



# Ready Texas

**A Study of HB5  
Implementation in  
Texas and  
Implications for  
College Readiness**



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### **Ready Texas – A Study of the Implementation of HB5 in Texas and Implications for College Readiness**

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# Executive Summary

In 2013, the 83<sup>rd</sup> Texas Legislature established the Foundation High School Program, which allows for significant local variation in graduation planning and represents one of the most substantial changes to Texas curricula in recent history. The new policy (HB5) lowered graduation requirements for mathematics, science and social studies; implemented a new graduation requirement for career readiness, called endorsements; and added a “Distinguished Level of Achievement” designation that closely resembles the previous graduation requirements.

Each one of these changes has implications for the future of Texas students. Lowering graduation requirements across the board could possibly affect college readiness and preparation.

How these changes are implemented and what this implies for students, families and schools can have a deep impact on post-secondary preparation, access and completion, particularly for students underrepresented in degree attainment. With funding from the Greater Texas Foundation, IDRA conducted Ready Texas, a mixed-method study of HB5 implementation to examine:

1. Statewide, what effects has HB5 had on course-taking patterns, specifically Algebra II?
2. How are educators, families, and students in school districts navigating implementation of the new high school graduation requirements? What does this mean for post-secondary preparation?

Concerning the first research question on course-taking patterns, the study concluded the following:

- Rural districts lost 24 percent in Algebra II course enrollments in the latest year of HB5 implementation.
- Incremental losses in Algebra II course enrollment has occurred across all secondary grade levels, rather than being limited to 11<sup>th</sup> grade.
- Forty-five districts studied require the Distinguish Level of Achievement as part of their default graduation plan for their students, thereby mirroring the previous graduation requirements.
- Losses in Algebra II course enrollment are more pronounced when removing these 45 districts from the analysis.
- During the transition to the new requirements, 80 percent of students in Texas were

still graduating under the previous 4x4 graduation system by 2015-16.

Concerning the second research question on HB5 implementation, the study concluded the following:

- Earning endorsements as a graduation requirement is perceived by students and parents as lacking meaning. This is so even with increased, more clear or purposeful information about endorsements.
- Responses by students and parents pointed to a perception that there are no real-life counterparts to endorsements.
- Responses by students and parents pointed to an understanding that there are no real-life counterparts to endorsements.
- Most counselors were concerned that endorsements may derail students' college plans because endorsements often are inaccurately presented as equally important to college preparatory coursework.
- Counselors reported having to consistently emphasize coursework over endorsements, especially for high-achieving students.

### **Additional Findings**

IDRA researchers also reviewed the latest endorsement declaration data from the Texas Education Agency. This information showed some startling results. In districts with high percentages of economically disadvantaged students, nearly a quarter of students declared public service as their endorsement, compared to 14 percent in districts with the lowest percentages of economically disadvantaged students.

Thirty eight percent of students in districts with the lowest percentage of economically disadvantaged students declared the multidisciplinary studies endorsement compared to 20 percent in schools with highest percentage of economically distressed students.

This is an early troubling trend as it indicates an equity gap in opportunities presented to students since the STEM and multidisciplinary studies endorsement are presented as the endorsements most likely to prepare students for college. The public service endorsement, as it stands, does not require the rigor of other endorsements.

## More Ready Texas Materials Available Online

Full study: Ready Texas – A Study of the Implementation of HB5 in Texas and Implications for College Readiness

House Bill 5 Background

Policy Brief and Recommendations

Infographic: Ready Texas – IDRA study points to the troubling effects of the state's new graduation requirements

Ready Texas Study of New Graduation Requirements – Podcast Episode 178

Ready Texas: Stakeholder Convening Proceedings Report

Other related articles and podcasts

<https://budurl.me/IDRAreadyTX>



# House Bill 5 Background

## Timeline

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### 1997-98: Minimum HSP, Recommended HSP & DAP

Students entering the ninth grade in the 1997-98 school year were the first students required to graduate under the Texas' Minimum High School Program (HSP), Recommended HSP or Distinguished Achievement Plan (DAP) (Mellor, Stoker & Reese, 2015). The Recommended HSP and the DAP were designed to more closely align high school coursework with college admission requirements, better preparing all students with the knowledge and credits they would need to pursue college.

### 2004-05: Default Recommended HSP

The Recommended HSP was established as the standard graduation plan for public high school students (Mellor, Stoker & Reese, 2015).

### 2006: 4x4

To promote college and career readiness, Texas increased the overall number of credits required for graduation from 24 to 26 with the "4x4" curriculum. The 4x4 required all students to complete four credits each in English, mathematics, science and social studies. This new requirement was incorporated into the Recommended HSP and DAP for incoming freshmen in 2007-08.

Student outcomes under the established graduation plans improved over time in college readiness, high school graduation, college completion and earnings (Mellor, Stoker, & Reese, 2015; IDRA, 2016). Additionally, more students were taking and mastering higher level math courses under the 4x4 system. Schools also saw an overall reduction in the achievement gap between high and low-income students (Wiseman, et al., 2015; IDRA, 2016).

### 2009: Differentiated Curriculum Tracks

In the 2009 legislative session, a group of policymakers developed an accountability reform plan to go beyond adjusting rating and reporting requirements. Approved reforms included differentiated curriculum tracks, which were created for minimum, college bound, and career-technical students. Minimum, in this case, referred to students who had been retained at least once prior to the 10<sup>th</sup> grade, and who required parent approval to opt-out of the Recommended HSP. The "career-technical" track diverted students as early as the 11<sup>th</sup> grade and required fewer and less stringent math and science courses in the upper high school grades. Overall, these changes represented an incremental move toward a tracking system that risked placing minority and low-income students into vocational curricula, while affluent students would still access college prep (Cortez, 2009).

### 2013: House Bill 5

House Bill 5 was introduced in Texas' 83<sup>rd</sup> Legislative Session and in June of 2013, former Texas Governor Rick Perry signed HB5 into law. HB5 replaced the Minimum HSP, Recommended HSP and DAP with the Foundation HSP. Lawmakers stated that the sweeping changes were intended to maintain "rigorous standards" for students bound for college while allowing those not interested in pursuing a college education to focus on career and the technical skills needed for a job after graduation (Stutz, 2014). Additionally, the law reduced the number of state assessments required for graduation (Mellor, Stoker & Reese, 2015).

Under HB5, the commissioner of education was required to transition from the Minimum HSP, Recommended HSP and DAP to the Foundation HSP beginning with the 2014-15 school year. Under the transition plan, students in grades 9-11 in the 2013-14 school year could choose the Minimum HSP, Recommended HSP, DAP, or the new Foundation HSP as their degree plan (Mellor, Stoker & Reese, 2015).

The impetus to change the state's graduation requirements came from two different directions. Some proponents, including some school leaders, felt challenged and ill-equipped to meet accountability requirements that measure how many students graduate and how many are college ready. And some business manufacturing interests felt that too many Texas high school graduates were not sufficiently prepared to go directly into their workplaces. Despite objections by education advocates, community leaders and many school leaders, these interests succeeded in convincing the majority of Texas policymakers that schools should not be required to provide a high quality education to all students. (Cortez, 2013)



## Side-by-Side Comparison

The Foundation HSP dramatically changed the minimum course requirements for all high schoolers from the former graduation plans available to Texas students (Minimum HSP, Recommended HSP and DAP). Notably, students were no longer required to take four credits in mathematics and science. Additional credits are reflected in the required “endorsements” under the Foundation HSP, for a total of four additional credits.

Exhibit 1: Texas Current and Former Graduation Plan Comparison

Courses	Recommended HSP	Distinguished Achievement Plan (DAP)	Foundation HSP (2013)
<b>English/Language Arts</b>	<b>4.0:</b> English I, II, III, IV	<b>4.0:</b> English I, II, III, IV	<b>4.0:</b> English I, II, III, and an Advanced English Course
<b>Mathematics</b>	<b>4.0:</b> Algebra I, Algebra II, Geometry, and a 4 <sup>th</sup> course	<b>4.0:</b> Algebra I, Algebra II, Geometry, and a 4 <sup>th</sup> course	<b>3.0:</b> Algebra I, Geometry, and an Advanced Mathematics Course
<b>Science</b>	<b>4.0:</b> Biology, Chemistry, Physics, and a lab-based course	<b>4.0:</b> Biology, Chemistry, Physics, and a lab-based course	<b>3.0:</b> Biology, AP Biology, or IB Biology  IPC or advanced lab-based science course  Advanced lab-based science course, subject to pre-requisites
<b>Social Studies</b>	<b>3.5:</b> World History, World Geography, U.S. History since Reconstruction, and U.S. Government (0.5)	<b>3.5:</b> World History, World Geography, U.S. History since Reconstruction, and U.S. Government (0.5)	<b>2.5:</b> World History or World Geography, U.S. History, U.S. Government (½ credit), economics (½ credit)
<b>Economics</b>	<b>0.5</b>	<b>0.5</b>	
<b>Languages other than English</b>	<b>2.0:</b> Any two levels in the same language	<b>3.0</b> Any three levels in the same language	<b>2.0:</b> Languages other than English or Computer Science I, II, III
<b>Physical Education</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>
<b>Fine Arts</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>
<b>Electives</b>	<b>5.5</b>	<b>4.5</b>	<b>5.0</b>
<b>Total Credits</b>	<b>26.0</b>	<b>26.0</b>	<b>22.0</b>

# The Law: A Summary

## Curriculum

The Foundation HSP replaced the Minimum HSP, Recommended HSP, and DAP, with a single, 22-credit school program (plus four endorsement credits). The State Board of Education (SBOE) adopted rules requiring the following:

- 4 credits in English: I, II, III and an advanced English course
- 3+1 credits in mathematics: Algebra I, geometry, and an advanced math course. Plus 1 credit for an endorsement. (Algebra II is required for the Distinguished Level of Achievement and eligibility for the Texas Top Ten Percent Plan.)
- 3+1 credits in science: biology, Integrated Physics & Chemistry or an advanced science course, plus an advanced science course. Plus 1 credit for an endorsement.
- 3 credits in social studies: World History or World Geography, U.S. History, U.S. Government (½ credit), economics (½ credit)
- 2 credits in languages other than English: 2 credits in the same language or 2 credits from Computer Science I, II, III
- 1 credit in physical education
- 1 credit in fine arts
- 5+2 credits in electives. Plus 2 credits for an endorsement.
- Demonstrated proficiency in speech

Courses that are no longer required are: English IV, Algebra II, chemistry, physics, speech, and world history or world geography (which as replaced with choice of either world history or world geography or a combination of the two). Chemistry was replaced with choice of Integrated Physics and Chemistry or other science.

Additionally, the SBOE adopted rules and approved various advanced courses that can be taken to comply with the program's requirements to prepare students to enter the workforce or post-secondary education without remediation. The law requires that the Texas Education Agency (TEA) commissioner adopt a transition plan for replacing the Minimum HSP, Recommended HSP and DAP beginning with the 2014-15 school year and to make allowances for students who were completing their fourth year of high school during the 2014-15 school year to graduate under the Foundation HSP if he or she meets its requirements.

The new curriculum also introduced endorsements: each student must choose one or more of

five endorsements, which require additional core content courses, depending on the endorsement's focus.

## Endorsements

Endorsements are “pathways” for students to take in high school that require successfully completing 26 credits to include four math credits, four science credits, and two additional elective credits. Endorsement choices require parent approval and written notice from the student as he or she enters ninth grade.

## Performance Acknowledgement

A student can earn a “performance acknowledgement” to be placed on his or her diploma and transcript if he or she:

- had an outstanding performance in a dual credits course, bilingualism and biliteracy, on a college AP test or IB exam, on the PSAT, the ACT-Plan, the SAT, or the ACT.
- earned a nationally- or internationally-recognized business or industry certification or license.

## Distinguished Level of Achievement

A student may earn the Distinguished Level of Achievement designation if he or she has completed 26 credits, to include the Foundation HSP requirements plus Algebra II, credits for at least one endorsement, and a fourth advanced science credit.

## Career and Technology Education Courses Developed through Local Partnerships

Districts can develop Career and Technology (CTE) courses in partnership with public/private institutions of higher education or local business, labor and community leaders. CTE courses allow students to obtain industry-recognized credentials or certificates.

## College Preparatory Courses

TEA is no longer responsible for developing college preparatory courses, placing the responsibility on districts to partner with at least one institution of higher education to develop and provide college preparatory courses in English language arts and math. Credits earned with these courses can be applied to the foundation school program as an advanced credit.

## High School Personal Graduation Plan

Essentially, this part of the law requires TEA to provide, in English and Spanish, information on

the advantages of the Distinguished Level of Achievement designation and each endorsement. Additionally, the school must review personal graduation plan options, to include providing information on endorsements and the Distinguished Level of Achievement designation with every student entering the ninth grade and his or her parent or guardian.

