



**Technical Report**

**Virginia Montessori Association**

# **Constructing Diverse and Inclusive Pre-K in Charlottesville through Montessori**

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**About the Partner**

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is President of the Virginia Montessori Association, a former Montessori teacher and administrator, proud mom, and UVA Equity Center employee working to expand equitable education access in Virginia.

**Disclaimer:** The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

**Honor Statement:** On my honor, I have neither given nor received unauthorized assistance.

*Elizabeth D. Nigro*



## Reflexivity/Positionality Statement

For this applied policy project, I served as the instrument in qualitative/quantitative data collection, analysis, and application, which necessitates reflexivity (Milner, 2007). Merriam and Tisdell (2016) define reflexivity or researcher positionality as “critical self-reflection by the researcher regarding assumptions, worldview, biases, theoretical orientation, and relationship to the study that may affect the investigation” (p. 259). This research endeavor investigates questions relating to ethno-racial and socioeconomic segregation in early childhood education as well as Montessori education. My experience as a White, middle-class, twenty-eight-year-old, childless female, PhD student, and former teacher shapes my passion and approach to this work.

First, three pivotal experiences continue to inspire me in this work. First, I attended a Catholic project-based middle-school, which had pedagogical parallels to Montessori and a mostly White, middle-class student body. In eighth grade, I participated in a student-led conference at a sister-school, ten minutes away with students from differing ethno-racial and socioeconomic backgrounds. Despite commonality in our school’s name and proximity, the stories shared by students from our sister school of food insecurity and violence, vastly differed from my own. This was one of my first moments of critical consciousness, forcing me to grapple with the dissonance of ethno-racial and socioeconomic disparities in a world I was told was just and post-racial. Shortly after, my brothers began attending an intentionally diverse, public charter school, which my family, as one with school mobility and other privileges, eventually left, largely due to questions surrounding if a model that demanded control of my brother’s bodies, was the right “fit” (Kafka, 2022). In this time, I noticed that my brothers and neighbors, who joined the charter in mid- to late-elementary school, still largely surrounded themselves with students from our town, with similar ethno-racial and socioeconomic backgrounds. In contrast, one of our neighbors also had a daughter, who began her school journey in kindergarten. Her social network today is notably more diverse. Furthermore, her weak/strong ties extended to her family, who have leveraged their networks to connect her friends with key economic mobility opportunities, like internships or information about colleges. Finally, I spent four years teaching in DC public and charter schools as a general and special educator. In this time, I taught at two schools ten minutes away with vastly different student experiences, resources, teacher experience, PTA fundraising, family capital, etc. Furthermore, I noticed that historically marginalized students in the city were more likely to attend schools of control, which caused discomfort for my family when making a school choice, and caused more discomfort in me, a White teacher enacting rules aimed at controlling the Black body (Golann, 2021). These disparities motivated not only this project but my return to graduate school.

With these experiences in mind, the following values impact the production of this product: equity, integration of social networks and the democratic institution of schools from the start, and pedagogical approaches that respect the full humanity of students. Given these values and my identity, I intentionally looked to literature by scholars of color, which critiqued the potential harms of past desegregation efforts. I acknowledge that interviews with intersectional power differentials can limit my access to an interviewee’s full perspective (Milner, 2007). Given my role as a UVA student, overall, I found community members willing to help and speak openly. Furthermore, I acknowledge that my snowball sampling largely relied on UVA and Virginia Montessori Association partners. Given time constraints, I largely conducted expert interviews, but future work should elevate family’s voices, specifically the historically marginalized.



## Executive Summary

In **Charlottesville**, Virginia (VA), often children's first formal schooling experience is within **pre-kindergarten (pre-K) classrooms highly segregated across lines of race, ethnicity, and socio-economic status**. School segregation presents **equity concerns, given quality and resource gaps, and undermines the creation of a thriving pluralistic democracy**. Other localities in Virginia and nationally have addressed such segregation through the implementation of **Montessori programming** (Debs, 2022; Hanover Research, 2016).

This policy analysis focuses on how local stakeholders can address pre-K segregation in Charlottesville through expanding access to Montessori. I present the following alternatives to the status quo include:

1. Montessori expansion within the public pre-K sector
2. The incorporation of public subsidies or mixed delivery funding within existent private Montessori pre-K programs
3. The creation of an intentionally diverse Wildflower pre-K center

Next, I systematically evaluate each alternative along the following criteria: **feasibility, administrative burden, equity, and cost effectiveness**, with feasibility and equity weighted more heavily, given my client's priorities.

With these considerations, I recommend that my client, the Virginia Montessori Association (VMA), first, **support current private Montessori pre-K providers in offering subsidy or mixed delivery slots to families historically unable to access such programming**. Additionally, the VMA should oversee coalition building amongst existent center leaders, families, community-partners, and other stakeholders. During implementation the VMA should be aware of potential transportation, training, and fidelity barriers. Furthermore, centers proactively address inclusivity concerns, leaning on supports like those provided by the non-profit Kindred, who facilitates family and staff diversity, equity, and inclusion dialogue. Finally, the VMA should continue to advocate for elements of other proposed alternatives, which could become more feasible in the future.



One community member's daughter noticed racially isolated social networks in kindergarten, commenting at age five that the Black students were already close friends because they attended pre-K together.



## Key Terms

*Montessori*: An alternative approach to traditional pedagogy in the U.S. At a high level, Montessori involves student autonomy, sequential lessons using signature materials as well as longer work blocks, personalized supports from the teacher, collaboration with other students, freedom of movement, multi-age classrooms, and the same teacher over three years (Debs & Brown, 2017).

*ECE*: early childhood education, normally ages zero to eight, but for this report ECE will largely refer to the pre-kindergarten or pre-K years. Furthermore, ECE programs can range in type from public, Head Start, private, homecare, etc. Virginia is currently expanding ECE access, but pre-K is not yet universal, or available to all for free.

*Subsidy*: means-authorized payments to families, like vouchers, to assist in child-care provision (Virginia Department of Social Services, 2020). Families qualifying under the state-set income and other requirements can apply to receive money to attend an approved pre-K site during their child's three- and four-year-old years (See Appendix B). On average, the subsidy in Virginia amounts to roughly \$13,000 (K. Miller-Baines, personal communication, March 1, 2023).

*Mixed delivery*: pre-K sites that accept at least ten qualifying families are considered mixed delivery, and such centers, unlike those accepting subsidies, can qualify for student transportation provided through the state ("Mixed Delivery Program," 2022).

*CLASS*: Classroom Assessment Scoring System (CLASS), which the state of Virginia is beginning to use as a measure of pre-K quality for all sites accepting public funds. Such scores right now are low-stakes, in other words there are no high-stakes accountability measures linked to CLASS scores.

*Latine*: a gender-neutral term for Latino/a; Hispanic is used interchangeably.

*ED*: Economically disadvantaged anonym, indicating students qualify for free or reduced-price lunch and/or other public benefit programs.

*Segregation*: the separation of people along different facets of their identity.

*Desegregation*: addressing *de-jure* or by law segregation, historically across lines of race and ethnicity.

*Diversity*: a more contemporary term than desegregation, involving placing students with intersectional identities in proximity and address *de facto* or in effect segregation.

*Integration*: takes diversity one step further, by creating a power-balanced, representative, and inclusive environment to students from all intersectional identities.



### *Segregation Measures:*

- Dissimilarity Index: this measure of distribution estimates the share of students that would have to move to a different school to achieve perfect compositional balance within a population. The dissimilarity index, like Thiel's  $H$ , requires a full universe of public and private school data, which is not publicly available in VA, resulting in the use of other measures in the localized context.
- Exposure Index: one of two interaction measures used to estimate student contact with members from differing groups. Exposure indices, specifically, measure the composition that the average student is “exposed” to. For example, a Black-White exposure index of 30% indicates that the average Black student interacts with a student body that is 30% White (see Appendix A for calculation details, within this analysis).
- Percent Change Comparisons: This crude measure looks at the percentage of students in each demographic group relative to the entire grade-level composition. This report uses pre-K demographic percentage as the base, first, calculating the percentage of kindergarten students in a particular demographic, subtracting the pre-K base-percentage, then dividing by the initial pre-K percentage to acquire the percent change (see Appendix A for sample calculation).

## **Problem Statement & Introduction**

### *Problem Statement:*

In the U.S., Virginia, and the localized context of Charlottesville, **pre-kindergarten (pre-K) is more ethno-racially and socioeconomically segregated than kindergarten** (Greenberg & Monarrez, 2019; Hollett et al., 2022). More specifically, when compared to public kindergarten enrollment, Asian, Hispanic, Black, and economically disadvantaged (ED) students are overrepresented in Charlottesville’s public pre-K system; additionally, White students in Charlottesville appear to be extremely under-represented in public pre-K, at rates significantly greater than state averages.

This ethno-racial and socioeconomic **segregation of students and family networks presents a policy concern given associations with lower quality pre-K programming/resources and opportunity gaps for the historically marginalized**, according to nationally representative data (Bassok & Galdo, 2016; Chetty et al., 2022a; Friedman-Krauss & Barnett, 2020; Latham et al., 2021; Rothwell, 2016).

### *Introductory Comments:*

This report seeks to address pre-K segregation through a data-driven approach, first looking to quantify the segregated landscape with the best available information and various measures



segregation. Figure one substantiates a well-documented trend, that kindergarten through twelfth grade (K-12) is highly segregated. When looking over time, a recent report indicates that White-Black, White-Asian, and economic segregation have increased since 1991, with White-Hispanic segregation slightly declining, according to exposure measures (Owens et al., 2022). When comparing early childhood education (ECE) to the K-12 landscape, students appear even more segregated, according to nationally representative data from public and private providers. More specifically, the dissimilarity index in Figure 1 indicates that 71% of Black or Hispanic students would need to relocate ECE programs to achieve perfect desegregation (Greenberg & Monarrez, 2019).

