

Building Career Pathways to Credential Attainment and Workforce Opportunities in New Mexico— 2015

Report Submitted to the New Mexico Public Education Department

TABLE OF CONTENTS

SECTION	PAGE
Preface	Vi
Executive Summary	1
What Are Career Pathways?	3
What Do Career Pathways Look Like?	4
What Goals Can Career Pathways Help New Mexico Achieve?	4
Strong Policies and Powerful Practices for Building Career Pathways: 20 Essential Recommendations	5
Reader's Guide to the Report	9
SECTION 1 – TEN GOALS FOR BUILDING HIGH-QUALITY CAREER PATHWAYS	12
Goal 1 – Establish rigorous, relevant career pathways driven by workplace opportunities.	12
Goal 1 – Literature Review	12
Goal 1 – Findings	18
Goal 1 – Recommendations	35
Goal 2 – Close the gap between career pathways and workforce opportunities.	39
Goal 2 – Literature Review	39
Goal 2 – Findings	41
Goal 2 – Recommendations	51
Goal 3 – Set college- and career-readiness standards in literacy and math.	57
Goal 3 – Literature Review	57
Goal 3 – Findings	61
Goal 3 – Recommendations	66
Goal 4 – Identify technical and workplace readiness standards and assessments.	68
Goal 4 – Literature Review	68
Goal 4 – Findings	71
Goal 4 – Recommendations	77
Goal 5 – Offer career pathways in settings that accelerate postsecondary attainment and career advancement.	79
Goal 5 – Literature Review	79
Goal 5 – Findings	87
Goal 5 – Recommendations	90
Goal 6 – Create a guidance system of career information, exploration and advisement.	93
Goal 6 – Literature Review	93
Goal 6 – Findings	96
Goal 6 – Recommendations	101
Goal 7 – Increase access to high-quality work-based learning experiences.	104
Goal 7 – Literature Review	104
Goal 7 – Findings	105
Goal 7 – Recommendations	109

Goal 8 — Attract, prepare and retain high-quality career pathway teachers.	111
Goal 8 – Literature Review	111
Goal 8 – Findings	113
Goal 8 – Recommendations	114
Goal 9 — Use career pathways to restructure high schools with low graduation rates.	116
Goal 9 – Literature Review	116
Goal 9 – Findings	117
Goal 9 – Recommendations	118
Goal 10 — Correct structural issues in the state’s course catalog, data collection and reporting systems that present barriers to New Mexico’s accountability goals.	121
Goal 10 – Literature Review	121
Goal 10 – Findings	123
Goal 10 – Recommendations	125
SECTION 2 — SWOT ANALYSES	128
Northern WIOA Region	130
Central WIOA Region	143
Eastern WIOA Region	156
Southwestern WIOA Region	168
SECTION 3 — TECHNICAL APPENDICES	
Technical Appendix A: CTE Course Enrollment Analyses	1
Reader’s Guide to the High School Career Pathway / Program of Study Reports	1
Regional Analyses of High School Career Pathways / Programs of Study	6
Northern WIOA Region	6
Regional Summary: Programs of Study by STARS Area	7
Regional Three-Course Analysis Summary	10
Regional Four-Course Analysis Summary	12
Central WIOA Region	14
Regional Summary: Programs of Study by STARS Area	15
Regional Three-Course Analysis Summary	19
Regional Four-Course Analysis Summary	21
Eastern WIOA Region	23
Regional Summary: Programs of Study by STARS Area	24
Regional Three-Course Analysis Summary	26
Regional Four-Course Analysis Summary	28
Southwestern WIOA Region	30
Regional Summary: Programs of Study by STARS Area	31
Regional Three-Course Analysis Summary	33
Regional Four-Course Analysis Summary	34
High School Career Pathway / Program of Study Reports – Excel Files (Available Separately)	

Technical Appendix B: Stakeholder Survey Results	35
Business Survey Results	36
Community Leaders Survey Results	56
Parent Survey Results	70
Counselor Survey Results	83
Postsecondary Administrator Survey Results	95
Principal Survey Results	102
Student Survey Results	119
Teacher Survey Results	140