### **Automatic College Admission**

HB5 requires that a student must earn the Distinguished Level of Achievement designation under the Foundation HSP to be eligible for automatic admission into a state university upon graduation from high school. HB5 maintains the option of allowing satisfactory performance on the ACT or SAT to meet automatic entry requirements.

# Summary of HB5's Major Changes

## Graduation Requirements

HB5's foundation high school program represents a major shift in the way that Texas public high school students pursue their degrees. Essentially, the Texas diploma is no longer standard across the state. Under HB5's new graduation requirements, students are no longer required to take English IV, Algebra II, full credits of chemistry and physics, and full credits of world history or world geography. Overall, the foundation high school program requires 22 credits, plus four credits related to an endorsement.

## Endorsements

Endorsements are "pathways" for students to take in high school that require additional courses beyond the foundation high school program's 22 basic credits. Endorsements require parent approval and written notice from the student as he or she enters ninth grade. The five possible endorsements are:

- **Science, Technology, Engineering, and Mathematics (STEM)** – This endorsement requires students to earn additional credits in science, math or computer science, including Algebra II, chemistry, and physics or principles of technology.
- **Business and Industry** – This endorsement includes courses related to database management, information technology, communications, accounting, finance, marketing, graphic design, architecture, construction, welding, logistics, automotive technology, agricultural science, and heating, ventilation, and air conditioning.
- **Public Service** – This endorsement includes courses on health sciences and occupations, education and training, law enforcement, culinary arts and hospitality.
- **Arts and Humanities** – This endorsement includes courses related to political science, world languages, cultural studies, English literature, history, and fine arts. Students may substitute the advanced science requirement with a different course related to their endorsement, if their parent or guardian provides written permission.
- **Multidisciplinary Studies** – This endorsement allows a student to select courses from the curriculum of each of the other endorsement areas, and earn credits in a variety of advanced courses from multiple content areas.

Students are required to earn 26 credits, but the content and rigor of individual courses may differ from one endorsement to another (IDRA, 2013). Additionally, school districts are not required to offer all five endorsements. Each school district must make courses available that allow students to complete the curriculum for at least one endorsement. If a school district can

only offer one endorsement, it must offer the multidisciplinary studies curriculum. Capacity continues to be an issue for many school districts in Texas, and this is a determinative factor in the endorsements and course options that districts are offering (IDRA, 2016).

A school district “must permit a student to choose, at any time, to earn an endorsement other than the endorsement the student previously indicated” (TEA, 2014). Students also may opt-out of earning an endorsement at all if, after the student’s sophomore year, the student and his or her guardian are advised by a school counselor of the specific benefits of graduating with one or more endorsements. The student’s guardian may then file written permission with the school counselor that his or her student will graduate under the foundation high school program without earning an endorsement (TEA, 2014).

According to AIR’s survey on school district implementation of HB5 (81 percent responded), 53 percent of school districts offered all five endorsements, while 6 percent only offered one (Mellor, Stoker & Reese, 2015; IDRA, 2016). Additionally, the preparation and training of school counselors to assist with disseminating information, working with parents, and helping students succeed under the foundation high school program is a major question concerning school capacity and endorsements (IDRA, 2016).

## **Algebra II**

Algebra II is optional under the foundation high school program. Students are no longer required to take Algebra II unless they pursue the Distinguished Level of Achievement designation or choose the STEM endorsement. As part of HB5, the SBOE developed two additional math courses, Algebraic Reasoning and Statistics, that students may choose as third-and fourth-year alternatives to traditional advanced math courses, like Algebra II (Mellor, Stoker & Reese, 2015).

College admission requirements align with upper-level math. Taking Algebra II, at a minimum, is required to best prepare students for public universities in Texas (Hinojosa, 2016). Education advocates have expressed concern that the new high school graduation requirements have been designed to prevent students from either attending college right away or severely limiting their options.

## **Distinguished Level of Achievement**

The Distinguished Level of Achievement is similar to the Recommended HSP from the state’s former graduation plans, but it is no longer a graduation plan. A student now can earn the Distinguished Level of Achievement designation by successfully completing four credits in mathematics, which must include Algebra II; four credits in science; all remaining foundation curriculum requirements; and the curriculum requirements for at least one endorsement. Finally, a student must earn the Distinguished Level of Achievement to be eligible for Texas Top Ten Percent Plan for automatic admission in Texas public universities (TEA, 2014).

Local control and implementation of the Foundation HSP within individual school districts can still play a large part in preparing students for college, even with the 4x4 plan gone. School districts can encourage and even require their students take a high-quality curriculum that prepares them for college entrance and graduation. This includes requiring Algebra II for students to earn the Distinguished Level of Achievement as well as requiring English IV, chemistry, physics, world history and world geography. Until the recent policy changes, most Texas students were already taking these courses (Robledo Montecel, 2014).

In response to HB5, some school districts have called for establishing the Distinguished Level of Achievement designation as their default plan. The City of San Antonio, for instance, passed a resolution encouraging all local districts to take this approach to ensure that students will be prepared for college and that the city's PreK4SA and Café College will be properly aligned. The Pharr-San Juan-Alamo school district has worked with its local stakeholders to set the Distinguished Level of Achievement as the default (IDRA, 2016). Armed with data, parents in some communities are navigating the new sea of information on endorsements for their students and are advocating for the best education possible, including college readiness. Without community action and involvement, schools tend to take the path of least resistance and may not work toward college for all (Bojorquez & Montemayor, 2014).

# Issues at Stake

## Higher Math as the 21st Century Indicator of College Success

“College prepared” and “college eligible” are not the same thing. “College eligible” means students have had courses (like Algebra II) in high school that are needed to apply to college. “College prepared” means students have had rigorous courses in high school that make them likely to enter and graduate from a four-year college. Thus, college-ready students are those who are approved for, succeed in, and receive credit for on-level college courses leading to a degree, certificate or career without the need for remedial or developmental coursework (Conley, 2012).

### Algebra II

Algebra II is considered a gateway course for success in college (IDRA, 2013). Research by the E3 Alliance on statewide mathematics showed that, for members of the 2003-04 ninth grade cohort who were enrolled in high school for four years, “almost 70 percent mastered Algebra II or lower as their highest math course. Another 20 percent mastered pre-calculus, with only 11 percent mastering an AP math class.” In contrast, the 2008-09 ninth cohort, because of the 4x4 policy, had a 44 percent rate of mastery in pre-calculus or higher. Low-income students saw a significant increase in mastery of pre-calculus: from 14 percent in 2004, to 29 percent in 2009 (Wiseman, et al., 2015).

Algebra II also is linked to high school graduation. Students who took Algebra II or greater saw graduation rates ranging from 96 percent to greater than 99 percent. In contrast, only 54 percent of low-income students who took less than geometry graduated from high school within four years (Wiseman, et al., 2015). Texas saw a steady improvement on 11<sup>th</sup> grade state math test results as graduation requirements grew more rigorous. (TEA, 2011). The better students perform, and the more they achieve, the greater their capacity for high achievement in college and career.

### College Readiness

Texas’ former standard graduation plan, the Recommended HSP, showed positive results for preparing students for college over time. In 2013, approximately five out of every six students (83.5 percent), graduated under the Recommended HSP or the DAP, compared to just 68 percent nine years earlier. The gaps between income and race in college readiness also were much smaller in 2013 (Hinojosa, 2016).



Under the Foundation HSP, only students who pursue the Distinguished Level of Achievement, essentially the old Recommended HSP, are ensured access to curriculum that prepares them for college (Hinojosa, 2016). Not all students are required to take Algebra II, only those who specialize in math, science and technology. Yet Algebra II is currently a requirement for a student to be eligible for the Texas Top Ten Percent Plan automatic public college admission in Texas.

Furthermore, there is the question of how the endorsements in the foundation high school program will relate to college admission requirements, and if colleges will even accept some endorsements, both in and outside of Texas (IDRA, 2013). There is concern about how well these new programs and course offerings will prepare students for success in college (IDRA, 2016).

The link between college readiness, attendance, and taking advanced math courses is clear. According to research from the U.S. Department of Education, taking math courses beyond Algebra II is particularly predictive of later academic success and access (Adelman, 2006). A study from TG Research examined data on high school graduates whose parents did not go to college (2006). The study found that, of these students who took only Algebra I and geometry, only 11 percent went on to a four-year college. For the students who also took Algebra II, the percentage jumped to 34 percent who went to college. Of those who took math beyond Algebra II, 64 percent went to college (Robledo Montecel, 2014).

In general, high school graduates who mastered mathematics beyond Algebra II enrolled in higher education at greater rates than their peers who did not. The rate of persistence in college also increased with higher levels of math mastered, especially for low-income students (Wiseman, et al., 2015). There is a clear link between access, quality and intensity of high school coursework and success in college. Advanced and rigorous secondary courses are more likely to facilitate post-secondary enrollment and completion without remediation (IDRA, 2016).

### **SAT/ACT Requirements**

Recently, the number of Texas students taking the SAT has notably increased. The number of SAT test takers for the class of 2015 saw a 9.2 percent increase from 2014 (IDRA, 2016). Algebra II content is included in SAT and ACT tests, which is equally vital to college success and readiness (Robledo Montecel, 2014). If the Foundation HSP creates more noise that prevents students from pursuing upper-level math courses or if the offerings of school districts are not as rigorous as they once were, the frequency of students taking the SAT and ACT, as well as their overall success, may diminish.

### **Remediation**

Remediation is already an issue in Texas: 51 percent of students entering a two-year college were enrolled in remedial courses, as were 22.5 percent of those entering a four-year university (IDRA, 2013). While less than 50 percent of students who enter a public university in

Texas will graduate with a bachelor's degree within six years, only 20 percent of students who complete remedial courses will graduate with a bachelor's in the same amount of time.

Research on remedial education in college has shown that it has insignificant or negative effects on student success. It also provides a barrier that lengthens a student's college career and potentially discourages his or her degree completion (Burdman, 2015).

Remediation is expensive: in 2005, the average total cost per semester, per credit hour for remedial or developmental education, was \$164 statewide. The Alliance for Excellent Education estimates that the nation loses \$3.7 billion per year as a result of remedial education.

### **Career Outcomes**

Overall, students with less than Algebra II mastery showed low rates of career readiness. Only 43 percent of students with Algebra II as their highest math were college and career ready, as opposed to 70 percent for pre-calculus, 88 percent for AP statistics, 92 percent for Calculus AB, and 95 percent for Calculus BC (Wiseman, et al., 2015). Students who take higher-level math courses earn more when they are in the workforce, regardless of family background or credentials (Rose & Betts, 2004). The varying nature of the endorsements may allow a student to focus on career and technical courses in preparation for a career immediately after graduating from high school, but there is not enough known yet about the rigor of courses offered by individual school districts.

Education matters: on nearly every measure of economic well-being and career attainment, young college graduates consistently outperform their less educated peers (IDRA, 2016). For parents and educational stakeholders, the growing concern is that the foundation high school program has the potential to prevent low-income, minority students from being college-ready or else to track them solely into vocational occupations.

# Quantitative Research

## Quantitative Research Question

The IDRA research team set out to investigate the following research question: What effects has HB5's new graduation requirements had on course enrollment, specifically Algebra II, at the district level? Research into the effects of HB5 implementation was conducted by analyzing district data from TEA on Algebra II course enrollment, endorsement patterns and graduation plans. IDRA also analyzed possible effects on course enrollments by disaggregating into district percentage of socio-economic status (SES) population and TEA district type designations (major urban, rural, suburban). The IDRA team conducted research into identifying districts that required the Distinguished Level of Achievement for all students. The Distinguished Level of Achievement is an HB5 graduation option that, like the former 4x4 plan, requires four years of mathematics that must include Algebra II. IDRA identified 45 of these "Distinguished Graduation Districts."

## Summary of Quantitative Findings

- Rural districts lost 24 percent in Algebra II course enrollments in the latest year of HB5 implementation.
- Incremental losses are more pronounced when the 45 "Distinguished Graduation Districts" are removed from the analysis.
- When comparing the percent taking rates from 2013-14 to the present, 11<sup>th</sup> grade Algebra II enrollment have decreased by approximately 2 percentage points throughout.
- Rural districts lost 23 percent of Algebra II enrollment at the 11<sup>th</sup> grade.
- When reviewing Algebra II course enrollment across all secondary grade levels there are incremental losses in Algebra II.