Figure 1: National Pre-K Segregation (Dissimilarity Index)



**Source:** Authors' calculations of the distribution of black or Hispanic students using the 2012 National Survey of Early Care and Education, 2011–12 data from the Common Core of Data, and the 2011–12 Private School Universe Survey.

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Source: Greenberg & Monarrez, 2019

Next, publicly available data on 2022-23 public pre-K and kindergarten enrollment, illustrate common and diverging trends between the Virginia and Charlottesville contexts (See Figures 2 and 3). First, in Virginia, economically disadvantaged, Black, and Hispanic students are overrepresented in public pre-K, when compared to public kindergarten enrollment within the same year (note: this finding is robust when looking within cohort across the past two school years). A state-wide report employing data from the 2019-20 school year further substantiates state-wide pre-K segregation through exposure indices and other measures of concentration (Hollett et al. 2022). Charlottesville appears to slightly diverge from these statewide trends, with Asian students also overrepresented in public pre-K, in comparison to kindergarten. Qualitative work suggests this may be due to participation from refugee families from countries like Afghanistan, who may identify under existent ethno-racial categories as Asian (S. Sparks, personal communication, February 24, 2023).



The most striking finding of this analysis is the increase of White students when entering public kindergarten. There is a 230% increase (28 percentage point change) when comparing public pre-K and kindergarten enrollments, indicating **White students in Charlottesville are particularly underrepresented in public pre-K**, especially when looking at state averages that indicate a roughly 20% increase.

Figure 2: Virginia (Percent Change)

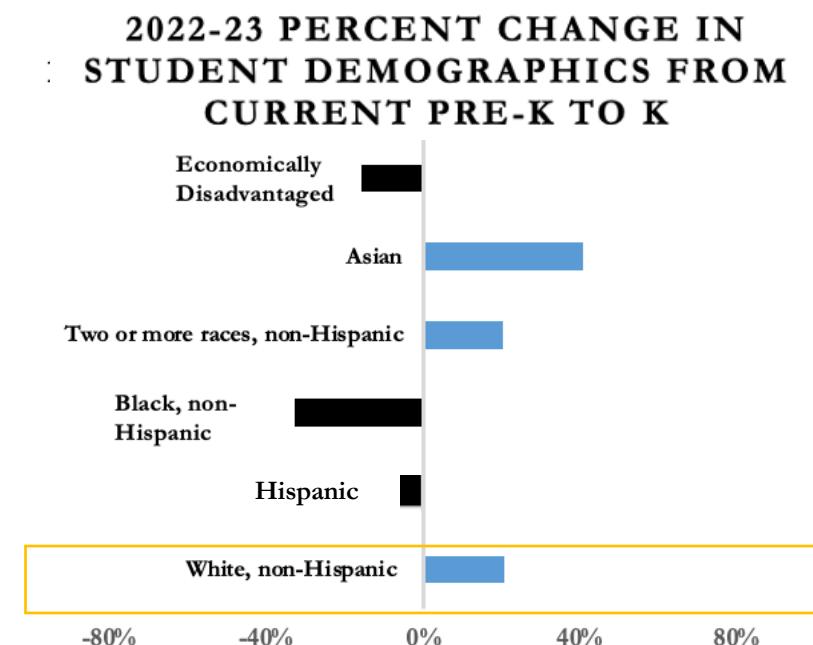
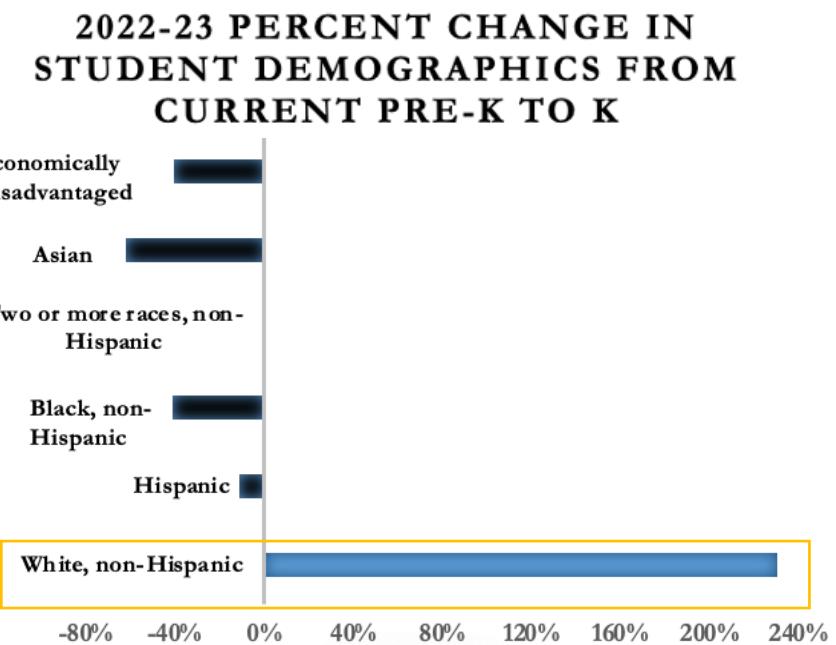


Figure 3: Charlottesville (Percent Change)



Source: Virginia Department of Education Demographics: Build-A-Table, 2023 (See Appendix A for Calculation)



Figure 4: Charlottesville (Exposure Index)



The average **economically disadvantaged (ED) pre-K student** in Charlottesville (2022-2023) typically interacts with a group of students that is **10% non-ED**



The average **non-White pre-K student** in Charlottesville (2022-2023) typically interacts with a group of students that is **12% White**

The average **economically disadvantaged kindergarten student** in Charlottesville (2022-2023) typically interacts with a group of students that is **46% non-ED**



The average **non-White kindergarten student** in Charlottesville (2022-2023) typically interacts with a group of students that is **40% White**



Source: Virginia Department of Education Demographics: Build-A-Table, 2023 (See Appendix A for Calculation)

Furthermore, Figure 4's exposure index measure provides additional evidence for segregation in Charlottesville. Strikingly non-White and economically disadvantaged students have significantly more contact with their White and non-economically disadvantaged (ED) peers, respectively, in the kindergarten years. These data suggest that White and non-ED students are not attending public pre-K, likely attending predominantly private pre-K centers, which are Whiter and wealthier on average, according to qualitative interviews (H. Heisig, personal communication, November 4, 2022, personal communication, November 4, 2022; L. Munson, personal communication, November 1, 2022). This segregated public pre-K landscape is unsurprising given past policy that targeted such programming to families meeting low-income requirements, which given systemic racism, often has ethno-racial implications. In conclusion, **Charlottesville's ECE ecosystem appears highly segregated across lines of race, ethnicity, and socioeconomic status.**

## Client Overview

My client, the **Virginia Montessori Association**, is an **advocacy group** looking to promote equitable schooling through Montessori programming in Virginia. More specifically, the organization's mission is: "**inclusive and equitable expansion and amplification of Montessori community through socially-just networking professional development, outreach, advocacy, and coordination of resources**" (*Virginia Montessori Association*, 2022). Given this mission, the VMA hopes to help address equity issues related to pre-K segregation and Montessori access, specifically in Charlottesville, where my partner, Corey Borgman, the organization's president, currently resides.

Montessori programming appears well equipped to help establish integrated and inclusive pre-K programming. For instance, notable components of the Montessori approach include student



autonomy, distinct materials for hands-on learning, individualized instruction, minimal whole-group learning time, 2.5-to-3-hour work blocks, as well as larger mixed-age classrooms that allow for peer mentorship/collaboration. These components, emerging research, and local demand for Montessori programming, make Montessori one ideal way for addressing pre-K segregation, as discussed in more detail in the existing evidence section.

Finally, the VMA's advocacy has created a policy landscape that allows for easier implementation of Montessori. For instance, the organization lobbied for the approval of Montessori as a high-quality birth through five curriculum and for Montessori credentialing plus a one credit course to substitute for a traditional teaching license in VA (*Virginia Montessori Association*, 2022).



Source: *Virginia Montessori Association*, 2022

## Background & Consequences

### *Charlottesville Background:*

Understanding Charlottesville's history is key to understanding the current education policy landscape. For instance, Charlottesville, like many other localities, has a history of massive resistance to desegregation and remains under an active desegregation court-order (*School Bd. of City of Charlottesville v. Allen*, 263 F.2d 295 | *Casetext Search + Citator*, n.d.). In recently published collection oral histories illuminate the harassment faced by the first students to desegregate Charlottesville City Schools (CCS) (Hagi, 2022). Similarly, a primary source petition reveals similar student, faculty, and staff resistance to desegregating the University of Virginia (Robertson 2022).

Current resistance to school integration and resource hoarding by privileged families, exists in the wake of the Unite the Right and Black Lives Matter movement, but with more subtly racially coded messaging. For instance, language like the desire for “neighborhood schools” or gifted and talented programming, effectively perpetuate the legacies of segregation and existent hierarchies. A high profile New York Times article documented such resource-hoarding and the racialized differences in educational quality within the city (Green & Waldman, 2018). This article as well as Unite the Right

have ignited conversations locally. For instance, at a 2022 school board meeting, the lines for Venable Elementary, a majority White school, were redrawn to include a nearby public housing complex, in a majority black neighborhood, that during the 1960s was districted to a school across town to keep Venable, the school in walking distance, White (Jean-Charles, 2022). Furthermore, Charlottesville City Schools (CCS)'s current strategic plan and equity statement indicate that the school division (what other states call district) shares a concern for opportunity gaps across intersectional identities. Finally, the city is in the process of restructuring their middle school, which community members perceive as an attempt to increase public investment as well as reduce White and privileged family flight from public schools at this age-level (N. Deutsch, personal communication, November 1, 2022).



