. Its focus and timeline were driven by practitioners at Baltimore City Public Schools who sought to make equity-oriented decisions in a resource-constrained environment. These practitioners worked collaboratively with research specialists at Project Evident to shape questions. The team creatively combined data and methods to answer those questions as convincingly (and quickly) as possible, and tailored the presentation of the findings so they were immediately useful for decision-makers. Practitioners and researchers communicated openly and frequently, adjusting course when necessary. Skills in project management, facilitation, and community engagement were just as important as proficiency in data cleaning and GIS mapping. In the end, the result was actionable evidence, useful to and demonstrably used by practitioners to make decisions that meaningfully affect students, teachers, and communities.

In reflecting on this experience, we offer guidance for those who might undertake similar work in the future.

For Researcher Partners

- Be empathetic and flexible, but with your eyes on the goal. It's okay (even good) to pivot when needed and be available when asked, as long as that flexibility is in service of benefiting students and results from candid discussion with partners about how best to apply your collective resources to the work.

- Be partner-centered. Put your partner's needs first and let their timeline drive yours.

- Be humble. Your practitioner partners understand their communities best and have the best sense of what is feasible.

- Take a broad view to encompass the factors that matter, and iterate. Use multiple data points (facilities, human resources, finances, academics, surveys/feedback, compliance requirements, etc.), and check in with your practitioner partners along the way to see if what you're finding is credible to them.

- Support implementation. Generating evidence is important, but *using* evidence to make positive change over time is what drives meaningful impact for students.

- Be clear about what you can and cannot do. It is convenient for your partners if you are able to help with data analytics, guide discussions, and consider the implications of decisions — but only if you can deliver.

For Practitioner Partners

- Be the expert on your own work. You know your community and your context best, so be clear about what works for you, what doesn't, and when things might be off track.

- Be available. The work will move more quickly and the output will be more relevant if you are accessible to answer questions and jointly problem solve.

- Be demanding. Ask for what you need and explain why. The worst that can happen is that your research partner will not be able to do it.

- Manage your own expectations. In a situation where time and money are limited, you won't be able to collect all the possible data or do every possible analysis. Have candid conversations with your research partner about what to prioritize.

- Appreciate that there isn't one right answer; everything is a series of trade offs. Look to your partners to illuminate those tradeoffs, not to provide you with the "correct" action to take.

For Funders

- Be realistic about what it costs, and how long it takes, to design and implement meaningful, well-informed change.

- Strive to create conditions under which your grantees and partners can be honest about changes in their circumstances and challenges they are facing without fear of losing support. Trusting relationships will benefit your grantees but will also allow you to learn faster and more deeply.

- To the extent you can, allow grantees to reallocate funding in ways that serve your shared goals. Recognize that it is not always possible to perfectly predict how a complex project will unfold, and that being faithful to a budget is not in itself a meaningful outcome. If you can't provide general operating support, offer low-burden options for reallocating funding within project budgets so that your resources can be applied where they will do the most good.

Baltimore City Public Schools' new Career Readiness strategy was motivated by a desire to put more students on the path to careers that interest them and that have a high likelihood of stable, living-wage employment. City Schools and Project Evident shared this goal. Over more than 18 months of partnership, they also shared a commitment to building this strategy on the best available evidence — of all kinds — and to communicating frequently and openly about how they could adjust their work to serve the goals of the project. The new career readiness plan did not sidestep difficult decisions; it included ending or relocating some pathways and eliminating some staff positions. It is because the process of developing the plan was transparent, inclusive, and mindful of implementation realities that it has been adopted and has led to changes that are expected to increase equity and access for Baltimore students.

Resources and Further Reading

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About the Author

Bi Vuong is the Managing Director, Education Agency Practice at Project Evident. Bi is an experienced education policy professional who is committed to a practical approach to building evidence and improving outcomes and opportunities for students. She is the author of "[Strategic Budgeting: Using Evidence to Mitigate the 'COVID Slide' and Move Toward Improvement](#)" (2020), a contributor to *[Opportunity and Performance: Equity for Children from Poverty](#)* (2021), and one of the leaders featured in [Taking Charge of Change](#) (2021) by Paul Shoemaker. Before joining Project Evident, Bi was the Director of Proving Ground at the Center for Education Policy Research at Harvard University where she worked with states and districts across the country to implement a continuous improvement framework built on meaningful, measurable outcomes. She also launched the National Center for Rural Education Research Networks, bringing evidence-building capacity to districts in rural NY and OH. Prior to Proving Ground, Bi served as the Deputy Chief Financial Officer at the School District of Philadelphia; she has also held positions at the Data Quality Campaign and EducationCounsel, LLC. Bi currently serves on the board of the Academic Development Institute. A graduate of Kenyon College, Bi also holds an MPA from the Woodrow Wilson School at Princeton University.

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K-12 | urban | low-income | program improvement | career and technical education | interviews | focus groups | administrative data | school district | school | teachers | school administrators | foundation | external evaluator | academic learning outcomes | equity | employment outcomes | educational attainment | program retention | program access