## Quantitative Methodology

Course enrollment data for this study were provided by TEA upon request. Other data came from TEA's publicly-available Public Education Information Management System (PEIMS) reports. IDRA's research into the possible effects of HB5 was conducted calculating and analyzing the following data points:

1. Percentage of students taking Algebra II overall (grades 9-12) and in 11<sup>th</sup> grade,
2. Percentage change of students taking Algebra II overall (grades 9-12) and in 11<sup>th</sup>

grade from baseline to current years, and

3. When appropriate, conducting regressions on pre- and post-course enrollment counts.

These data points were analyzed by comparing trends over time (2012 to 2017) and at discrete points in time (2016-17; 2016-15), (2016-15; 2015-14), (2015-14; 2014-13) at the following aggregate levels: state as a whole, state at SES quartiles, and state by TEA-defined district type. IDRA also compared these same data points at the same disaggregation levels between all districts in the study and districts that require all students to graduate with HB5's Distinguished Level of Achievement.

### **Unit of Analysis**

Analysis in this study was conducted at the district level. Use of district level data allowed for (1) early detection of course-taking patterns, and (2) setting the stage for future analysis based on systemic characteristics at the district level, such as funding, teaching quality issues, student and community engagement. This study was conducted as the first set of HB5 students began their high school career. Choosing this level of analysis gives us a baseline and a particular methodology to chart the effects of HB5 on early course-taking patterns as full outcomes are researched, understood and disseminated.

District level analysis sets the stage for future research on system characteristics rather than individual student characteristics. Research that solely uses individual student characteristics, such as poverty or parents with degrees, does not always inform possible solutions at the school and district level. Using the district characteristics provides educators and policymakers information to create equal opportunities, support and resources for all students. As educators, researchers and policymakers work toward providing the best data, policies, pedagogy and resources, it is important not to "overvalue" certain student characteristics that are not within the system's reach to affect or that may prejudice student abilities in the eyes of educators.

The IDRA research team reviewed district level data from 2013 to 2017. Texas has 1,203 school districts. Of those school districts IDRA analyzed 958. School districts were included in the analysis if they: (1) are not a charter district, (2) have a grade 9-12 high school, and (3) have consistent data across three years on Algebra II enrollments. Ten districts were not included in the analysis due to data gaps, inconsistencies or having been consolidated.

### **Context Data – Distinguished Graduation Districts**

Many districts, community leaders, policymakers and families across the state have expressed deep concerns about the way HB5 changed graduation requirements. Most concerns were sparked by the weakened math and science requirements, specifically Algebra II. The options under HB5 that ensure students take Algebra II are the STEM endorsement and the Distinguished Level of Achievement.

While the Distinguished Level of Achievement designation is more rigorous than the Foundation HSP alone, it is not as rigorous as the former 4x4 because it doesn't require the

same sequence of classes. The 4x4 sequence contained Algebra II in student's junior year followed by another math class. The Distinguished Level of Achievement is not as prescriptive, meaning that students may take Algebra II as their senior class if they started with a pre-algebra class in ninth grade.

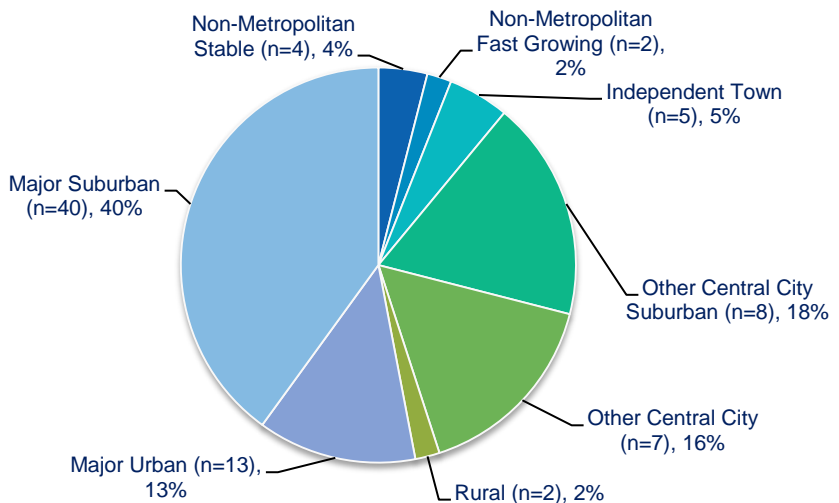
In addition to these radical changes, the Texas Top Ten Percent Plan is only available to students who earn the Distinguished Level of Achievement designation. In the past, the Recommended HSP was sufficient. These issues caused concern among many school and community leaders. As a result, some school districts have exercised local control allowed under HB5 and modified their policies to require that all students earn the Distinguished Level of Achievement designation. This presented a challenge in analyzing the data since HB5's hallmark changes removed Algebra II from graduation plans and introduced endorsements into graduation requirements.

TEA does not collect data about district level policy changes concerning HB5. To present a clear picture of changes under the law, IDRA identified districts that have set policies for their students to graduate with the Distinguished Level of Achievement (we refer to these districts as "Distinguished Graduation Districts"). IDRA used the following methodology to identify these districts. Districts were first divided by SES quartiles, from those with the highest percentage of economically disadvantaged students to those with the lowest percentage of economically disadvantaged students. The districts were then ranked and ordered by highest gains in Algebra II enrollment from 2015-16 and 2016-15. IDRA then researched the top 15 districts that gained the most students in Algebra II enrollment by reviewing district policies in their online handbooks on their websites or their publicly-available school board minutes. Of the remaining districts, 25 were chosen randomly for research. Of the 160 districts reviewed, 45 require students to earn the Distinguished Level of Achievement, require Algebra II as a minimum math credit or require a parent to opt-out of the Distinguished Level of Achievement path.

Distinguished Graduation Districts provide a comparison point as they decided not to implement one of the HB5's hallmark policies of excluding Algebra II from the core curriculum. The law provides local control over this decision, so these districts are in compliance with the law but have made the decision to follow the spirit of the previous 4x4 requirements. This provides a comparison point between districts that have implemented HB5 as is and those that decided to follow a more rigorous graduation path for all students.

The following chart shows where Distinguished Graduation Districts in this study are located using TEA's district-type definitions. It also indicates the district types (rural, major suburban, etc.), the number of districts and the percentage of district type represented in Distinguished Graduation Districts universe.

**Exhibit 2: Distinguished Graduation Districts by District Type**



2017, Intercultural Development Research Association. Data source: Texas Education Agency.

### Context Data: 4x4 Students

Part of the context that must be taken into consideration is that many students were still matriculating under the previous 4x4 system while implementation of HB5's graduation requirements began in 2013-14. This means that Algebra II course enrollment included many students still under the 4x4 plans. The freshman class of 2014-15 was the first class required to fulfill HB5 requirements. This means that Algebra II enrollment figures can include 4x4 students up until 2016-17.

This carryover effect also can be seen in the following table that shows statewide graduation percentages disaggregated by graduation plan.

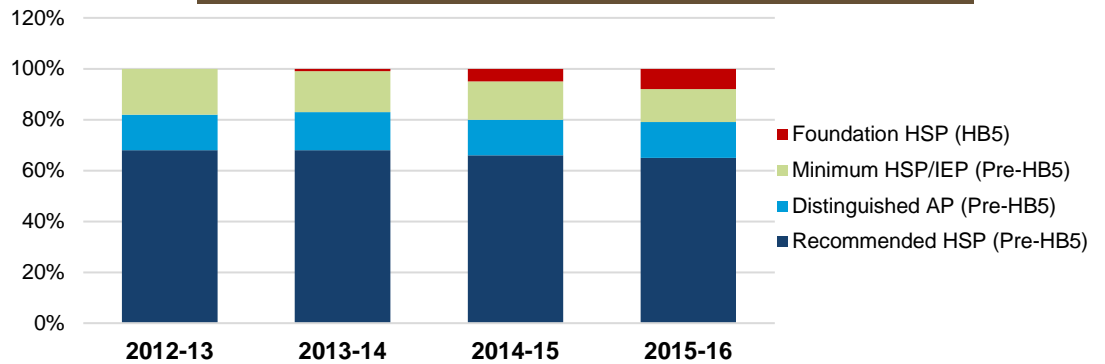
**Exhibit 3: Statewide Graduation Disaggregated by Graduation Plan, Percent of Graduates**

	2012-13	2013-14	2014-15	2015-16
Recommended HSP (Pre-HB5)	68%	68%	66%	65%
Distinguished Achievement Program (Pre-HB5)	14%	15%	14%	14%
Minimum HSP/IEP (Pre-HB5)	18%	16%	15%	13%
Foundation HSP (HB5)	NA	1%	5%	8%

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

The graph below shows that 79 percent to 80 percent of Texas students in the past four years have graduated under the 4x4 system. The green sections represent students graduating under the 4x4 Minimum HSP, which did not require Algebra II. By the class of 2018, there should be no 4x4 graduates.

**Exhibit 4: Graduation Types from 2012 to 2016**



2017, Intercultural Development Research Association. Data source: Texas Education Agency.

Simple comparisons of Algebra II enrollment before and after HB5 went into effect would be hampered by the number of students in the previous plan. As late as 2015-16, 79 percent of students in the state of Texas were still graduating under a 4x4 plan (Recommended HSP and DAP).

Analyzing 9-12 grade Algebra II enrollment counts provides a bird’s eye view of HB5’s possible effects. Also, 11<sup>th</sup> grade enrollment from 2016-17 present the clearest data of HB5’s effects, since students who were in the 11<sup>th</sup> grade in 2016-17 were the first HB5 class with no 4x4 students. Because of the amount of carryover students from the previous system, the IDRA research team viewed patterns and changes in 11<sup>th</sup> grade Algebra II rates using 2016-17 as the first unadulterated post-HB5 data point.

Throughout the study, comparisons will be made between all districts chosen for analysis and the same districts minus Distinguished Graduation Districts for the class of 2017. The school year 2016-17 was chosen because it has fewest 4x4 students. This methodology allows for clearer investigation into the possible effects of HB5. While the law allows districts to make some modifications, requiring all students to fulfill more rigorous coursework to prepare them for college is not the defining spirit of the law that was touted as being designed to provide choice for students.

### **Context Implications**

The context data present three issues that guided the methodology of this study: (1) Simply conducting analysis pre- and post- passage of the law does not account for students still under the 4x4 plan; (2) The most accurate data point to locate possible effects is at the 11<sup>th</sup> grade in 2016-17 and the previous year's 11<sup>th</sup> grade enrollment, since 11<sup>th</sup> grade is the traditional year that students take Algebra II; and (3) Comparisons at any level should address any movement in course enrollments that is due to some districts choosing the Distinguished Level of Achievement as the default graduation curriculum.



## Quantitative Findings

### Statewide Patterns – Algebra II

As a starting point, this study analyzed the possible effects HB5 had at the state level on all secondary grades. As noted, Algebra II is traditionally taken at 11<sup>th</sup> grade. Our analysis has shown that, on average, 45 percent to 50 percent of students taking higher math take Algebra II in the 11<sup>th</sup> grade.

Reviewing patterns at the state level on high school grade levels (9-12) provides important initial findings for several reasons. Research conducted by the E3 Alliance has confirmed that the 4x4 graduation plans “vastly increased the number of students taking pre-calculus (instead of stopping) at Algebra II” (Wiseman, et al., 2015), which means that students under the previous graduation system were more likely to take Algebra II at 10<sup>th</sup> or 11<sup>th</sup> grade. Notwithstanding, any movement in course-taking patterns may be observed in the following table.

**Exhibit 5: Percent of Students Taking Algebra II in Texas (Grades 9-12), n= 962**

Year	2013-14	2014-15	2015-16	2016-17
Percent	24.28 %	22.93%	23.40%	23.15%

*2017, Intercultural Development Research Association. Data source: Texas Education Agency.*

The table above shows the percent of students taking Algebra II during the years following passage of the law in 2013-14. At this level, we see movement that is consistent with several possible scenarios. First from 2013-14 to 2016-17, there is a definite 1 percentage point decrease in students taking Algebra II. In 2013-14, 1 percent of all Texas graduates, graduated under the newly-introduced HB5 plan. In 2014-15, 5 percent of Texas graduates graduated under HB5. Given that fact, it is likely that the decrease in Algebra II enrollment in 2014-15 was due to 11<sup>th</sup> and 12<sup>th</sup> grade students who immediately chose to graduate under HB5’s Foundation HSP.

Given that possibility, the second decrease worth noting is from 23.40 percent in 2015-16 to 23.15 percent in 2016-17. This decrease, while small, is important to note for the following observations. The high school students in 2016-17 were the first to have a majority of students under the HB5 graduation plan with only 12<sup>th</sup> grade students possibly still graduating under the 4x4 plan. While it is possible to find a sea change of a much larger majority of students graduating under HB5 Foundation HSP in 2016-17, it is more likely that the pattern will hold at 79 percent to 80 percent of students remaining under the 4x4 plan. This means that the

beginning of a possible incremental decrease can be traced not only from the last 4x4 years in 2013-14 (24.28 percent) but also from the 2015-16 (23.40 percent) to the most current year 2016-17 (23.15 percent). While these comparison points begin to show decreases in Algebra II enrollment, another data point shows a greater decline.