Hughes, left, and Zyahna Bryant at Charlottesville High School, where they are seniors. Matt Eich

Source: Green & Waldman, 2018

While some privileged families in Charlottesville may desire to send their children to public pre-K programming, systemic forces and past policy decisions prevent them from actualizing this choice and other families from accessing expensive, private centers (Greenberg & Monarrez, 2019). For instance, policymakers targeted public pre-K provision, like Head Start, to low-income families only, despite initial proposals to include middle-income families in such provision (Zigler & Styfco, 2010). Given ethno-racial wealth gaps with historical roots, programming that separates students by socioeconomic status, in turn often segregates by race and ethnicity, with Black and Latine students overrepresented in public pre-K systems (Lui et al., 2006). In Charlottesville, there are currently 20 public pre-K classrooms located in elementary schools and additional free access sites, like Head Start, mixed delivery centers, and other providers that accept subsidies, for families at or below 185% of the poverty line or with other risk factors (VDOE: *Virginia Preschool Initiative (VPI)*, 2022). Organizations like Charlottesville City Schools, United Way, and City of Promise all assist families in site placement (M. Coleman, personal communication, December 13, 2022). For non-qualifying

families, their pre-K choice looks systematically different. For instance, factors related to cost and convenience, such as location, hours, etc., narrow their choice sets, or schools that they consider as viable options, and moderate their ultimate school choice (C. A. Bell, 2009; Meyers & Jordan, 2006). With this in mind, in addition to previous ethno-racially discriminatory housing policy, transportation access, legal rulings, etc., pre-K segregation is arguably a historical policy choice (G. Orfield & Frankenberg, 2014; Rothstein, 2018).

While this project focuses on the city of Charlottesville, future work could address segregation across divisions, to include localities like Albemarle County. Nationally representative data suggest that although within district segregation has increased, on average, the majority of segregation remains across district lines, given patterns of White flight and discriminatory housing policy (Owens et al., 2022; Rothstein, 2018). Furthermore, the current legal landscape makes diversity plans across-districts nearly impossible, but there is emerging evidence on the potential for redrawing school and district boundary lines to encourage diversity (Asson et al., 2023; *Milliken v. Bradley*, 2022). Integration, however, is not guaranteed and within-school-segregation, succession, or other resource-hoarding practices that could emerge following policy shifts and will be discussed at greater lengths in the existing evidence section (Siegel-Hawley, 2020).

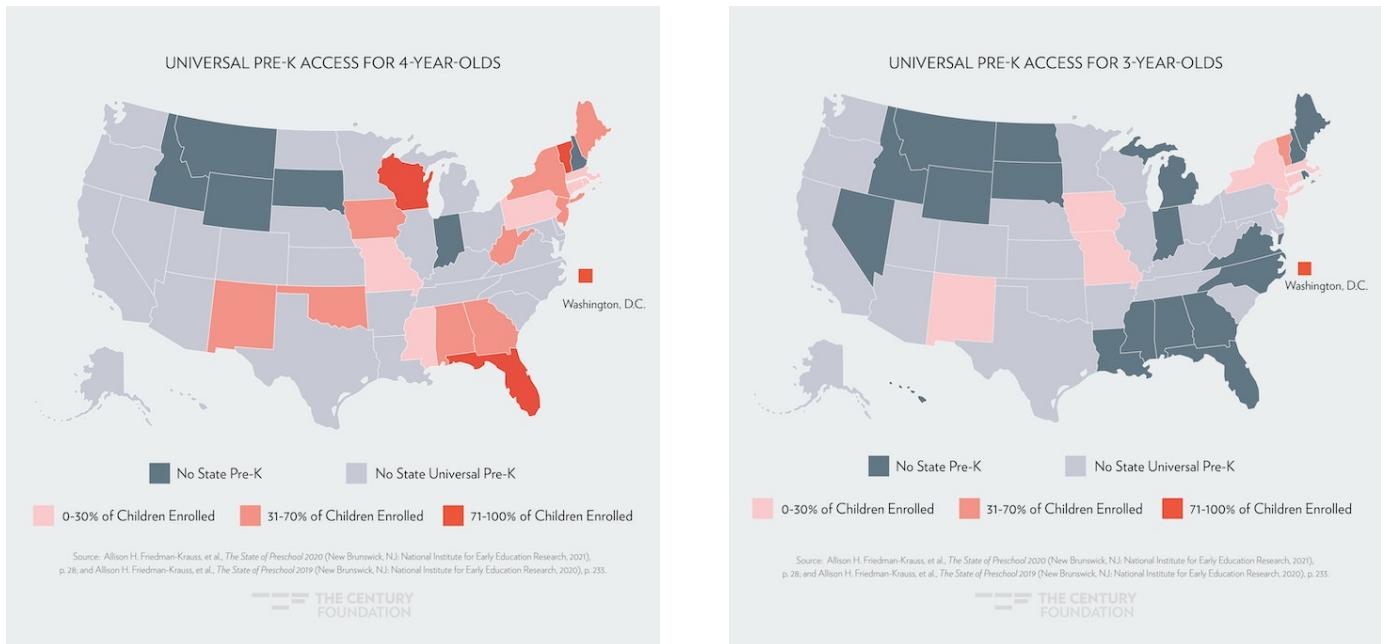
#### *Consequences:*

Segregated and non-universal public pre-K have negative civic and economic consequences. First, segregation allows for the perpetuation of dehumanization and systemic racial hierarchy construction. **This separation harms us all within a pluralistic democracy.** For instance, more segregated communities are associated with higher rates of pollution (McGhee, 2021). Climate and other collective action problems, define our time. Schools serve as the primary institution for democratic formation; however, our current school system largely fails in preparing students for the globalized reality that necessitates coalition-building across lines of difference (Blum & Burkholder, 2021; Dewey, 2011; Labaree, 1997).

Segregation at a young age has lasting consequences. For example, high-income and White students, on average, attend higher-quality programs according to observational, achievement, and validated rating measures than their low-income, Black, and/or Latine peers (Bassok & Galdo, 2016; A. Friedman-Krauss & Barnett, 2020; Latham et al., 2021; Rothwell, 2016). Mechanistically, such quality gaps relate to Whiter and wealthier preschool centers remaining associated with greater resources, stronger teacher quality, more enriching instruction that relies less on routine-based activities than programs serving low-income and/or students of color, as well as smaller class sizes (Greenberg & Monarrez, 2019; Bassok, 2010; Bassok & Galdo, 2016; Dunham et al., 2008; Henry & Rickman, 2007; Mashburn et al., 2009; Early et al., 2010). For instance, one study using classroom observational data found that such quality gaps between White and Black preschoolers were correlated with racial concentration of the programming and state-level residential segregation (Valentino, 2018). Moreover, two large, nationally representative studies suggest ethno-racial and



socioeconomic gaps in achievement scores emerge as early as kindergarten according and the Black-White test score gaps widen as school segregation increases (Matheny et al., 2021; Reardon & Portilla, 2016). Another study employing propensity matching found Black students in predominantly Black schools made fewer reading gains by first grade than Black students in ethnically diverse schools, which prompts the consideration of integrated schools as a desirable policy goal for promoting equity (Kainz & Pan, 2014).



Source: Potter, 2021

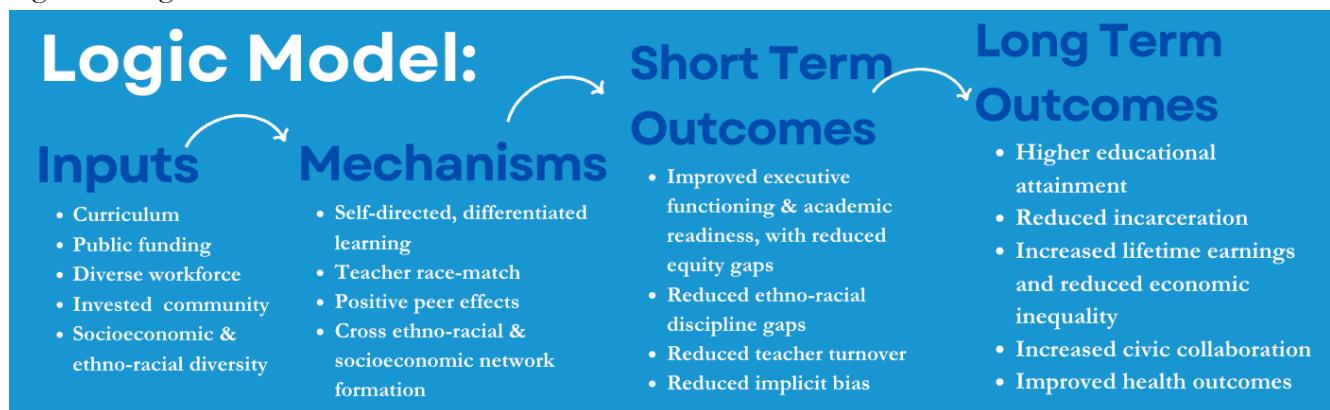
There are additional collective harms related to the lack of high-quality, universal pre-K provision. For instance, one study in Chicago suggests that pre-K reduces the likelihood of incarceration by 23%, by age 24 (Reynolds et al., 2010). According to 2015 data, the average annual cost of incarceration in Virginia was approximately \$21,300, which has likely increased in the past eight years, and suggests that education investments in pre-K could translate to hundreds of thousands of dollars in savings on prisons, alongside increased economic earnings (Hammel, 2021; *The Price of Prisons - The Price of Prisons - Prison Spending in 2015*, 2016). For instance, pre-K investments appear especially cost-effective, with cost-benefit analyses estimating benefit-cost ratios ranging from \$3 to \$1 to \$16 to \$1, with financial returns increasing over time (Bartik et al., 2011; Belfield et al., 2006; Clemens et al., 2015; Reynolds et al., 2001). Another report estimates that by 2050 the benefits of universal pre-K to be \$8.90 to \$1, and that investments would yield returns after only eight years (Clemens et al., 2015). Virginia's current pre-K initiative expansion signals a shift towards more universal public programming, or free programming to all age-eligible students. This eventual shift, which has garnered bi-partisan support, will create a unique opportunity for addressing segregation through strategic systems redesign (Gallup, 2014; VDOE : *Virginia Preschool Initiative (VPI)*, 2022).