An assumption behind our research question is to discover what patterns arise when school districts implement one of HB5's defining features; to provide students a "choice" by not requiring Algebra II. Therefore, it is important to investigate what happens to any movement in Algebra II course-taking patterns when we remove Distinguished Graduation Districts that have made Algebra II a required course.

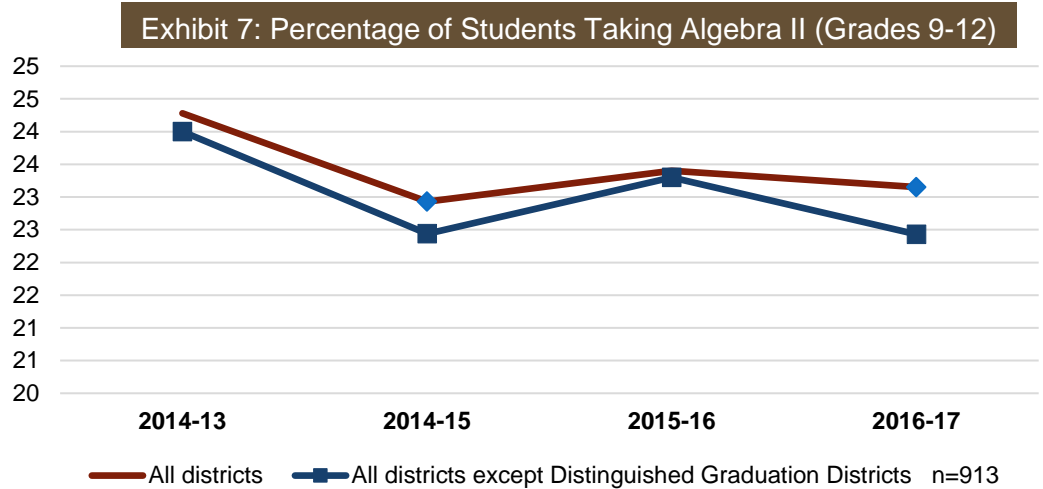
The table below shows the possible effects on the state's Algebra II enrollment when Distinguished Graduation Districts are removed. As previously noted, the most important comparison points are from all districts 2013-14 (24.28 percent), 2015-16 (23.40 percent) and all without Distinguished Graduation Districts 2016-17 (22.43 percent), because of the greater number of 4x4 students in 2013-14 and the increasing effects of HB5 requirements as time progresses.

Exhibit 6: Percent of Students Taking Algebra II (Grades 9-12)				
	2013-14	2014-15	2015-16	2016-17
All districts (n=958)	24.28%	22.93%	23.40%	23.15%
All districts except Distinguished Graduation Districts (n=913)	24.00%	22.44%	23.30%	22.43%

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

The 2014-13 school year represents a place in time where the majority of students in Texas were still taking Algebra II to fulfill 4x4 requirements, with only 1 percent of students choosing to graduate under the new HB5 plans. This explains why there is very little difference in 2014-13 between the Algebra II state rate of all districts (24.28 percent) and the state rate of all districts minus the Distinguished Graduation Districts (24.00 percent). As time progressed, the difference has grown to 2 percentage points since 2013-14. That is an important finding, however, any such effect should be viewed in recent years as more students matriculate under HB5. Simply, because of the Distinguished Level of Achievement is only for HB5 students, any possible effect it may have will be found in data points with fewer 4x4 students.

The following graph shows how the effect is greater by 2016-17 between all districts and Distinguished Graduation Districts ("DGD effect").



2017, Intercultural Development Research Association. Data source: Texas Education Agency.

### Percent Change Over Time

To understand Algebra II course taking patterns, IDRA analyzed change over time and specifically movement from year to year. With this method we could examine any possible effects on Algebra II course enrollment. By comparing rate of growth in this manner, we were able to make conclusions independently of raw growth gains or losses that can be influenced by population changes. The table below presents similar patterns to the previous ones examined in the previous section.

The following patterns develop (1) immediately after HB5 was enacted, a decline of -3.75 percent ensues (2013-14 to 2015-14), and then (2) in the most current years, the growth slows, and (3) when removing the Distinguished Graduation Districts from the analysis, the decrease is even more marked at -1.96 percent.

**Exhibit 8: Percent Change in Students Taking Algebra II (Grades 9-12), n=958**

	2012-13 to 2013-14	2013-14 to 2014-15	2014-15 to 2015-16	2015-16 to 2016-17
Statewide	4.51%	-3.75%	4.98%	0.82%
All districts except Distinguished Graduation Districts (n=913)	n/a	n/a	n/a	-1.96%

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

This rate of change analysis makes it possible to gauge effects in addition to raw enrollment counts or enrollment percentages. In this case, the differences between rates of growth are substantial at two comparison levels: the most current year's growth decline from 4.98 percent to 0.82 percent and lower still at -1.96 percent among non-Distinguished Graduation Districts.

### **State Patterns by Socioeconomic Quartiles**

As a means of analyzing HB5's effect on economically disadvantaged populations, IDRA grouped districts by quartiles based on the percentage of students classified by TEA as economically disadvantaged. The first quartile represents the lowest percentage of economically disadvantaged students, and the fourth quartile represents districts with the highest percentage of economically disadvantaged students. Specifically, the range of percentages of all districts included in our analysis (n=958) were grouped into the following proportionate quartile categories by the proportion of economically disadvantaged students: Quartile 1= 0 percent to 47 percent (n=241); Quartile 2 = 47 percent to 59 percent (n=242); Quartile 3 = 59 percent to 72 percent (n=243); and Quartile 4 = 72 percent to 100 percent (n=232).

This analysis bears some interesting results. In 2013-14, districts at both ends of the socio-economic spectrum had similar Algebra II enrollment percentages. By 2016-17, districts with the least percentage of economically disadvantaged decreased at a faster rate than districts with the highest percentage of economically disadvantaged students.

With the exclusion of Distinguished Graduation Districts from the analysis, districts in Quartile 1 with the lowest percentage of economically disadvantaged students did not lose as much in Algebra II enrollment as other quartiles. Between 2015-16 and 2016-17, Quartile 1 lost 0.5 percentage points. Among non-Distinguished Graduation Districts, Quartile 1 lost 0.74 percentage points of Algebra II enrollment.

Between 2015-16 and 2016-17, districts in the fourth quartile with the highest percentage of economically disadvantaged students gained 0.3 percentage points of Algebra II enrollment. Without Distinguished Graduation Districts, fourth quartile lost 0.57 percentage points. Districts in the third quartile fared the worst without Distinguished Graduation Districts losing 1.08 percentage points in a year.

Exhibit 9: Percent of Students Taking Algebra II by Economic Quartiles (9-12)

Quartile	All Districts				Non-Distinguished Graduation Districts
	2013-14	2014-15	2015-16	2016-17	2016-17
1 <sup>st</sup> Quartile (Low percentage of economically disadvantaged students)	24.09%	22.92%	23.36%	22.84%	<b>22.62%</b>
2 <sup>nd</sup> Quartile	23.85%	21.82%	22.36%	21.42%	<b>20.82%</b>
3 <sup>rd</sup> Quartile	24.48%	22.81%	23.18%	23.24%	<b>22.10%</b>
4 <sup>th</sup> Quartile (High percentage of economically disadvantaged students)	24.57%	23.66%	24.13%	24.44%	<b>23.56%</b>

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

## Percent Change Taking Algebra II by Economic Quartiles

As with other levels of analysis, there is an incremental decrease in growth patterns that are further decreased without the Distinguished Graduation Districts. As with the previous quartile analysis, districts with a higher percentage of economically disadvantaged students are enrolling more students in Algebra II than districts with lower percentages of economically disadvantaged students.

As researchers have pointed out, economically disadvantaged students showed a steady increase in Algebra II course enrollment during the 4x4 system. At the beginning of HB5 implementation, districts with the highest (Quartile 4) and lowest (Quartile 1) figures of economically disadvantaged populations had very close levels of course enrollment percentages. A possible explanation is that as the 4x4 system was officially ending, districts with high percentage of economically disadvantaged students had closed the Algebra II enrollment gap substantially and had less room for growth (1.23 percent). After the immediate decline in enrollment growth when HB5 became law (-2.4 percent), there was an uptick and a slow-down from 5.41 percent to 2.11 percent.

As with all levels of analysis, immediately after HB5 implementation there was a decline with negative growth across all quartiles. The pattern holds that any negative movement increases when Distinguished Graduation Districts are removed from analysis. As time progressed, Quartile 4 changes in percentage follow the same patterns with increases in the following two data points 2014-15 to 2015-16 (5.41 percent) and 2015-16 to 2016-17 (2.11 percent). When the Distinguished Graduation Districts are removed, all quartiles fall into the negative growth.

It is also important to note that half of all major urban districts, with the highest number of students, fall in to fourth quartile. Also, approximately one fourth of major suburban districts, which are high population areas, belong to the fourth quartile. Given that during the 4x4 system, more Quartile 4 districts with higher populations of students implemented Algebra II courses to meet the requirements, percentage movements have been small. As with all levels of analysis, immediately after HB5 implementation, there was a decline with negative growth across all quartiles. The pattern holds that any negative movement increases when Distinguished Graduation Districts are removed from the analysis.

**Exhibit 10: Percent Change in Students Taking Algebra II by Economic Quartile (9-12)**

Quartile	All Districts				Non-Distinguished Graduation Districts
	2013-14	2014-15	2015-16	2016-17	2016-17
1 <sup>st</sup> Quartile (Low percentage of economically disadvantaged students)	4.12%	-1.40%	5.32%	0.55%	<b>-1.14%</b>
2 <sup>nd</sup> Quartile	9.15%	-6.90%	4.53%	-2.04%	<b>-4.49%</b>
3 <sup>rd</sup> Quartile	6.13%	-6.67%	3.92%	1.99%	<b>-1.76%</b>
4 <sup>th</sup> Quartile (High percentage of economically disadvantaged students)	1.23%	-2.40%	5.41%	2.11%	<b>-1.34%</b>

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

## District Type Patterns

Up until this point, our analysis has concentrated on larger data points, state and quartiles at 9-12<sup>th</sup> grade, and results have shown that there have been incremental losses in percentages of students taking Algebra II and more dramatic losses when Distinguished Graduation Districts are removed from analysis. Because Texas is a heterogenous state with only 10 major urban districts and 400 rural districts, TEA groups districts into eight different areas.

To see the losses in the percentages of students taking Algebra II by district type, the following exhibit shows where there has been a decrease in red in the most recent year. As we saw in the poverty quartiles analyses, the areas with the highest number of economically disadvantaged students – major urban and major suburban – had growth or the least amount of decrease in percentage points. The highest loss, however, is in the rural districts from 24.18 percent to 18.27 percent. This translates to a 24.08 percent loss in students taking Algebra II in rural districts.

Exhibit 11: Percent Taking Algebra II Statewide All Cases by District Type

	2013-14	2014-15	2015-16	2016-17
Major Urban	24.72%	24.12%	24.43%	25.07%
Major Suburban	24.41%	23.15%	23.45%	<b>23.44%</b>
Other Central City	24.42%	22.76%	23.52%	<b>23.01%</b>
Other Central City Suburban	24.44%	22.60%	22.79%	<b>22.45%</b>
Independent Town	22.99%	19.74%	21.82%	21.20%
Non-Metropolitan Fast Growing	26.60%	25.10%	23.37%	<b>23.20%</b>
Non-Metropolitan Stable	23.70%	20.98%	22.27%	<b>22.03%</b>
Rural	21.64%	24.94%	24.18%	<b>18.27%</b>

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

Exhibit 12: Percent of Students Taking Algebra II by District Type

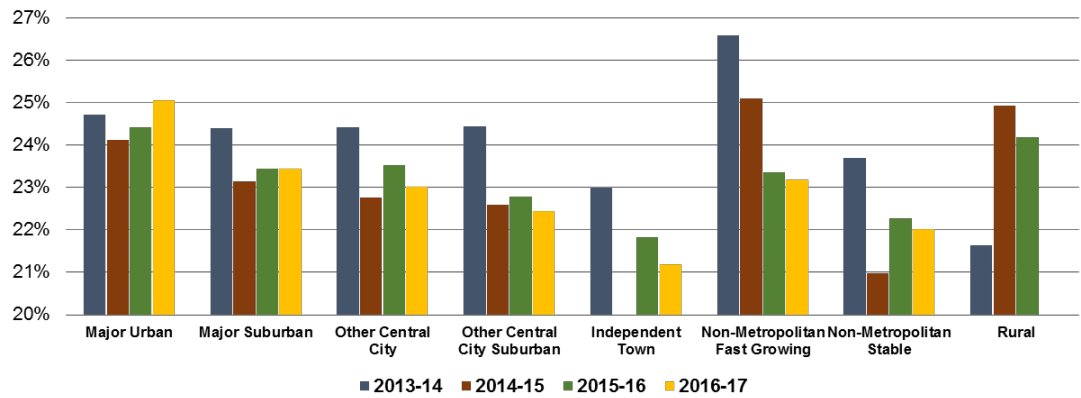
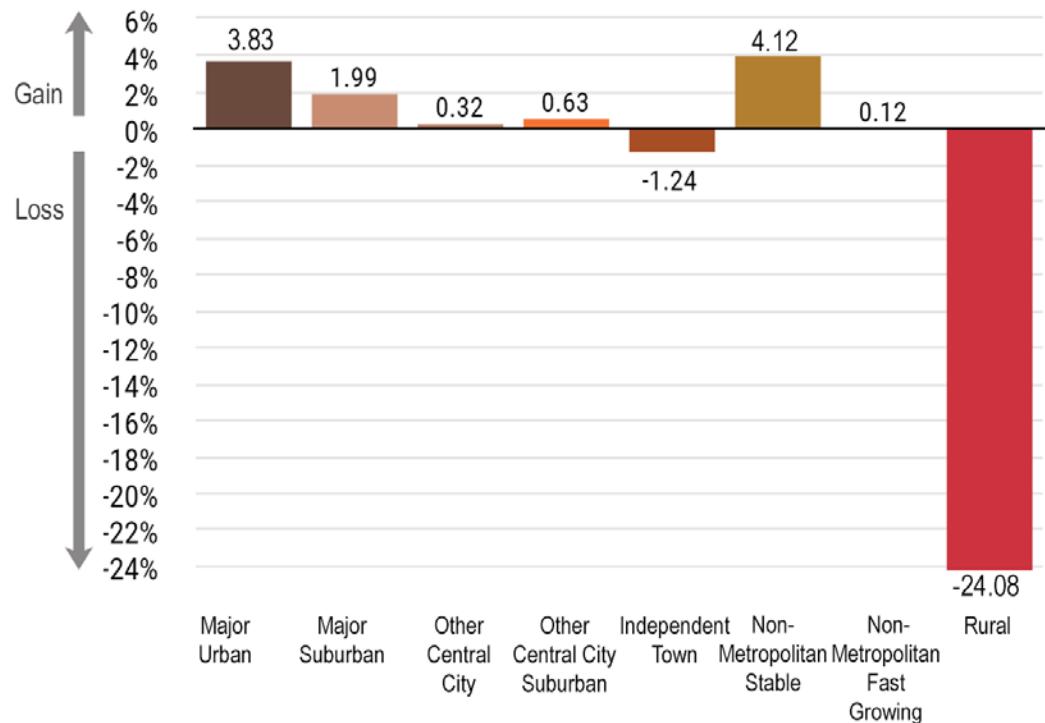


Exhibit 13: Percent Change Taking Algebra II Statewide All Cases by District Type

	2015-16 to 2016-17
Major Urban	3.83%
Major Suburban	<b>1.99%</b>
Other Central City	<b>0.32%</b>
Other Central City Suburban	<b>0.63%</b>
Independent Town	<b>-1.24%</b>
Non-Metropolitan Fast Growing	4.12%
Non-Metropolitan Stable	0.12%
Rural	<b>-24.08%</b>

2017, Intercultural Development Research Association. Data source: Texas Education Agency.

Exhibit 14: Percent Change Taking Algebra II Statewide All Cases by District Type





## 11<sup>th</sup> Grade Patterns

The methodology that we have embarked on was designed to drill down from big picture state explorations to more granular data levels. The next logical step for this method was to isolate, as much as possible, 4x4 students from the analysis. At certain points, it was important to acknowledge their presence, especially when comparing the early implementation years to the most recent years. However, by looking at the 2016-17 11<sup>th</sup> grade class, we may be able to see emerging patterns since they are all HB5 students.

When comparing the percent taking rates from 2013-14 to the present, we can see that 11<sup>th</sup> grade Algebra II taking rates have decreased by approximately 2 percentage points throughout. Our Distinguished Graduation Districts methodology shows that this decrease becomes even more pronounced when removing the 45 DGD districts.

Exhibit 15: Percent Taking Algebra II in 11<sup>th</sup> Grade

	All Districts				All Non-Distinguished Graduation Districts	
	2013-14	2014-15	2015-16	2016-17	2015-16	2016-17
Percent of 11 <sup>th</sup> Graders Taking Algebra II	52.18%	50.43%	50.06%	50.47%	49.35%	49.84%

2017, Intercultural Development Research Association. Data source: Texas Education Agency

There was a decrease in Algebra II enrolment growth since the passing of HB5 from 4.37 percent to 0.94 percent. While these percentages are still in the positive growth territory, they do represent a “slowing” down in growth.

Exhibit 16: Percent Change in 11<sup>th</sup> Graders Taking Algebra II

	All Districts				All Non-Distinguished Graduation Districts	
	2012-13 to 2013-14	2013-14 to 2015-14	2014-15 to 2015-16	2015-16 to 2016-17	2014-15 to 2015-16	2015-16 to 2016-17
Percent Change	10.25%	-0.97%	2.94%	3.21%	4.37%	0.94%

2017, Intercultural Development Research Association. Data source: Texas Education Agency

## 11<sup>th</sup> Grade by District Type

The following tables of 11<sup>th</sup> grade percentages by district type reflects very similar patterns to the state district type percentages.

Exhibit 17: Percent of 11 <sup>th</sup> Graders Taking Algebra II by District Type						
District Type	All Districts				All Non-Distinguished Graduation Districts	
	2013-14	2014-15	2015-16	2016-17	2015-16	2016-17
Major Urban	52.83%	52.07%	51.29%	52.28%	56.51%	55.34%
Major Suburban	50.11%	48.25%	48.12%	48.94%	46.48%	46.10%
Other Central City	54.90%	53.03%	53.38%	53.47%	53.36%	52.85%
Other Central City Suburban	54.67%	50.35%	49.91%	50.14%	50.00%	50.06%
Independent Town	47.55%	45.10%	48.74%	48.66%	48.67%	48.49%
Non-Metropolitan Fast Growing	50.25%	45.23%	43.81%	39.90%	47.45%	40.69%
Non-Metropolitan Stable	52.32%	48.72%	49.05%	50.53%	48.82%	50.35%
Rural	55.03%	73.26%	54.68%	50.09%	54.69%	50.12%

2017, Intercultural Development Research Association. Data source: Texas Education Agency

Exhibit 18: Percent Change in 11 <sup>th</sup> Graders Taking Algebra II by District Type				
Type	All Districts		All Non-Distinguished Graduation Districts	
	2014-15 to 2015-16	2015-16 to 2016-17	2014-15 to 2015-16	2015-16 to 2016-17
Major Urban	-0.05%	4.55%	10.34%	-1.29%
Major Suburban	2.51%	4.86%	2.58%	2.22%
Other Central City	5.33%	2.68%	4.57%	1.20%
Other Central City Suburban	2.38%	4.18%	2.90%	3.78%
Independent Town	13.06%	2.10%	13.98%	1.64%
Non-Metropolitan Fast Growing	0.35%	-0.26%	6.31%	-6.88%
Non-Metropolitan Stable	2.12%	5.94%	2.46%	5.96%
Rural	1.64%	-23.00%	1.71%	-22.93%

2017, Intercultural Development Research Association. Data source: Texas Education Agency

Rural districts lose 23 percent of Algebra II enrollment at the 11<sup>th</sup> grade regardless of Distinguished Graduation District analysis. Remarkably, the Distinguished Graduation District effect is not as pronounced at this level. Especially in the major urban category. Of the 10 major urban districts in Texas, six are Distinguished Graduation Districts. The increase in percentage in this analysis from 52 percent to 55 percent may well be an artifact of movement within the remaining four major districts, all with large populations. In this level, major urban school districts seem to have relatively stable Algebra II 11<sup>th</sup> grade enrollment patterns at this moment.

### Findings Summary

- When reviewing Algebra II course enrollment across all secondary grade levels, there are incremental losses in Algebra II.
- Incremental losses are more pronounced when the 45 Distinguished Graduation Districts are removed from the analysis.
- While statewide losses are incremental, a district type analysis reveals that rural districts lost 24 percent in Algebra II course enrollments in the latest year of HB5 implementation.
- Losses are limited in school districts with the highest percentages of economically disadvantaged students. This likely stems from the high number of students in these districts and that during the 4x4 system these districts had the highest room for growth.
- When comparing the Algebra II taking rates from 2013-14 to the present, 11<sup>th</sup> grade taking rates have decreased by approximately 2 percentage points throughout.
- Rural districts lose 23 percent of Algebra II enrollment at the 11<sup>th</sup> grade regardless of Distinguished Graduation Districts analysis.

# Qualitative Research

## Qualitative Research Question

IDRA set out to investigate the following research question: How are counselors, students and their families navigating implementation of the new high school graduation requirements under HB5? Qualitative research into HB5 implementation was conducted through a series of group interviews of counselors, students and parents in five school districts across Texas.

## Key Qualitative Conclusions

Our analysis led us to the conclusion that endorsements, as a requirement, as policy or as an educational construct, were perceived by respondents as problematic, regardless of perspective (student, counselor, parent) because endorsements have no corresponding social construct or value in real life, college or careers.

- The basic concept of endorsements is perceived by students and parents as lacking in meaning. This is so even with increased, clear or purposeful information about endorsements.
- Responses by students and parents pointed to a perception that there are no real-life counterparts to endorsements.
- Most counselors were concerned that endorsements may derail students' college plans because they often are seen equally as important to college preparatory coursework. The fact that the group of students we interviewed did not reflect the kind of confusion or attitudes that counselors feared (none were "collecting" endorsements), is likely due to the transition period (2016-17) within which the interviews took place, where many students were still being counseled under the 4x4 plan.
- Counselors reported having to consistently emphasize coursework over endorsements, especially for high-achieving students. This does raise the possibility that students other than the most high achieving may end up emphasizing endorsements in their graduations plans, which could quickly present a double standard for Texas students.
- Students who attend districts that have decided to require Distinguished Level of Achievement by default will likely not have the kind of problems that counselors fear most.

## Qualitative Methodology

### District Selection

IDRA selected five areas in Texas to gather in-depth, qualitative data about HB5 implementation. In selecting the sites, IDRA considered various academic measures and geographic distribution (rural/urban/border). We were particularly interested in including school districts that serve largely low-income, minority-majority student populations and demonstrated positive academic outcomes, such as higher than state four-year graduation rates, college-enrollment rates post-graduation, or enrollment in advanced courses. This qualitative study consisted of focus group interviews of counselors, students and parents.

Initially, IDRA reached out to seven school districts that fit our criteria. Of the final five districts chosen, three were major urban districts in Central, East and South-Central Texas, one is considered a central city in the South Rio Grande Valley, and one rural district in Southeast Texas. All districts serve mostly low-income students. In four of the five districts, Hispanics comprise more than half of the student population.

### Participant Categories

IDRA contacted school districts and negotiated research agreements to interview guidance counselors from their middle and high schools. In order to avoid selection bias with students or parents, IDRA contacted community-based organizations in the chosen areas for parents and students to interview.

Total Participants	Parents	Students	Counselors
	35	38	32

District	8 <sup>th</sup> Grade	9 <sup>th</sup> Grade	10 <sup>th</sup> Grade	11 <sup>th</sup> Grade	12 <sup>th</sup> Grade	Total
Major Urban Central	0	4	1	2	0	7
Major Urban Gulf Coast	2	3	1	3	2	11
Rio Grande Valley	2	0	1	2	4	9
Major Urban South Central	0	0	3	2	0	5
South East Rural Texas	0	2	1	3	0	6
<b>Total</b>	<b>4</b>	<b>9</b>	<b>7</b>	<b>12</b>	<b>6</b>	<b>38</b>

Exhibit 20: Student Focus Group Participants by Grade

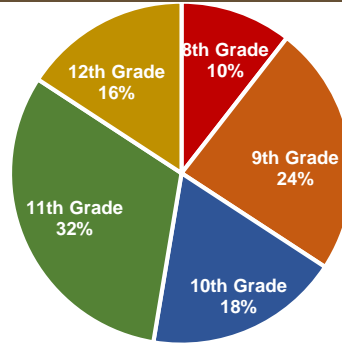
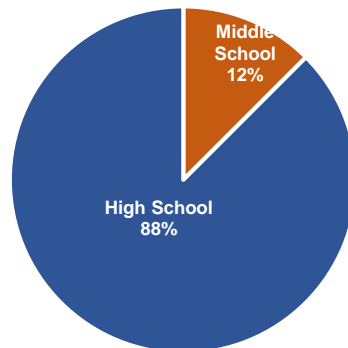


Exhibit 21: Number of Counselor Participants by School Level and District Type

	Middle School	High School	Total
Major Urban Central	0	6	6
Major Urban Gulf Coast	2	0	2
Rio Grande Valley	2	3	5
Major Urban South Central	0	18	18
South East Rural Texas	0	1	1
<b>Total</b>	<b>4</b>	<b>28</b>	<b>32</b>

Exhibit 22: Counselor Focus Group Participants by School Level (n=32)



### Interview Protocols

Interview protocols were designed for each participant group. Protocols included a detailed script for moderators and note-takers based on standard methodologies that ensure confidentiality and high levels of engagement and response. Moderators were encouraged to ask probing questions and engage in deep discussions. Protocols included translations for Spanish-speaking parents. The following are examples of questions for each participant.