In conclusion, the stakes are high, but as Charlottesville continues to expand pre-K access, there is an opportunity to create more ethno-racially and socio-economically diverse centers for the future of our democracy.

## Evidence on Solutions

Figure 5: Logic Model



### *Past Benefits of Desegregation:*

The strongest evidence-base of school desegregation's benefits comes from K-12, particularly in the South following court desegregation orders. For instance, there is strong, replicated causal evidence that employs quasi-experimental methods to link court desegregation orders to short- and long term-outcomes. Such studies find exposure to desegregated schools improved education attainment, lifetime earnings, and health outcomes as well as reduced incarceration rates for Black students (Anstreicher et al., 2022; Guryan, 2004; Johnson, 2011; Reber, 2010; Rivkin & Welch, 2006; Weiner et al., 2009). Johnson's work also demonstrates positive effects from Head Start, intergenerational effects for Black families, and no harm to White students' outcomes (Benner & Crosnoe, 2011; Johnson, 2011).

### *Benefits of Diverse Schools Today:*

The exogenous shock of court-orders and the number of years since enactment allow scholars to look at long-term causal questions, but there is also a literature on more recent school diversity efforts. These studies often focus on Charlotte-Mecklenburg, North Carolina, or Louisville, Kentucky, where schools remain relatively diverse and demonstrate positive academic effects for Black students (Mickelson & Heath, 2000; M. Orfield, 2015). Additionally, desegregation appears to be associated with similar academic benefits for Latine/Hispanic students, who are the largest growing demographic in U.S. schools (Antman & Cortes, 2021; Owens et al., 2022). Moreover, diverse learning spaces also appear to benefit those of lower socioeconomic status. For instance,



socioeconomic interconnectivity, in settings like schools, is associated with increased economic mobility and earnings (Chetty et al., 2022b).

#### *Future Promises of Pre-K Integration:*

There is emerging evidence that these benefits generalize to diverse pre-K, which represents one way to address opportunity gaps that emerge in students' first schooling experiences. For instance, ethno-racially integrated pre-K classrooms are associated with statistically higher language and math learning, even when controlling for instructional quality. Although the magnitude of effects was relatively small, which one may expect given that assessments were administered five months apart and about fifty percent of the roughly 3,000 students attended half-day pre-K, such effects could compound over time (Reid, 2019). Additional evidence exists in favor of pre-K integration across lines of socioeconomic status. For example, socioeconomically integrated pre-K classrooms are associated with more receptive and expressive language as well as math skills and less negative interactions with students of a lower socioeconomic status (SES) than homogenous high-needs classrooms (Bagby et al., 2005; Reid & Ready, 2013; Schechter & Bye, 2007). One study particularly found the effect sizes in language and math development to be comparable to those associated with instructional quality and a child's own socio-economic status (Reid & Ready, 2013). Despite these promising findings, the research base of ethno-racially and socioeconomically diverse preschools is limited, especially in comparison to the more robust K-12 literature, partially due to the lack of diverse schools at the pre-K level.

Addressing ethno-racial and socioeconomic segregation, especially at a younger developmental age, serves as a policy lever to reduce implicit bias. For example, Pettigrew and Tropp's 2006 meta-analysis of over 500 studies on contact theory, supports cross-race interactions are associated with a reduction in intergroup prejudice, even given participant and/or publication bias, and that such effects are enhanced under Allport's optimal conditions of equal power, common goals, and need for cooperation (Allport et al., 1954). Additional research suggests that reductions in implicit bias as well as increases in cross-racial friendship are more pronounced when the contact occurs at a young age (Aboud et al., 2003; Cloutier et al., 2014; De Souza Briggs, 2007; Gaias et al., 2018; Howes & Wu, 1990; Kelly & Collett, 2008).

Reduction of implicit bias and integrated spaces early in a child's development would benefit all within our pluralistic democracy (Labaree, 1997). For instance, social science research suggests that implicit bias places a mental burden on both the historically marginalized and other party during interpersonal interactions and that integrated environments can increase critical thinking and problem solving (Richeson et al., 2005). These studies, in addition to reviews suggesting racial stereotypes and prejudice emerge from ages three to five, point to the importance of early intervention (Cristol & Gimbert, 2008; Levi & Milligan Hughes, 2009). Finally, desegregation in the South led to a significant increase in White participants' voting for racially equitable policies (Chin,



2020). This evidence illustrates the potential for integration to strengthen bonds between the increasingly diverse democratic collective and the importance of beginning such work early, where long-term benefits appear to be more pronounced (Johnson, 2011).



Source: Kashen, 2022

#### *Benefits of Pre-K and Montessori:*

Like court-ordered desegregation, casual evidence links pre-K to positive long-term outcomes and there is a growing body of evidence for the benefits of Montessori preschools, specifically. For instance, quality pre-K is linked to initial test score gains that tend to fade out but positive long-term outcomes, like increased earnings, with these effects are especially pronounced for Black and Latinx youth (McCoy et al 2017; Amadon et al 2022; Bassok 2022). The development of “soft-skills” in these early years could explain why positive effects re-emerge later in life (Cashen, 2022; Chetty et al., 2010). Such skills like curiosity, play creativity, self-regulation, and communication are also foundational to the Classroom Assessment Scoring System (CLASS), Virginia’s low-stakes pre-K quality evaluation system, which the Department of Education is currently rolling out (*The Virginia Unified Early Learning and Development Standards for All Children Ages Birth – 5*, 2020).

Montessori is a high-quality pedagogical approach in pre-K that meets CLASS and state curriculum criteria as well as generates positive student outcomes. A recent quasi-experiment in Connecticut linked exposure to Montessori programming to improved academic achievement, executive function, mastery orientation (socio-emotional regulation), and enjoyment of academic activities. Furthermore, typical academic opportunity gaps between low SES and high SES students in the



short-term were eliminated in this program. With this in mind, these short-term skill improvements have also been linked to long-term outcomes like academic achievement and there is potential for test-score-gap reduction between historically dominant and marginalized groups (Lillard et al., 2017). For instance, Montessori schools, when compared to their surrounding district counterparts, were associated with overall higher proficiency scores on state tests in third and eighth grade, with Black students testing higher on average in both math and English language arts (ELA) (L. Snyder et al., 2022). In conclusion, Montessori curriculum presents the opportunity to equalize and elevate outcomes and, when considering family preferences, is politically feasible.

Next, Montessori promotes social emotional skills associated with increased wellbeing and earnings. For instance, a randomized lottery study of Montessori preschool suggests such programming promotes social problem solving and mastery orientation or social emotional skills, linked to wellbeing (Lillard et al., 2017). Additionally, a prominent casual study employing Tennessee STAR data suggests that the promotion of such non-cognitive skills in kindergarten, which is a similar developmental period to pre-K, drives labor market earnings' increases (Chetty et al., 2010).



Source: *Virginia Montessori Association*, 2022

Finally, there is evidence that the implementation of Montessori programming could reduce costs associated with teacher turnover. A recent study, that employs pre-pandemic data from Louisiana, suggests that teacher turnover in early childhood centers is negatively associated with children's learning and undermines quality improvement efforts (Doromal et al., 2022). Another report from Virginia suggests that eight months before the pandemic, one in four teachers left their childcare center, with the highest turnover-rates for those earning the lowest wages (Bassok et al., 2021). Such turnover rates in early childhood care broadly, and pre-K specifically, appear higher than in K-12 and have worsened since the pandemic (Bohlen, 2021). Teacher turnover can be costly to systems, who must recruit and train a new workforce, and given quality reductions, could risk reducing the benefit cost ratios of pre-K programming. Emerging evidence suggests that Montessori programming could combat costs related to teacher turnover and promote skills associated with increased earnings. For instance, one study showed Montessori was associated with reduced teacher

turnover and improved teachers and student mental health (Lillard et al., 2021). Switching to a Montessori curriculum could reduce costs associated with teacher turn-over as well as mental health services, in addition to providing wellbeing externalities that are difficult to quantify in economic terms.

#### *Politics of Family Pre-K Preference:*

Historically, the preferences of White and wealthy family have perpetuated segregation, but public Montessori holds the potential to meet family preferences, while desegregated. For policies to reduce racial injustice, one scholar argued they would have to benefit both the historically marginalized and oppressor to generate “interest convergence” (D. A. Bell, 1980). Montessori centers in Virginia, specifically Arlington and Richmond, have sustained diverse student demographics (Hanover Research, 2016; *Tuition Guide*, 2022) In Richmond, like in other contexts, Montessori schools used socioeconomic quotas to ensure constitutionality and that privileged families did not take-over such desirable schools (Hawkins, 2021). There are other instances that demonstrate Montessori is a high demand model, but specifically in Charlottesville, Montessori pre-K has a strong hold on the private market (Esemplare, 2018). Whiter and wealthier families may be more likely to support integration efforts, if they would benefit, like gaining subsidized access to Montessori pre-K programming, a convenient location, or instrumental benefits from the diverse student body. Designing programs for the benefits of those in power does risk creating non-inclusive environments for students of color, which policymakers must consider upon implementation (Starck et al., 2021).