Sample questions for counselors:

- HB5, passed by the Texas Legislature in 2013, made changes to Texas' high school graduation requirements. What do you know about these changes?
- What types of information do counselors receive regarding advising students about graduation plans? What information would like to receive that you currently do not receive?
- How would you describe your school's ability to comply with HB5's requirements?
- What else would you like to share about your experience as a counselor with the implementation of HB5's new high school graduation requirements?

Sample questions for parents:

- Please describe the classes your child is currently taking. Please describe the process through which students are placed into high school classes.
- Describe past meetings that you've had with your child's counselors to discuss academic-related issues. What types of information have you received from your child's school about graduation requirements?
- Describe past conversations that you've had with your child about their plans for when she or he finishes high school
- What do you know about what colleges will expect from a high school graduate and how a student should prepare? What suggestions do you have about ways to improve the information you receive about college?

Sample questions for students:

- Think back to when you were in eighth grade. Can you describe the process through which you chose your high school classes?
- Can you tell me about the graduation requirements at your high school? What classes do you need to take? How do students at your high school get information about graduation requirements?
- Describe past conversations you've had with your counselor about graduation requirements and other academic-related issues.

- What endorsements do you think are useful (STEM, business and industry, arts and humanities, public service, multidisciplinary studies) for being college and career ready after high school?
- What do you know about what colleges will expect from a high school graduate and how a student should prepare? What suggestions do you have about ways to improve the information you receive about college?

### **Analytic Process**

After all interviews were conducted and transcribed, IDRA researchers read all transcripts and began the process of identifying themes and categories. The team collaborated using an electronic coding tool so that results could be shared among researchers. Major categories were found across and within participants groups. The coding process was iterative. Initial categories were created and revised, after the team discussed results, recurrence of themes and perceptions between participants were identified.

Through this process, IDRA researchers were able to clarify themes into specific categories. These themes included: information, clarity of purpose around endorsements, coursework knowledge, HB5 language, confusion around requirements, communication problems, endorsements and college requirements, parental involvement, counselor capacity building and training. After reviewing the recurrence and frequency of these themes, IDRA summarized concerns and implications.



## **HB5 Implementation: Summary of Themes and Participant Concerns**

IDRA identified a cluster of recurring themes throughout the interviews. These included lack of information; communication challenges between students, counselors and parents; professional development and capacity building fault lines; perspectives around college aspirations; and professional anxieties around implementing new and complex graduating plans. On the surface, these themes and concerns initially spoke to implementation issues. For example, students often seemed unaware or confused about HB5 language but understood the nuances behind their graduations plans. Parents felt they had little authentic communication from the school about the new law. Counselors universally felt that they did not have enough staff capacity to satisfy some of the law's requirements, such as individualized meetings with parents. These are important concerns about how any new policy is implemented but as participants spoke about their experiences and IDRA analyzed their responses, deeper issues concerning the new policy itself arose.

IDRA's research and analysis of these recurring themes concluded that most issues, whether related to implementation, communication or capacity, were ultimately linked to three major concerns about HB5 that all groups appeared to be grappling with in their own spheres. While each group shared their experiences from different perspectives (student, counselor and parent), the following concerns appear to be at the root of the themes discussed by participants.

1. Most participants expressed that there was a lack of clarity concerning the purpose of endorsements.
2. Participants were concerned about the what role, if any, endorsements play in life after high school.
3. Participants questioned what effects endorsement's lack of "real life" purpose will have on student's college-going and career futures.

As we reviewed discussions and observations from all participants concerning their experiences around HB5 implementation, the frustrations all stakeholders shared appear to be based on an explicit question: What purpose do endorsements serve? To understand how this basic concern was identified, a summary of participant observations and experiences follows.

## Summary of Reported Experiences and Observations

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### Student Confusion About Endorsements

“To be honest, I don’t know. I haven’t heard of those, I mean, what is it?”

“The classes that are under each of the endorsements, they kind of prep you for what you would be – well not what you would be seeing in college, but what kind of classes or the field you’ll be going into in college. It kind of preps you for that.”

Students’ experiences spoke to a lack of information concerning endorsements. Many students, for example, were unable to report what endorsement they had chosen. Some, did not even know the definition of “endorsement” under a graduation plan. When the term *endorsement* was defined for them and they were again asked for what endorsement they had chosen, there were few instances when an endorsement was explicitly named.

When asked if endorsements prepared them for college, the responses were mixed. Some students simply did not see the connection between endorsements and college preparation. Those who did see a connection, did not point to courses preparing them for college, but to possible experiences provided by certain endorsement classes that may help them in the future careers after college, such as CPR or computer programming.

Of students interviewed, most were well-informed about college requirements and necessary coursework. Only one or two students showed confusion or uncertainty about the kinds of coursework needed to get into four-year colleges or the necessary rigor in those courses to do well in college. Students universally understood that they needed four years of math, science, English and social studies. Many still called their plan “4x4,” while others understood that the Distinguished Level of Achievement was only the base – noting that pre-calculus and extra AP courses were necessary for college.

At first, this finding may seem counterintuitive specially when counselors report uncertainty. However, given that students are at the actual nexus between satisfying high school requirements and understanding college requirements, this finding only affirms that student voice is an important gauge of practice and policy success or failure. After all, high school students are at the brink of adulthood and are increasingly aware of the realities that lie ahead.

When it comes to endorsements, however, students fell into two camps: compliant or confused as to purpose. Students, universally deemphasized endorsements in their high school and future plans. Most saw them as something that needed to be done to comply for graduation or were confused about the purpose and deemphasized their role in their education. One interview was very telling in that no student knew their endorsement or fully understood the

role, if any, endorsements played in college, but the students did have knowledge about courses and requirements for college admission. When asked which endorsements they thought prepared or helped them prepare for college, no student answered with certainty, yet most understood the role of AP classes, SAT/ACTs and dual credit classes. Students from another district, where the Distinguished Level of Achievement is a default in the graduation plan, had almost no interest in discussing endorsements, not because they didn't know about it, but because it apparently had no impact on their academic interests or future goals. Again, these students all understood the need for higher math courses, ACT and SAT scores and the need for rigor. Students focused on what was obviously needed for life after graduation and dismissed or deemphasized what was not perceived as part of life after school. This perception points to a fact that endorsements play no part in adult realities that students are facing.

### Experiences with Graduation Plan Counseling

At all schools, at least one student indicated that counselors provided information on some aspect of graduation plans, including general information about endorsements and pathways, how the students' interests aligned with a particular plan and endorsement, and what classes were required for graduation. Students also reported receiving information related to post-secondary education, such as information on extracurricular activities, college requirements, GPA, volunteer hours and scholarships.

At one district, students described a thorough and detailed process of graduation options counseling. First, there was a large assembly freshman year, to which parents and students were invited, so that they could receive information about the graduation plan and endorsements. Counselors also visited their classes and gave a presentation. Then, students set up an appointment to meet with a counselor and, at this meeting they received even more information about the graduation plan and endorsements.

Other students described a process that was not as detailed but nevertheless achieved the HB5 requirement that students choose a high school personal graduation plan. In the words of one student who completed her plan in a group setting:

“They came to our school, in our English classes, and they gave us a piece of paper, and they let us check off what classes we wanted to take and what we wanted to focus on... They walk you through it the whole time.”

Counselors are frequently mentioned as sources of information about graduation plans in HB5 and in district resources. In this study, most students reported receiving information and assistance from counselors, but they felt that they needed even more information. One student indicated:

“A lot of people are asking each other, ‘What are we going to have next year? Because they still haven't asked us what we want for a schedule.’”

As this and other student responses suggest, some students viewed counselors as unavailable, inaccessible or ineffective. One student asserted:

“Our last [counselor] was just nowhere to be found. You would ask her for information. She’ll tell you she would have it, but she would never give it to you.”

Of the students who did not receive satisfactory information from counselors, some were able to turn to others, most frequently teachers and upper-class peers, to expand their knowledge base about HB5-related processes and practices.

### Parents

“Es muy complicado para entender, a veces ni los maestros o consejeros saben cómo explicar. Yo como mama no entiendo muy bien.” [“It’s very complicated to understand sometimes. Nor do teachers or counselors know how to explain. As a mom, I do not understand very well.”]

“Me gustaría recibir información para cuando gradúan de preparatoria y ayudar a mis hijas a escoger colegio o universidad que quieran seguir.” [“I would like to receive information for when they graduate from high school and help my daughters choose a college or university they want to pursue.”]

Parents in this qualitative study perceived that they were not being fully informed concerning graduation plans, endorsements or pathways. Instead, they perceived that their involvement was limited to receiving one-way information about graduation plans and endorsements. In other words, most parents acknowledged having been provided with information about endorsements, pathways, graduation plans, etc. (one-way communication), but they indicated that they did not share information or provide feedback to counselors (two-way communication) about their preferences and goals regarding post-secondary education or coursework, graduation plans or endorsements. Their responses also pointed to confusion about the part endorsements play in their children’s education. Furthermore, as the majority of parents interviewed desired their students to go to college, parents had very little clarity as to the reason for endorsements.

On the surface, it appeared that district, schools and counselors were meeting HB5 requirements in that they made personal graduation plan information available to parents. The information, however, was incomplete and ineffective. Parents still wanted information on a variety of HB5-related topics, including what their children needed to graduate and go to college. This information also was incomplete and ineffective. Some parents said that the school had not provided any information or that the information was not in the language with which they were most comfortable (e.g., Spanish).

Analyses show that parents were generally confused about terminology but were able to give examples when terms were defined for them. On the other hand, it was difficult to discuss HB5 with parents in one district because almost none of them were familiar with HB5 terms. Not

only did they attach no meaning to HB5 terms, even when a definition was provided, but they also did not think that any of their interactions with the school up to that point had been HB5-related. At minimum, what these parents needed was a working knowledge of how to choose endorsements, career clusters, and college and career pathways. Their misunderstanding of and unfamiliarity with HB5 may also be a result of them not “speaking HB5.” This points to a disconnect between the reality that parents and students face post-high school, where no one “speaks HB5.” Simply, parents do not see how the new system reflects out-of-high-school, adult realities either in college or career success.

### **Marginalized Parents**

Although many of the parents did not specifically use HB5 terminology, it was nevertheless clear that they wanted to be involved with course-taking decisions. HB5 explicitly requires that a graduation plan “address participation of the student’s parent or guardian, including consideration of the parent’s or guardian’s educational expectations for the student.” It also implies that districts and schools should help parents assist students in preparing for career or college. Analyses of the focus group discussions indicate that at all schools, there were at least some parents who were satisfied with the school’s efforts (often represented by the counselor) to include them in graduation plan and endorsement decisions. Many more parents, however, were critical of school/counselor reaction to parent involvement efforts.

One parent spoke about their attempts to advocate for their child, who they hoped would be the first in their family to attend college, but they did not think that the school made parent involvement a priority because the counselor responded to their inquiries by encouraging them to take a *laissez faire* approach.

Another parent explained that counselors at the school believe that parents should rely on counselors rather than get involved themselves. She stated: “But they [counselors] were telling you: ‘We know more than you.’” While these parents thought they were being nudged to the side, other counselor-parent encounters appeared to have been outright confrontational and combative. Two parents, for example, used the word “fight” when it came to how they were communicating with the school.

In contrast to most of the parents at the other school districts, parents in one rural district were very satisfied with the information and advice they received from the high school counselor and were able to clearly describe the process by which they received information about the graduation plan and endorsements. The parents felt that they were consistently consulted and informed of the policy and were able to help their children decide on a graduation plan and endorsement but that ultimately the choice was up to their children. The experiences of these parents may not be representative, as these parents also were high school teachers in this district, suggesting that they were more aware of and involved in the graduation plan and endorsements than the average parent. Nevertheless, their experiences are valuable in understanding how parents are navigating HB5.

## Counselors

“Endorsements are confusing and do not relate to higher ed.”

“Some students are eager to take more AP classes... but want an endorsement [and] are forced to take electives that have no advanced weight to them, i.e., child development or lifetime nutrition.”

“The Class of 2018 is the first class that must graduate under HB5. I would appreciate an updated professional training entailing the graduation plans and endorsements. Perhaps if enough counselors asked, a training could be provided... maybe?”

Overall, counselors indicated they were not confident that they were providing effective support for students. Schools and districts have provided materials and training to help counselors advise students regarding personal graduation plans, provide information about graduation options, and explain endorsements, but counselors are frequently overwhelmed.

Counselors depicted the implementation of HB5 as taking place in an environment where they, their school, and/or their school district do not have the ability, skills and expertise to execute and accomplish the requirements introduced by HB5. Counselors discussed the different ways in which they felt unprepared to implement HB5 requirements. From the counselors' perspective, their district and region are not able to answer all of the specific questions they have about HB5, they do not have the technology necessary to effectively keep track of students' personal graduation plans, and they need more training on HB5.

Specifically, one counselor described a situation with a student that, prior to HB5, was in special education but nevertheless wanted to graduate under the DAP. They explained how they were able to assist the student in meeting his goal but then concluded, “Though with House Bill 5, I don't know, because we don't know the requirements yet.” Similarly, another counselor said:

“It's easier to advocate for somebody when you have all the knowledge and experience and confidence, to us [HB5] is something we're learning... if we don't then we're going to be causing a disservice... to the student or to the parent.”

Although counselors' perspective was that they do not have sufficient resources to implement HB5 requirements, they also talked about resources they expect to receive soon to build their capacity. For example, some counselors will soon get a software program that will help them track students' progress toward completing their individual graduation plans. Right now, counselors are overwhelmed by a “paper-and-pencil” tracking system and are fearful that they will make an error that will have negative consequences for a student.

## Perceived Need for Additional HB5-Related Assistance and Training

All of the counselors described HB5-related assistance offered by their schools, districts and state agency. Counselors indicated that their schools, districts and state agency offered materials, information and formal training on personal graduation plans, provided information about graduation options, and explained endorsements. Counselors in one major urban district specified receiving a workshop at the beginning of the school year about the graduation plan and endorsements. In one central Texas school district, counselors received information about HB5 through videos and monthly meetings. The counselors in a rural district said they received training from the state. Some counselors also had access to technological resources to assist them with the new, HB5-related administrative tasks. In a rural district, for example, counselors used software that managed the information about each student's graduation plan, endorsement and the courses needed to complete that plan.

Despite these resources, however, not all counselors felt completely equipped to provide graduation plan counseling or have access to ongoing, formal professional development opportunities to continue to grow their HB5-related skills, knowledge and abilities.

Counselors most often reported knowledge gaps that needed to be properly filled in. Counselors received information about HB5, but they wanted training and training materials that were specific to their school district. In the words of one counselor: "There have to be district-specific materials because [how HB5 is implemented] is specific to what courses and staff are available." This counselor stated that they needed additional training and resources to understand district-specific procedures for implementing HB5, but other counselors reported needing to better understand HB5 in general. In one district, for example, the counselors wanted more training on methods and processes to engage students and parents, regular updates to HB5 and career pathways.

In summary, counselors were likely to perceive a one-size-fits-all approach to HB5-related training as ineffective, and many believed they needed additional information to truly help students.

The recurrent theme of training needs must be viewed alongside the discomfort that counselors overwhelmingly stated about endorsements themselves. Even counselors who saw potential benefits behind endorsements did not articulate the nature of those benefits. One important implication is that this repeated request for further training is an appeal to clarify benefits that simply aren't in the system.

## Different Perspectives Concerning HB5's Graduation Requirements

Each group provided different perspectives concerning HB5's graduation requirements, endorsements and college preparation, as they understood these concepts and from their own unique perspectives. Following are key highlights.

### Students

- A majority of students interviewed had college-going aspirations and plans.
- A majority of students interviewed had, at least, a working understanding of college admission requirements, while most understood advanced college requirements.
- Students understood college requirements independently of HB5's graduation requirements. For example, most understood the need for four years of math that included advanced math and four years each of English, science and social studies, even if they didn't know the term *Distinguished Level of Achievement*.
- Students tended to minimize the role endorsements played in their college-going plans.
- Very few students were deeply engaged or showed interest in endorsements. Repeatedly, when students were asked about endorsements, they would change the subject to their college aspirations and required coursework toward their goal.

### Parents

- Without exception, all parents had college-going aspirations for their children.
- Parents expressed frustration about not having information about the new law and worried if this lack of information would affect their student's college career.
- Parents understood "traditional" concepts about college requirements, such as good grades, college preparatory courses and SAT/ACT scores but felt there was little clarity around the purpose of endorsements.
- Most parents felt that the communication about this new complex plan was inadequate.
- Even parents who understood endorsements did not see the connection to college aspirations.

### Counselors

- Counselors expressed doubts about having enough practical information as to how to implement a complex plan like HB5.
- Counselors were overwhelmed by the tasks required by law and the time they



necessary to provide the kind of individualized counseling that HB5 needs so that students make informed choices.

- Counselors reported that, from where they stood, they were beginning to see students attempt to pick up multiple endorsements like “badges” regardless of interest or perceived need.
- Most counselors discussed the fact that endorsements have no value in college admissions.
- In spite of the fact that counselors reported that endorsements had little value in college admissions or college success, they almost all reported explaining to students that endorsements were like majors in college.
- All counselors expressed frustration in seeing more and more students concentrating on the number of endorsements they chose rather than coursework needed to graduate college ready.

We began this section by identifying three concerns surrounding endorsements: (1) Is their clarity to their purpose? (2) What is their value after high school? and (3) What is their value in college access and success? A review of the observations and responses summarized above led us to the conclusion that students are placing little value on endorsements because they are not required by colleges or needed for careers. Parents are similarly confused as to what endorsements mean for college admission or careers. Counselors know that colleges don't use them for any reason and are frustrated as to how best to implement this new policy. These three parallel issues underlie many of the concerns expressed by counselors.

Our analysis led us to the conclusion that endorsements, as a requirement, as a practice or as an educational construct are perceived as problematic, at best, regardless of perspective because endorsements have no analog, social construct or perceived value in real life, college or careers.

## Post-Secondary Preparation and Pathways

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### Students

Most students in this study aspired to attend college and presented basic, if not deep, understanding about coursework and requirements. However, students were not engaged or deeply invested in chosen endorsements. When further asked to consider their chosen focus or endorsement most deferred to explaining their college-going aspirations, what their schools provided and what courses they were taking to prepare them for college.

The notable exceptions were few and are representative of a fear that many counselors share. For example, the idea shared by three students that the endorsements mattered highly as they prepared for enrolling and succeeding in college was particularly problematic given counselors'

view that what mattered to colleges and universities was the courses taken outside of the endorsement area. It also suggested that there are students who need to be provided with detailed college preparation and success information and resources, with special attention given to the compatibility between courses taken to earn each endorsement and becoming academically prepared for college. One student explained:

“My endorsement prepared me for college. So, for example, in college if they do CPR... well I already took the CPR test and I passed, so I get that out of the way, and that'll help me if I need help with picking the top medical universities... They'll teach me little things about it, and they'll just help me. So, if I want to work during college I can work at a hospital.”

Another student explained why the business and industry endorsement was helpful in being college-ready:

“I heard a lot about that in high school, to have your own business. A lot of kids want that, having their own business, being their own boss. And I guess that's what mostly people go to college for.”

What makes both responses quote-worthy is that they represent the only expressions of what students are thinking about the connection between endorsements and college. While articulate, their perceptions were problematic as they had little to do with actual requirements or course rigor. Most other students had little to say about what they ultimately thought about endorsements.

As previously stated, there are three implications: (1) Students interviewed accurately understand that endorsements satisfy no requirements for college admission or success; (2) Endorsements are not perceived as being important to the students we interviewed as they were unable to make a connection between endorsements and real-life; and (3) Those that do not understand may fall through the cracks and graduate not prepared for post-secondary success.

The findings, at this point in the new graduation system, must be put in to context. Overwhelmingly students across the state, at the time of these interviews, were still graduating under the 4x4 requirements. Even as all students had access to the new plans, up to 80 percent of students in Texas were still graduating under the 4x4 plan, either under the Recommended HSP or DAP (not to be confused with HB5's Distinguished Level of Achievement). This presents the possibility that many students interviewed were still conversant with 4x4's requirements, which emphasized college preparation. In turn, this may mean that, as more students become immersed in HB5's endorsement focus, more students may fall to misunderstandings about endorsements and their usability in the outside world.

This, however, does present a possible final implication: Will endorsements only become important to students who have graduation plans that fall that short of college requirements?

## Parents

We explored what parents understood about how students should prepare for college. We were careful not to ask about specific colleges or universities because we were simply interested in what parents knew about college in general. Were they aware, for instance, what students needed to be eligible to compete for Top Ten Percent Plan automatic admission eligibility at a Texas public university? Did they link the Texas graduation requirements under HB5 to institutions' selection criteria?

Statements made in the focus groups revealed that parents tended to know about the importance of grades for college admission, but they showed little awareness of the influence of other criteria, such as courses taken. Grades were a recurring theme in the conversations:

“Más que nada, la calificación, los puntos de todo lo que ella ha hecho en la secundaria, todos sus puntos que ella ha acumulado. Porque ella me habla mucho de eso, que ella tiene que tener tanto...porque ella quiere ir a la Austin, ella quiera irse para allá. Bueno, por eso está enfocado en su puntuación, más que en las horas comunitarias ahorita... para una escuela la lleva...Pero ella me habla más de eso, más de los puntos.” [“More than anything, the GPA, the points of everything she has done in high school, all of her points she has accumulated. Because she talks to me a lot about that, that she has to have so much... because she wants to go to Austin, she wants to go there. Well, that's why it's focused on your GPA, more than the community hours right now... for one school she has [the GPA]. But she tells me more about that, more about the points.”]

Parents did not touch on the new graduation plans, endorsements or Distinguished Level of Achievement when commenting on admission requirements. Also, although Texas has a well-known public university automatic admissions eligibility policy (Top Ten Percent Plan), none of the responses indicated that parents were familiar with this policy. Conspicuously, only one parent thought the Texas graduation requirements under HB5 were important for admission. This parent concluded, “The things that most of us would think we need to do now [is] to get them ready for college [and how that] would really relate to the endorsements.”

## Counselors

In the focus groups with counselors, we also inquired about college-going aspirations, alignment of graduation plans with post-secondary preparation, and pathways. Just like with the parent focus groups, we did not inquire about specific colleges or universities, and usually counselors also did not name specific colleges or universities. (Counselors from one rural district did talk specifically about college by name, but their remarks were focused on the availability of a dual credit program in the district and not admission or the alignment of Texas' graduation requirements under HB5 and that college's admissions requirements.)

We found that many counselors mentioned a number of problems facing them and students, including a disconnect between graduation and admissions requirements. When asked about the consideration of endorsements and personal graduation plans in admissions decisions,

some counselor interviewees commented: “Right now, no. I don’t think [colleges] care.” Another counselor responded: “I don’t think [endorsements and graduation plans] matters to [colleges].”

Some counselors shared stories and anecdotes about their own experiences with college and university representatives who explained why they thought that the new high school programs and college admissions requirements were not always consistent with one another:

“The more college updates we go to, there are several universities saying they still want four social studies in the foundation, even with Distinguished Level of Achievement’s only requiring three social studies requirements. So, we feel like sometimes it’s a little bit of a mixed message to our families. We have to really encourage them if they want to have all of their options for colleges and universities, they really need to take four social studies.”

“Physics. It’s not required... When I talked to the university, they’re like, ‘If it’s not physics, it’s got to be something of equal or higher rigor.’ We’re not all on the same page.”

Consequently, although counselors are supposed to be the experts about what students need to do in order to meet admission review criteria, there was understandable confusion among some counselors about what courses colleges wanted students to take. This confusion can be particularly problematic when it comes to students who are not on a path to earn the Distinguished Level of Achievement that makes them eligible for the Texas Top Ten Percent Plan.

Counselors’ concerns about a general disconnect between graduation and admissions requirements matched parents’ and students’ ambiguous knowledge about the relationship between the new graduation plans, endorsements and Distinguished Level of Achievement established under HB5 and post-secondary preparation. We investigated what parents and students know – and did not know – about the link between high school and college. We found that, although many students and their parents desired college attendance after high school, they often did not know the difference between what colleges and universities require in terms of high school coursework and Texas graduation requirements under HB5. This confusion was centered on HB5 more than college requirements.

## Post-Secondary Preparation and Pathways Conclusions

This study has overarching implications indicating that HB5 practices and implementation at the school level matters. HB5 expects counselors to provide information and advise students and their parents about the importance of post-secondary education. The findings of this qualitative study specifically point to the need for schools, especially counselors, to reach and prepare students and their parents with general college knowledge, including the relationship between Texas graduation requirements under HB5 and college admission eligibility.