Source: Potter, 2021

#### *Evidence on Additional Considerations and Counterarguments:*

Finally, attempts for integration today must seek to avoid past implementation pitfalls. True integration is distinct from desegregation, because of the ability to address power and inclusivity

concerns. Integrate NYC describes such inclusivity as including the 5Rs: Race and Enrollment, Resources, Relationships, Restorative Justice, and Representation (*The History of the Movement for School Integration*, 2020). These characteristics intentionally highlight where past desegregation movements fell short of achieving inclusive and integrated schools.

Modern integration attempts must consider how to mitigate potential harms to students of color through consideration of the teacher workforce and disciplinary practices. For example, during the time of court-ordered desegregation, Black teachers and administrators were stripped of their roles (Siddle Walker, 2019). This harmed Black students, who experienced higher rates of disciplinary outcomes, like suspension and expulsion, as well as special education classifications (Beck & Muschkin, 2012; Domina et al., 2017; Kupchik & Henry, 2022; Shores et al., 2020). Teacher-race match, or having Black students educated by Black teachers can mitigate these outcomes, with some additional evidence suggesting a Montessori approach, that emphasizes child-autonomy and less whole-class instruction, can also reduce discipline gaps (Brown & Steele, 2015; Ladson-Billings, 2004; Lindsay & Hart, 2017). Currently early childhood education centers have a workforce that is less White than K-12, which with inclusive certification policies, could allow for a more diverse teaching body. Additionally, many programs are working on diversifying the teacher pipeline, like Howard University, which is specifically developing a Montessori teacher training program (*Howard University and Washington Montessori Institute Partnership*, 2020). There is also value in affinity spaces, like a Black community center, Jewish Sunday school, or even spaces within public school environments, but this does not negate the need to come together collectively.

Additionally, challenges to social emotional and race-conscious curriculums could present a concern. For instance, in Virginia politics there has been recent resistance to school's incorporating "critical race theory" (CRT), which in schools normally takes the form of culturally responsive pedagogy and having books that are representative of a diversity of identities as well as life experiences (Mayberry, 2022). Furthermore, there are indicators that social emotional learning is starting to be politicized in the same way in Virginia (Anderson, 2022). Although Charlottesville is more liberal than other places in Virginia, Montessori's focus on equity as well as social emotional learning could be politicized.

### *Conclusion:*

In conclusion, the evidence suggests the potential of addressing ethno-racial and socioeconomic pre-K segregation through intentionally diverse Montessori schools (Debs, 2022). There is even more evidence to suggest this is possible in Charlottesville. For example, two hours away, Arlington Public Schools (APS) leveraged local funds to expand Montessori in their public pre-K system, a program that is sustained by a sliding-pay scale (Hanover Research, 2016). Furthermore, an hour away in Richmond, Fulton Montessori, uses blended-funding streams, to allow one-third of families to attend for free, another third to pay a subsidized rate, and another third of families pay full tuition. The success of these models inspired the proposed alternatives.



## Alternatives & Evaluative Criteria

This section investigates three strategies to achieve such ends in Charlottesville, including the incorporation of Montessori programming into the public system, provision of public subsidies and/or mixed delivery at existent private Montessori providers, and the creation of a new intentionally diverse Wildflower school.

The criteria used to assess these alternatives include **feasibility, administrative burden, equity, and cost effectiveness**. Given the considerations documented in Figure 7, feasibility, administrative burden, and equity are evaluated on a five-point scale, including: extremely likely, likely, moderately likely, slightly likely, and not at all likely; extremely burdensome, burdensome, moderately burdensome, slightly burdensome, and not at all burdensome; as well as extremely equitable, equitable, moderately equitable, slightly equitable, and status quo respectively.

A five-point scale was also created following the cost-effectiveness (CE) analysis, which projects the net present value at a three percent discount rate, with 2023 dollars as the base, using the total number of students served in the 2023-24 through 2028-29 school years. The cost-effective metric (see Appendix C), rests on assumptions and does not incorporate how various funding sources (grants, philanthropy, sliding scale tuition, etc.) could offset documented costs that go beyond the existent status quo. The five-point scale employed was those in the \$1,000-1,999 (per student per year) range received five points, those in the those in the \$2,000-2,999 range received four points, those in the \$3,000-3,999 range received three points, those in the \$4,000-4,999 range received two points and anything above \$5,000 received one point. Note that CE measures do not distinguish between economically and non-economically disadvantaged students served.

Given these considerations, client feasibility and equity were counted twice making a final determination, to account for client priorities.

Figure 7 Considerations:

Criteria	Feasibility	Administrative Burden	Equity	Cost Effectiveness
Considerations	-Stakeholder support -Degree of uncertainty	-Degree of effort to Shift from the Status Quo	-Number of economically disadvantaged students gaining access across five years -Degree of integration in the short- and long-term	-Cost per student gaining access over five years



Finally, a disclaimer that this analysis is rooted in assumptions and should not be viewed in isolation or as unwavering fact. Recommendations are subject to change given changing conditions and serve more as suggestions for which policy levers may be preferable given current information availability.

### Alternative #1: The Public System

#### *Context:*

This option involves integrating Montessori programming into the public system and the alternative's conception relies heavily on conversations with the current Charlottesville City Schools (CCS) Early Childhood Education (ECE) Coordinator (S. Sparks, personal communication, February 24, 2023).

Currently CCS runs 20 pre-K classrooms in elementary schools for qualifying families with three- and four-year-olds (S. Sparks, personal communication, February 24, 2023). Given that classrooms are dispersed across elementary schools, pre-K teacher professional development and supports are less centralized and largely at the discretion of building principals. This will change with the CCS middle school redesign, which is projected to move all pre-K students to Walker Middle School in the 2026-27 school year, then again to a new \$1.35 million ECE Center in 2028-29 (Knott, 2021). These dates are subject to change based on construction as well as potential delays in project funding by City Council, who controls the budget allotted to the school board each year (S. Sparks, personal communication, February 24, 2023).

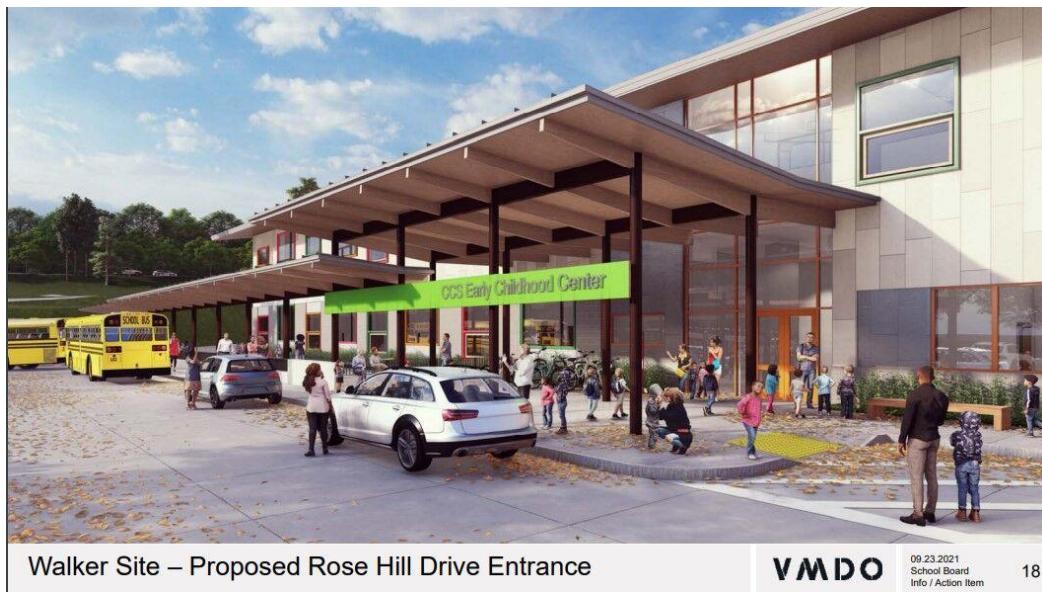
Figure 8: Alternative 1 Timeline



This alternative would involve the gradual roll-out of Montessori into the public system during such infrastructure expansion. First, in 2023-24, one school principal willing to integrate Montessori in one pre-K classroom, would partner with the National Center for Montessori in the Public Sector (NCMPS) to plan how to implement the approach in year 2024-25. Additionally, a local community member, who previously expressed interest would receive hybrid Montessori teacher-training that summer (C. Borgman, personal communication, 2023). In 2024-25, interested and qualifying families at that elementary school could enter a lottery to join the Montessori classroom. 2025-26, would be a year to assess progress in the existent pre-K class and plan for the transition to Walker as well as the addition of another Montessori classroom. In 2027-28, the Virginia Montessori Association, the parent organizing group Charlottesville United for Public Education (CUPE), and others, would coalition-build to create two new classrooms in 2028-2029. These classrooms would retain the same



number of slots for low-income families currently qualifying and create an equal number of slots for families with higher incomes, who would pay on a sliding scale like APS. In addition to the sliding scale, to ensure privileged families do not take over such programming, the School Board and CCS could mandate that 1/3 of families qualify as economically disadvantaged (185% of the poverty line), 1/3 as middle-income families (300% of the poverty line), and the other 1/3 of families are above the previous income ranges (*Glossary*, 2016; *VDOE : Virginia Preschool Initiative (VPI)*, 2022). This year would also include a partnership with Kindred to ensure family and teacher coalition building across lines of difference, to address concerns around inclusion within these intentionally diverse settings.



Source: Knott, 2022

#### Feasibility:

When investigating feasibility, the factors considered included the perceived support by stakeholders as well as degree of uncertainty. Given an interview with the current ECE director and email communications with CCS Head of Curriculum as well as uncertainty in the funding as well as timeline of a new ECE center, the incorporation of Montessori into the public system appears only slightly likely (S. Sparks, personal communication, February 24, 2023).