Although students may change their personal graduation plan at any time throughout high school, counselors concentrate graduation plan efforts during the ninth grade, when HB5 requires counselors to review personal graduation plan options with each student and their parent(s). School counselors, however, must develop ongoing college and career preparation interventions throughout high school years. School counselors will create a culture of post-secondary education when they provide information about the Texas graduation requirements under HB5 that communicates clear messaging about the relationship between requirements and college admission; transmit clear expectations that every student will be prepared for post-secondary education.

School counselors also must recognize the importance of parent involvement in preparing students for post-secondary education and must be deliberate in planning ways to connect with parents each year of high school to provide information about college. In addition, in order to increase parents' post-secondary knowledge, after the initial confirmation of the plan in ninth grade, school counselors should find innovative ways to inform parents of any post-secondary implications for post-secondary preparation and pathways when a student amends their graduation plan. Sending written notice to the student's parents regarding the change, the requirement under HB5, is not enough.

This kind of personalized counseling, of course, calls for school practices that enable counselors to provide more individual counseling. The high counselor-to-student ratios and additional responsibilities that many counselors described, however, limit the amount of time that counselors can spend in post-secondary preparation and pathways.

## Additional Findings: Endorsements

IDRA researchers also reviewed the latest endorsement declaration data from TEA. This information showed some startling results. In districts with high percentage of economically disadvantaged students, nearly a quarter of students declared public service as their endorsement, compared to 14 percent in districts with the lowest number of economically disadvantaged students. Thirty-eight percent of students in districts with the lowest percentage of economically disadvantaged students declared the multidisciplinary studies endorsement compared to 20 percent in school with highest percentage of economically distressed students. This is an early troubling trend as it indicates an equity gap in opportunities presented to students since the multidisciplinary studies and STEM endorsements are described as the endorsements most likely to prepare students for college. The public service endorsement, as it stands, does not require the rigor of other endorsements.

Exhibit 23: Endorsement Declaration, 2016-17

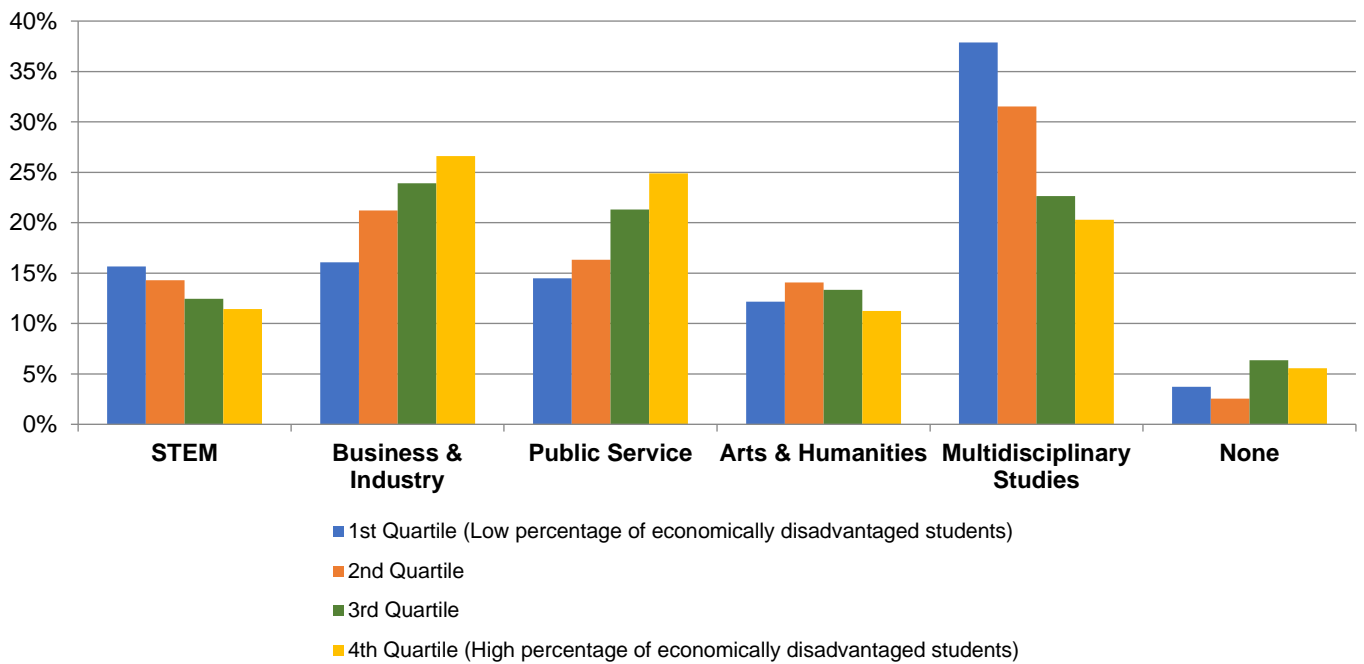
Quartiles	STEM	Business & Industry	Public Service	Arts & Humanities	Multidisciplinary Studies	None
1 <sup>st</sup> Quartile (Low percentage of economically disadvantaged students)	16%	16%	15%	12%	38%	4%
2 <sup>nd</sup> Quartile	14%	21%	16%	14%	32%	3%
3 <sup>rd</sup> Quartile	12%	24%	21%	13%	23%	6%
4 <sup>th</sup> Quartile (High percentage of economically disadvantaged students)	11%	27%	25%	11%	20%	6%

2017, Intercultural Development Research Association. Data source: Texas Education Agency

While students in any endorsement may graduate with the Distinguished Level of Achievement, the stated intent of the law is to give career options to non-college-bound students (Cortez, 2013). The rates show that students in districts with higher percentage of economically disadvantaged students have declared endorsements that are not designed for college and success. This is complicated by the uncertainty about what some endorsements mean across districts with varying degrees of resources. In economically disadvantaged districts, the business and industry endorsement may include entrepreneurship classes and accounting principles, while districts with fewer resources may not offer such classes.

It is telling that in Quartile 1 that has the lowest percentage of economically disadvantaged districts, the majority of students chose the multidisciplinary studies endorsement (38 percent) with all other endorsements in the teens, while in Quartile 4, students chose endorsements not closely associated with college at higher rates.

Exhibit 24: Endorsement Declarations (n=32)



2017, Intercultural Development Research Association. Data source: Texas Education Agency.

# Policy Brief and Recommendations

In 2013, the 83<sup>rd</sup> Texas Legislature established the Foundation High School Program, which allows for significant local variation in graduation planning and represents one of the most substantial changes to Texas curricula in recent history. The new policy (HB5) lowered graduation requirements for mathematics, science and social studies; implemented a new graduation requirement for career readiness, called endorsements; and added a “Distinguished Level of Achievement” designation that closely resembles the previous graduation requirements.

Research conducted by the Intercultural Development Research Association on HB5, Texas’ new graduation requirement policy, has concluded that the law has introduced new challenges to achieving greater rates of college access and success in Texas as a whole and for underrepresented populations in particular. Specifically, the loss of Algebra II as a requirement can have far-reaching effects at a time when the previous graduation system was reporting clear and definite gains for underrepresented students in college access and success. This downgrading of requirements is even more problematic considering that: (1) Algebra II is a bare minimum for most universities; and (2) the next course in the higher math sequence, pre-calculus, is correlated to higher achievement in college.

HB5’s reforms concentrated around the idea of “choice.” Yet the new policy itself is riddled with anti-choice problems. This is so because endorsements have the potential to confound what had been a straightforward college path. Texas endorsement’s policy amounts to forcing students to choose a career path in eighth grade (at about 14 years of age) and making decisions that could limit their options later in life. The endorsements have many local variations within that include cosmetology, accounting principles, working in a franchise as well more “college-bound” options. While most student respondents in IDRA’s research dismissed the relevance of endorsements, many remember heightened anxiety over having to make such a decision in eighth grade.

The most basic problem with the endorsement concept is that there is no real-life counterpart to this construct, and yet students are being informed that endorsements are like college majors. The language itself is confusing and hides the thinly-veiled misperception that not all students are “meant for college.” Regardless of whether that is the case or not, the state of Texas previously succeeded in preparing 80 percent of students for college with four years of math, science, English and social studies (referred to as the “4x4”). Under the 4x4, students would be able to decide if college “was for them” as young adults with a diploma that gave them options, instead of forcing a choice in eighth grade. Curriculum for the 21<sup>st</sup> century student should prepare all students for an uncertain and possibly chaotic workforce future rather than forcing career choices in eighth grade that could have far ranging limitations on



future educational opportunities.

Given this background, how has HB5 implementation affected Texas's students? The research concluded the following.

- Rural districts lost 24 percent in Algebra II course enrollments in the latest year of HB5 implementation.
- Incremental losses in Algebra II course enrollment has occurred across all secondary grade levels, rather than being limited to 11<sup>th</sup> grade.
- Forty-five districts studied require the Distinguish Level of Achievement as part of their default graduation plan for their students, thereby mirroring the previous graduation requirements. Losses in Algebra II course enrollment are more pronounced when removing these 45 districts from the analysis.
- Earning endorsements as a graduation requirement is perceived by students and parents as lacking meaning. This is so even with increased, more clear or purposeful information about endorsements.
- Responses by students and parents pointed to a perception that there are no real-life counterparts to endorsements.
- Responses by students and parents pointed to an understanding that there are no real-life counterparts to endorsements.
- Most counselors were concerned that a focus on endorsements by schools may derail students' college plans because endorsements often are inaccurately presented as equally important to college preparatory coursework.
- Counselors reported having to consistently emphasize coursework over endorsements, especially for high-achieving students.
- Parents expressed frustration about not having information about the new law and worried that this lack of information could affect their student's college career.
- Parents understood "traditional" concepts about college requirements, such as good grades, college preparatory courses and SAT/ACT scores but felt there was little clarity around the purpose of endorsements.
- Most parents felt that the communication about this new complex plan was inadequate.
- Even parents who understood endorsements did not see the connection to college aspirations.

## Policy Recommendations

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- Schools can and should prepare all students to graduate with a rigorous curriculum that enables them to make informed choices about college rather than force eighth-grade students to make choices that will affect their entire educational career.
- At minimum, restoring and improving the 4x4 curriculum should be implemented with additional emphasis placed on increasing Algebra II access and success to eighth-grade students.
- The curriculum should at the very least resemble the minimum requirements for all students have the opportunity for college access and success at top tier colleges.
- Additional funding to support students who may struggle with Algebra II and pre-calculus must be part of restoring Texas' leadership in providing higher rates of mathematics access and success.
- Endorsements as an educational tool or practice should be revised to be career exploration electives rather than pathways. This could mean that all students are required to take electives where many career options are explored in depth throughout middle school and high school, rather than use the concept as a tracking device that limits rather than expands educational options.
- The counselor-to-student ratio needs to be improved so that more counselors can help students explore college options, serve as mentors to smaller groups of students and communicate with parents. Student respondents in one mid-size district described just such a situation where counselors were all aware of student's grades, career goals and even homework assignments. This is not an impossible goal if the state is willing to fund counselors at an appropriate level rather than changing graduation requirements so that fewer students are seen as "needing" college counseling.
- Create multilingual clear parent information resources concerning college and graduation requirements. Parents of all languages repeatedly expressed frustration at the lack of such materials. The quality and content of resources varies greatly by region and districts. The state of Texas needs to invest in this effort.
- Any transition period to restoring an improved 4x4 curriculum from the current situation should include district-level reporting on local choices. For example: Does a district require or recommend students to graduate with the Distinguished Level of Achievement? What are the exact types of courses being offered under each endorsement along with disaggregated enrollment data for such courses that includes race/ethnicity, gender and socio-economic status?

## Research Implications

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- Continue longitudinal cohort research efforts that study the relationship between student's high school curriculum and post-secondary success.
- Expand qualitative studies to be conducted yearly on a wider scale to understand the full impact of policy changes as schools adjust to the needs of students and parents.
- As part of data collection by TEA, report course success rates, such as for Algebra I, geometry, Algebra II, pre-calculus, and calculus in addition to college success rates. This will enable schools, parents and policymakers to gauge a school's success, provide additional supports and inform further research.
- Study the quality of curriculum available to students across schools, including those placed in alternative education settings and take appropriate action to ensure equity for all students.

The implications of research conducted on HB5 are far-reaching. Even as losses in Algebra II enrollment have been both pronounced and incremental, the long-term effects could be monumental. Before the adoption of HB5 in 2013, Texas's 4x4 plan prepared an increasing number of students for college. In 2013, approximately five out of every six students (83.5 percent) graduated under the Recommended HSP or the Distinguished Achievement Program, compared to just 68 percent nine years earlier (TEA 2013-14 Texas Academic Performance Report-Longitudinal Cohort). As educators, policymakers and communities consider the next steps surrounding this issue, we must take into account gains that took years to accomplish could disappear as we take away student's options and opportunities through the mischaracterized mantra of "choices."

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