First, the ECE director expressed concern over the discontinuity of having a Montessori classroom in a traditional public school. For example, this could detract from common professional development and community building amongst teachers and families. Additionally, the ECE Coordinator expressed the lack of space to welcome additional students from higher-income families in the existent or anticipated Walker classroom. Space would likely not be available to address pre-K segregation until 2028-2029 in the new center, which will expand to 32 classrooms; however, given the rapidly changing nature of ECE policy and expansion as well as the uncertainty of the center this proposal is subject to change (Knott, 2021; S. Sparks, personal communication,



February 24, 2023). Moreover, Montessori in the public system may not be able to have multi-age classrooms, beyond three- and four-year-olds as ECE classrooms move to a center separate from elementary schools. Also the director expressed concern about removing the existent affinity space.

Finally, there is uncertainty in terms of funding and leadership. For instance, CCS anticipates challenges in securing funding, given that the middle school redesign project is already over budget due to rising construction costs and inflation (Knott, 2021; S. Sparks, personal communication, February 24, 2023). Additionally, there is uncertainty if the VMA could secure support from a principal as well as the openness of a new ECE director, given that the current director seems skeptical. She has expressed a desire to retire in the near future, which could be a conversation re-entry point. These factors ultimately led to the ranking of slightly likely on the feasibility scale.



Source: Knott, 2022

#### *Administrative Burden:*

This option scores a moderately burdensome in terms of administrative burden because of the degree of effort to shift from the status quo. For instance, CCS would have to coordinate with the VMA, who is willing to facilitate interactions like teacher training, family recruitment, material purchase, etc. There is also time required in terms of coalition building and likely fundraising. With this in mind, Montessori has spread in other public-school systems through such exposure and community interest and showed popularity amongst external funders (C. Borgman, personal communication, 2023; Debs, 2022). For example, one district in Ohio received a positive response from teachers and family, which led to schools temporarily adapting a project-based learning approach, while they paid for existent and willing teachers to get trained (M. Debs, personal communication, February 16, 2023).

#### *Equity:*

To determine equity, I considered the number of disadvantaged families gaining access and the degree of integration in the short- and long-run. Given that we lack student-level data from private providers, this report cannot make claims on the exact extent to which segregation is reduced in the

larger system, but for the public system, I make rough estimates of the degree of integration, using the best available data.

Public expansion would allow for an estimated **170 slots** over five years for students to access Montessori over five years, **152 of the slots would be allocated to economically disadvantaged students**. Introducing 18 non-ED slots into the system in the final year, would be roughly a 100% increase in the number of non-ED students currently served. Such integration under this plan does not come until year five, when there is space to accept more families into the public system; however, this is the only option that will likely allow for sustainable, wide-scale integration, seeing as we are imagining education as most equitable for our democracy when distributed as a public good (Dewey, 2011). Given the number of disadvantaged students served and this equity potential, this alternative scored an equitable rating.

#### *Cost Effectiveness:*

Given the economies of scale and existent infrastructure embedded in the status quo of the public system, the cost effectiveness analysis, yielded a cost of roughly **\$1,700 per student per year**, providing 170 total student slots during the five-year period of study. Additional calculation details can be found in Appendix C, but high-level costing assumptions are outlined below.

The costs in this CE analysis include teacher training, professional development, a National Center for Montessori in the Public Sector (NCMPS) partnership, classroom materials, and a partnership with the diversity, equity, and inclusion organization Kindred. These initial costs appear higher than status quo curriculum supports according to a report on public Montessori pre-K expansion in Arlington, VA (Hanover Research, 2016). More specifically, Teacher training costs roughly \$30,000, when accounting for summer tuition, lodging, and food (C. Borgman, personal communication, 2023). When adjusting estimates for inflation, the per-room, start-up costs for Montessori and traditional were \$40,100 and \$13,750 respectively, for a difference of roughly \$26,350 per room (*CPI Inflation Calculator*, 2022; Hanover Research, 2016). Montessori classrooms often serve more students and the materials do not have to be replaced frequently, which could reduce costs in the long-term.

With these costs in mind, school board and community members have expressed an openness to pursuing private funding options to ensure a new ECE center as well as members of the community able to pay sliding scale tuition to further reduce costs (C. Borgman, personal communication, 2023). The General Assembly (GA) recently denied a bill that would have allowed local voters to levy a retail sales tax of 1%, which could have brought in \$12 million per year, but voters could push for such legislation next cycle (Knott, 2021).

#### Alternative #2: The Private System





Source:  
University  
Montessori,  
2023



*Context:*

This option involves addressing segregation through existent private programs by providing state-funded subsidies or implementing mixed delivery at sites, to expand Montessori access to families who would otherwise be unable to access such programming. This proposal assumes that two centers, who have already undergone training to accept public subsidies, will each accept a three-year-old student starting in 2023-24. One of these sites is walking distance from the 10<sup>th</sup> and Page neighborhood and well positioned to accept students without transportation concerns that are prominent for the other site, located near Ragged Mountain on the edge of Charlottesville.

In the next year, another partner would be trained, and the walkable site would look to accept two more students. To ensure that these families do not feel isolated within such school communities, this year will also be the year a partnership with Kindred is established. The organization shared that they have worked with coalitions of schools as well as a Montessori school in the past and expressed willingness to partner. In the next year, one site, with the most building capacity would transition to a mixed delivery site, offering ten spots and transportation covered by the state. In the following year another site would be added and by the conclusion of the subsidy program, 24 permanent state-funded slots would be established, and a total of **90 ED student slots** would be granted over five years.

*Feasibility:*

Again, looking to levels of support and uncertainty, this option was rated feasible. First, the state approved Montessori as high-quality programming able to qualify for funding and two existent providers serving pre-K aged students have undergone the process to accept such subsidies. These sites as well as others have expressed a desire to invest in equity, in the wake of Charlottesville's racial reckoning. Montessori providers also expressed a desire to keep students until kindergarten, given their multi-age primary classrooms serve age three to five. Given that providing kindergarten

would likely affect support, I assumed coverage of roughly \$13,000 tuition, which appeared to be standard in the current market (H. Heisig, personal communication, November 4, 2022). Given that I have not been able to contact every site to confirm their willingness to participate, I did not rate this option an extremely likely.

There is also a degree of uncertainty involving if sites could secure funding as well as transportation, given lack of bus-drivers and/or family's individual transit options, which would dictate the number of slots that they could feasibly offer. For instance, families that qualify for subsidies likely also qualify for public CCS pre-K, Head Start, the Virginia Pre-K Initiative, etc., which may be in more convenient locations. Given that subsidies do not cover transportation, although they can cover extra hours of care at the site given family working schedules/longer commutes, families may not opt to use them (K. Miller-Baines, personal communication, March 1, 2023).

#### *Administrative Burden:*

This option would require changes to the status quo in terms of training, class observations, coordinating transportation, recruitment, as well as scholarship funds. One site estimates that the training to accept subsidies takes approximately fifteen hours, but they have yet to accept subsidies and complete the yearly class observations (H. Heisig, personal communication, November 4, 2022). If a site is not mixed delivery families must provide their own transportation, which this proposal assumes will be coordinated with other organizations and families through walkable commutes, those on the way to workplaces, or through carpool networks, which require facilitation. Finally, recruitment and scholarship fund efforts exist within the status quo, but would need to be enhanced.

#### *Equity:*

This alternative would serve an estimated ninety economically disadvantaged families over the course of five years, but likely not significantly disrupt school level segregation nor lead to wholistic integration over time. For instance, most school sites in this time period accept roughly four economically disadvantaged students to their primary programming. Given differences across sites and lack of data availability on demographics writ large, there is uncertainty the degree to which this will generate integration; however, given the private nature of this sector and that this option serves the lowest number of ED families, the alternative earned a moderately equitable rating.

#### *Cost Effectiveness:*

Given that qualitative data indicates that sites would like to offer a kindergarten scholarship to participants to ensure continuity and for their business model. For my cost effectiveness model, I employ the average tuition cost of \$13,000 and do not account for transportation subsidies. A \$1,000 subsidy to each student raised costs to roughly \$3,900 in the sensitivity analysis. This option also includes the cost of a Kindred partnership, a one-time \$25,000 payment, but none of the other teacher training/material expenses seen in alternative one. As a result, the total cost per student over



five years is **\$3,300 per student per year**, serving **90 student slots** (for more information see Appendix C).

### Alternative #3: A New Wildflower School Outside of Existent Systems



#### Who We Are

Wildflower is an ecosystem of decentralized Montessori micro-schools that support children, teachers, and parents. Wildflower aspires to give all children and families the opportunity to choose high quality, beautiful learning environments as they follow life's unfolding journey.

#### Our Principles

Blurring the boundaries between home-schooling and institutional schooling, between scientists and teachers, between schools and the neighborhoods around them. At the core of Wildflower are 9 principles that define the approach.

#### Our Schools

A growing number of storefront Montessori schools have been started using the Wildflower approach. View our network of schools and let us know if you would like to start a Wildflower School in your community.

Source: Wildflower Schools, 2023

#### *Context:*

The final option is to create a new intentionally diverse school as a part of the Wildflower Montessori school network. This option will require recruiting an existent Montessori teacher, who is willing to start a school in Charlottesville. This school would have similar income restrictions as outlined in alternative 1, where there would three income brackets, us each garnering equal representation with families in the lowest-income bracket receiving subsidies, to ensure socioeconomic and consequentially also ethno-racial diversity. To address transportation concerns for the most at-risk families, this site would be in an area where such families already live, like the 10<sup>th</sup> and Page neighborhood. This center would establish one multi-age classroom of 18 students in 2024-25. By 2026-27 another classroom of the same size would be added and at this point the center could qualify for mixed-delivery funding, given that it would serve at least ten economically disadvantaged students. By 2028-29 there would be three full classrooms serving three- to five-year-olds. Before the addition of the second classroom, I also recommend pursuing a Kindred partnership to ensure an inclusive environment for students and families.

#### *Feasibility:*

This alternative received the rating of slightly likely, due to the lack clear and certain support from a founder/funders and high degrees of uncertainty. First, Charlottesville is home to a large network of Montessori programs and scholars, as well as the location of the organizational founder's undergrad, making it an ideal site to start a Wildflower school. With this in mind, there is no identified teacher-founder at the time of this proposal but during this project three people within the Wildflower



organization were contacted. There are additional uncertainties related to securing a location and additional funding streams, making this alternative the least feasible.

#### *Administrative Burden:*

Although Wildflower is a network that can provide supports, this option is starting from the ground up, where the status quo is essentially a blank slate. This alternative would require the VMA to continue to recruit a founder, possibly offer supports along the way to link the school to the greater Virginia Montessori network, and possibly assist in troubleshooting other challenges like recruiting a space, training additional teachers/aides, etc., but much of this burden would likely fall on the founder, who also has the freedom to customize implementation. Given the supports of the network this option was rated burdensome, not extremely burdensome.

#### *Equity:*

Starting a school from scratch can allow for greater control of teacher/student pipelines and will address segregation the most rapidly, but not as sustainably as the public systems. Given this trade-off the option, like the public system was rated equitable. Again, due to data limitations, this analysis cannot contextualize Charlottesville's greater public and private pre-K landscape, but this option has equal proportions of economic representation at the school level, by design, which correlates with race and ethnicity. Assuming two-thirds of families would qualify as some form of ED, then this option would provide **108 slots for ED students**, with a lottery in the case of oversubscription, which adds to equity. This option, like alternative one is ranked equitable, but unlike option one there is less of an opportunity for this option to lead to large systems change, although the model could be replicated to other schools, as seen with similar magnet school models previously used for integration (Siegel-Hawley, 2020).

#### *Cost Effectiveness:*

Given the lack of existent infrastructure, this option is by far the most expensive, relative to the status quo, with costs estimated at **\$6,500 per student per year** over five years, **providing 162 student slots in total**. This CE analysis (see Appendix C) incorporated similar costs as option one (teacher training, materials, and a Kindred partnership), in addition to unique expenses like rent, aide salary, and office materials.

## **Recommendations**

Below I summarize my findings in a color-coded matrix, which is meant to simplify the decision-making process, but rests heavily on the assumptions outlined above, that if altered could alter conclusions. Given my client's value for feasibility and equity, the points attributed for these components were weighted twice. Overall, elements of each alternative could be implemented under the right circumstances and the goal of this report is to highlight such nuance, not select a winner and losers.



Figure 9: Evaluation Matrix

Alternative	Feasibility (2x)	Administrative Burden	Equity (2x)	Cost Effectiveness (over 5 years)	Total Points
<b>Public Pre-K Classrooms</b>	Slightly Likely	Moderately Burdensome	Equitable	\$1,700/child per year	19
<b>Private Montessori Pre-K's</b>	Likely	Moderately Burdensome	Moderately Equitable	\$3,300/ child per year	20
<b>New Wildflower School</b>	Slightly Likely	Burdensome	Equitable	\$6,500/ child per year	15

#### Color Coding and Point System based on five-point scales

Color	Dark Blue	Blue	Light Blue	Light Gray	Gray
Point Value	5	4	3	2	1

The evaluation matrix above highlights that alternative one, the public system, is the most cost-effective and tied for the most equitable, but the lack of feasibility presents a concern. In contrast, alternative two, the private system, is the most feasible, and alternative three, the Wildflower center, is notably the most expensive, although equitable, particularly in the short-term. With the nature of these trade-offs and uncertainty in mind, **I recommend that the Virginia Montessori Association pursue expanding access in existent private centers, as a first step in their journey to addressing segregation and creating integrated Montessori pre-K environments Charlottesville.** This recommendation is not to diminish the possibility of pursuing elements of other alternatives, with more details outlined below in the implementation section.

## Implementation

Pursuing alternative two will require the VMA to expand subsidy and mixed delivery systems for private providers, as an initial step. Additionally, I recommend continuing to work on other fronts relating to incorporate elements of the public systems and Wildflower proposed alternatives.

First, to gain support and capacity for subsidies and/or mixed delivery, the VMA should focus efforts on **provider coalition building and training**. During the height of the Covid pandemic, Corey Lloyd, a Montessori school leader, initiated an online monthly meeting for all providers in the Charlottesville region (H. Heisig, personal communication, November 4, 2022). I recommend that the VMA reach back out to Corey and Heather Heisig, to encourage their peers to restart the online meetings, and making pre-K equity a key focus. Given high levels of trust and perceived eagerness this appears feasible, although scheduling such meetings is an anticipated concern. In this coalition,



the two leaders mentioned, who have undergone subsidy training/qualification forms could help guide other schools through the process.

This coalition will also be useful in addressing potential challenges. For instance, an anticipated hesitation is that the state's requirements will hinder autonomy in the pre-K classroom, which given Montessori's alignment with CLASS standards appears to be less of a concern at the moment, but may require minor adjustments or disregard for specific sub-standards (C. Borgman, personal communication, 2023). With this in mind, there is an administrative and bureaucratic burden added to centers that choose to accept public funding. Moreover, given that private sites are business, there is concern with students leaving at age five, during the last year of primary school, when slots are more challenging to fill. Given this challenge and desire for community continuity, providers would likely want to cover kindergarten tuition for students on subsidy or mixed delivery funding for ages three to four. The proposed coalition could come together for collective fundraising to cover the cost of tuition in the kindergarten year to ensure that families do not have to exit the community before their child completes the primary class experience. Additional potential funding sources are included in Appendix D. Given that issues, like transportation, will arise and are likely to be family specific, the coalition could serve as a way for resource sharing and collective problem-solving.

Next, the VMA should work to **gather more qualitative data and coalition build with families**. The local family equity advocacy CUPE as well as Mary Coleman from the City of Promise serve as the ideal first point of contact. After presenting the existing information, the VMA should work in collaboration with these groups to collect additional data through family interviews to best serve families greatest needs and not act paternalistically. This would include interviews of families currently attending Montessori pre-K as well as those who could not currently afford access. Interviews with current families should include if they would be willing to provide carpool supports to families. The next step would be working with City of Promise and even CCS to start matching interested families to Montessori pre-K programs and coordinating transportation if necessary.

An additional connection to foster is with the organization **Kindred**, which works directly with families to mitigate power-imbalances, increase understanding, and empower them to work towards more equitable schooling. Kindred has expressed an interest in expanding their partnership to Charlottesville and have worked with a Montessori school as well as sets of schools in DC. I have connected Kindred to CCS as well as my partner, but CUPE could additionally use their voice to advocate for such programming, which I will discuss with members at their upcoming meeting.

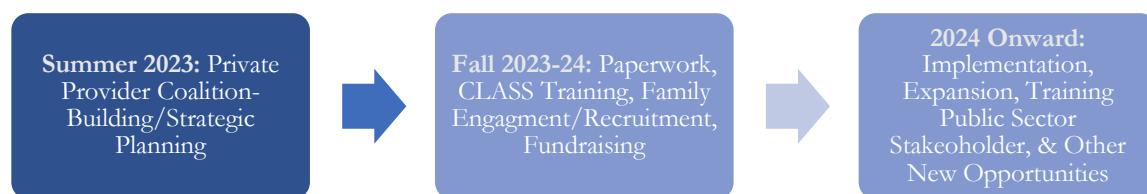
Finally, the VMA should continue to **pursue elements of the other alternatives** and expanding similar solutions to **other regions in Virginia, starting in Richmond**. First, the VMA should keep an eye on if any public-school principals have interest in adding a Montessori pre-K classrooms, but to not politically alienate members of the public school system, avoid pushing too rigorously at the moment. In the meantime, they could also approach the public school to see if the Montessori



coalition or teachers could offer professional development or even parent workshops to spread pedagogical approaches without full curriculum shifts. The VMA should additionally monitor when the current CCS ECE coordinator retires and inquire if the person entering the role would be more amenable to diversifying public pre-K through Montessori. Additionally, the VMA should keep in touch with the Wildflower network to try and recruit a school leader. They can use the potential UVA research partnership to incentivize founders. Finally, the VMA should leverage Richmond contacts to expand such work in that context as well as continue their plan to hold online training on how to qualify for subsidies for all their state partners/provide other CLASS training supports.

In conclusion, the Virginia Montessori Association should work to coalition build with existent providers, families, as well as other organizations, ensure private centers complete the paperwork to qualify for public funding, help coordinate recruitment/transportation, and remain aware of other paths of expansion.

Figure 10: Next Steps



## Conclusion

In conclusion, Charlottesville pre-K ecosystems are highly segregated, which results in quality/resource disparities, separation of family social capital networks, and the prevention of creating a thriving pluralistic democracy. Expanding access to Montessori pre-K programming through public, private, or new systems, presents a way to address such segregation and create integrated schooling environments. I recommend that the VMA continues to pursue all avenues but focuses initial efforts on expanding access within private Montessori pre-K providers through subsidy and mixed delivery programming. During this expansion my client should seek to coalition build, anticipate potential pitfalls, and seek support when necessary. Such action serves a necessary step in addressing past wrongs and existent opportunity gaps, with the hope of constructing a more just/thriving democracy.



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## Appendix A: Segregation Measures

*Charlottesville Sample Descriptive Calculations*

School Year	Division Number	Division Name	Race	Grade PK	Grade KG
2022-2023	104	Charlottesville City	White, not of Hispanic origin	28	136
2022-2023	104	Charlottesville City	Hispanic	36	47
2022-2023	104	Charlottesville City	Black, not of Hispanic origin	106	92
2022-2023	104	Charlottesville City	Non-Hispanic, two or more races	37	54
2022-2023	104	Charlottesville City	Native Hawaiian or Pacific Islander	0	0
2022-2023	104	Charlottesville City	American Indian or Alaska Native	0	0
2022-2023	104	Charlottesville City	Asian	27	15
2022-2023	104	Charlottesville City	Total grade level sums	234	344
2022-2023	104	Charlottesville City	Economically Disadvantaged	211	185

Race	% PreK	% K	% Point Difference	% Change (K-preK/pre-K)
White, non-Hispanic	12%	40%		28%
Hispanic	15%	14%		-2%
Black, non-Hispanic	45%	27%		-19%
Two or more races, non-Hispanic	16%	16%		0%
Asian	12%	4%		-7%
Economically Disadvantaged	90%	54%		-36%



### *Exposure Index Calculations*

$$B_{bw} = \sum \left( \frac{n_{ib}}{N_b} \right) \left( \frac{n_{iw}}{n_i} \right)$$

Where:

$n_{ib}$  = number of Blacks in the tract  
 $n_{iw}$  = number of Whites in the tract  
 $N_b$  = number of Blacks in the city  
 $n_i$  = total population of the tract

For this analysis, I defined  $n_{ib}$  as the number of non-White students in pre-K,  $n_{iw}$  as the number of White students in pre-K,  $n_b$  as the number of non-White students in pre-K, and  $n_i$  as the total number of students in pre-K (with the same approach for ED and non-ED students). Ideally, we would have had data per school to see if segregation is more highly concentrated in specific locations but given data availability the analysis occurred at the city level.



## Appendix B: Pre-K Provider Information

### *Subsidy Income Requirements*

Income Range	Family Copayment Amount
<b>0% - 100% FPG</b>	\$0
<b>101% - 200% FPG</b>	\$60 Monthly Fee per Child*
<b>201% - 300% FPG</b>	\$120 Monthly Fee per Child*
<b>301% and above FPG</b>	\$180 Monthly Fee per Child*

*List of Private Montessori Pre-K Providers in Charlottesville*  
 (does not include hybrid programs that incorporate other curriculum models; green schools were successfully contacted and currently accept subsidies):

- University Montessori School
- Montessori School of Charlottesville  
 (two locations in Locus Grove and Venable)
- Frost Montessori
- Mountaintop Montessori
- Albemarle Montessori Children's Community
- Generations Montessori School of Charlottesville

### *Application to Public Pre-K*

### *Mapping Current Childcare Providers*

### *Lessons from Mixed Delivery Rollouts*

### *Arlington Sliding Scale Tuition Model*

F Y 2023 Rates	
Montessori Tuition	
Adjusted Income	FY 2023 Fees
Income to \$24,000	975
\$24,001 - \$27,000	1,329
\$27,001 - \$30,000	1,724
\$30,001 - \$33,000	2,286
\$33,001 - \$37,000	2,917
\$37,001 - \$41,000	3,746
\$41,001 - \$46,000	4,680
\$46,001 - \$51,000	5,717
\$51,001 - \$57,000	6,859
\$57,001 - \$62,000	8,277
\$62,001 - \$67,000	9,821
\$67,001 - \$72,000	11,494
\$72,001 - \$77,000	12,309
\$77,001 - \$82,000	13,183
\$82,001 - \$90,000	13,245
\$90,001 - \$96,000	13,308
\$96,001 - \$110,000	13,371
\$110,001 - \$113,840	14,164
\$113,841 - \$125,000	14,164
\$125,001 - \$150,000	14,999
\$150,001 - \$175,000	15,879
\$175,001 - \$200,000	16,806
\$200,001 and up	17,782

**Note:** \$113,840 represents 80% of the median income for a family of four in Arlington County. Two-thirds of the slots in each Montessori class are reserved for children whose parents' income is at or less than 80% of the median family income.



## Appendix C: Cost-Effectiveness Analysis

### *Cost Effective Analysis Public System*

Year (starting 2023-2024)	Effectiveness (number of children served each year relative to 2022-2023 status quo)	Cost (dollars)	Description
0	0	\$60,000.00	Cost from NCMPS partnership and training one teacher
1	13	\$40,100.00	Cost of room materials
2	18	\$500.00	Plan for Walker transition expand to max number of students 18; Professional development cost for one teacher
3	31	\$72,000.00	Move and cost for one new teacher trained and classroom materials; add additional classroom with 13, other with 18
4	36	\$ 1,000.00	PD cost for two teachers; expand to 18 student rooms
5	72	\$151,800.00	Projected year to move to ECE Center, where can request larger classroom spaces, and begin to expand programming to four classrooms with 18 students (max) each, so reserve same number of slots for low-income families but have sliding scale tuition for high income families entering; still have PD costs and two new classroom costs and Kindred partnership; 54 ED students served of the 72 total
PV at 3%	170.00	\$288,471.88	
PV at 7%	170.00	\$248,300.00	
Cost/Effectiveness Ratio at 3% (unit \$/child)	<b>\$1,696.89/student each year</b>		



## Cost Effective Analysis Private System

## Cost Effective Analysis Private System Sensitivity Test with Transport Stipend

Year (starting 2023-2024)	Effectiveness (number of children served each year relative to 2022-2023 status quo)	Cost (dollars)	Description With Scholarships and No Transportation	Year (starting 2023-2024)	Effectiveness (number of children served each year relative to 2022-2023 status quo)	Cost (dollars)
0	2	-	Two sites, University Montessori and Charlottesville Montessori accepting subsidies; work to get two slots	0	2	\$2,000.00
1	6	\$25,000.00	Add Kindred partnership to serve coalition of centers; Expand two more slots at each existent provider; work to get one provider, Mountaintop Montessori ready for mixed delivery	1	6	\$31,000.00
2	16	\$26,000.00	Add Mountaintop Montessori as a mixed-delivery site, which allows for 10 slots at full tuition coverage and transit; pay out tuition for two initial students to attend K from year zero	2	16	\$42,000.00
3	20	\$52,000.00	Add two new slots at two new providers; pay tuition for 4 students to attend K from year 1	3	20	\$72,000.00
4	22	\$156,000.00	add two more slots at two new providers; pay K for 2 students at Cville Montessori and 10 mixed delivery	4	22	\$178,000.00
5	24	\$78,000.00	add additional slot at Cville and University and pay K for 6 students	5	24	\$78,000.00
PV at 3%	90.00	\$293,450.65		PV at 3%	90.00	\$352,437.37
PV at 7%	90.00	\$245,930.80		PV at 7%	90.00	\$297,044.96
Cost/Effectiveness Ratio at 3% (unit \$/child)	\$3,260.56/student each year		Cost/Effectiveness Ratio at 3% (unit \$/child)	\$3,915.97/student each year		



*Cost Effectiveness Analysis Wildflower School*

<b>Year (starting 2023-2024)</b>	<b>Effectiveness (number of children served relative to 2022/2023 status quo)</b>	<b>Cost (dollars)</b>	<b>Description</b>
	0	0	\$65,000.00 planning and fundraising year with Wildflower and School Creator
	1	18	\$179,000.00 one class materials, teacher salary, rent, office materials
	2	18	\$158,000.00 Add in Kindred partnership
	3	36	\$255,000.00 add additional class and teacher salary
	4	36	\$214,000.00
	5	54	\$326,000.00 add additional class
<b>PV at 3%</b>		162.00	\$1,060,606.19
<b>PV at 7%</b>		162.00	\$910,413.15
Cost/Effectiveness Ratio at 3% (unit \$/child)	<b>\$6,546.95/student each year</b>		



## Appendix D: Additional Funding/Other Supports

- [National Center for Montessori in the Public Sector \(NCMPS\)](#): provide a two-year contract to assist with planning and implementation for new Montessori programming (as seen in Alternative one and two)
- [Lab School partnership with UVA and the state of VA](#): the current Secretary of Education visited UVA in the Fall to promote a Lab School partnership. Two UVA early childhood education (ECE) scholars, Dr. Amanda Wilford and Dr. Jessica Whittaker, have created a Lab pre-K in Norfolk, VA, and Dr. Angeline Lillard has expressed a willingness to help in the creation of such a school, in Charlottesville, which would allow for her and team to conduct Montessori research. Lab School grants allot up to \$200,000 per school to cover initial start-up costs, with additional funds available for on-going supports (*Laboratory Schools*, 2022).
- [Federal Grant Funding for Magnet/Diverse School Initiatives](#): the Biden/Harris Administration is supporting federal grants for diverse magnet schools or to support district-wide integration efforts.
- [Dorothy Batten Foundation](#): the Batten family has a legacy in standing with school desegregation as well as early childhood education efforts. Given the philanthropies focus on the Charlottesville area this organization could provide additional funding opportunities.
- [Manning Foundation](#): a philanthropy that hopes to foster family thriving in Charlottesville
- [Hilltop Foundation](#): this local organization gave almost \$750,000 to support education initiatives in Charlottesville.
- [BAMA Works](#): this Charlottesville based non-profit distributes money to local and national initiatives.
- [CACF](#): this organization provides grant funding to those in Charlottesville.
- [UVA Equity Center](#): Has expressed a desire to work in partnership
- [The Bridges Collaborative](#): Century Foundation initiative that seeks to support school/district partners looking to promote school integration in their locality. Applications are now open for this coming school year.
- [Kindred Communities](#): a DC-based non-profit that collaborates with diversifying schools to bridge gaps in family networks. This organization is expanding and has expressed a willingness to work with CCS.
- [Washington Montessori Institute/Howard University Partnership](#): this Montessori teacher preparation program is looking to diversify the teacher pipeline, which could be a beneficial partnership, given growing evidence of the importance of a diverse teaching force and student-teacher-race match (Lindsay & Hart, 2017). Dr. Angeline Lillard has expressed a desire to start a similar teacher training program at UVA, but this currently does not exist.