INDEX OF TABLES

Table 1: Career Pathways / Programs of Study by Region and Statewide	20
Table 2: State and Regional Career Pathways / Programs of Study by STARS / Career Cluster Area and Three-Course Versus Four-Course Sequence, Rank Ordered	22
Table 3: Top Five Most Prevalent Career Pathways / Programs of Study – Region and State	23
Table 4: Top-Ranked Career Pathways / Programs of Study Statewide by STARS Area	23
Table 5: High School Dual Credit CTE Course Grades – State Totals	25
Table 6: Percentage of Students Reporting Experiencing Rigorous CTE Assignments	29
Table 7: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Rigorous CTE Assignments and Percentage of HSTW Students Meeting Readiness Goals	30
Table 8: Percentage of Students Reporting Rich Literacy Experiences	31
Table 9: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Rich Literacy Experiences and Percentage of HSTW Students Meeting Readiness Goals	32
Table 10: Percentage of Students Reporting a Balanced Approach to Teaching Math	32
Table 11: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of a Balanced Approach to Math and Percentage of HSTW Students Meeting Readiness Goals	33
Table 12: Percentage of Students Reporting that Assignments Matter	34
Table 13: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators that Assignments Matter and Percentage of HSTW Students Meeting Readiness Goals	35
Table 14: New Mexico Current and Projected Jobs by Economic Sector	42
Table 15: Crosswalk of New Mexico Industry Sectors and the 16 National Career Clusters	45
Table 16: New Mexico Projected Job Growth, 2013-23	46
Table 17: Survey Respondents' Top Three Most Desired Career Pathways by Sector	50
Table 18: State Summary – Survey Respondents' Perceptions of Program Alignment with Industry and Workforce Needs	51

Table 19: Regional Career Pathway Recommendations by Industry Sector	56
Table 20: 2013-14 Standards Based Assessment Proficiency Rates of New Mexico 10th-Graders	61
Table 21: High-Quality Industry Certifications Earned in 2012-13 by New Mexico Postsecondary and High School Students	72
Table 22: High-Quality Industry Certifications Earned in 2012-13 by New Mexico High School Students, by Region and Statewide	73
Table 23: Educational Pipeline Analysis of 100 New Mexico Ninth Graders	88
Table 24: New Mexico Unemployment Rates, All Ages and Youth Aged 20 to 24	88
Table 25: Surveyed Stakeholders' Support for New CTE Programs	89
Table 26: Surveyed Stakeholders Support for Diverse CTE Program Settings	89
Table 27: Percentage of Students Reporting Indicators of Counseling for Careers	97
Table 28: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Counseling for Careers and Percentage of HSTW Students Meeting Readiness Goals	98
Table 29: Percentage of Students Reporting Experiencing Indicators of Career Information, Exploration and Advisement	98
Table 30: Percentage of Students Reporting Multiple Indicators of Career Information, Exploration and Advisement	99
Table 31: Outreach Efforts Reported by Postsecondary Administrators	99
Table 32: Career Guidance and Advising Services Reported by Counselors	101
Table 33: Adults from Whom Students Receive Career Guidance and Counseling	101
Table 34: Surveyed CTE Students' Participation in Work-Based Learning	107
Table 35: Percentage of Students Reporting Experiencing Indicators of Work-Based Learning	108
Table 36: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Work-Based Learning	109
Table 37: CTE's Impact on Graduation, College Placement and Job Placement Rates	117
Table 38: Low-Performing Comprehensive High Schools by Size and Location Near State Postsecondary Institutions	118
Table 39: New Mexico Northern WIOA Current and Projected Jobs by Economic Sector	134
Table 40: New Mexico Central WIOA Current and Projected Jobs by Economic Sector	147
Table 41: New Mexico Eastern WIOA Current and Projected Jobs by Economic Sector	160
Table 42: New Mexico Southwestern WIOA Current and Projected Jobs by Economic Sector	172

INDEX OF FIGURES

Figure 1: Statewide Totals, Career Pathways / Programs of Study	19
Figure 2: Sample Career Pathway — Advanced Manufacturing	40
Figure 3: Percent of 2014 ACT-Tested High School Graduates Meeting ACT College Readiness Benchmarks by Subject	63
Figure 4: Percent of 2014 ACT-Tested High School Graduates by ACT College Readiness Benchmark Attainment and Subject	63
Figure 5: Percentage of HSTW Students Meeting Readiness Goals by Rigorous CTE Assignments	64
Figure 6: Percentage of HSTW Students Meeting Readiness Goals by Rich Literacy Experiences	64
Figure 7: Percentage of HSTW Students Meeting Readiness Goals by Balanced Approach to Math	65
Figure 8: Percentage of HSTW Students Meeting Readiness Goals by Assignments Matter	65
Figure 9: Percentage of HSTW Students Meeting Readiness Goals by Counseling for Careers	98
Figure 10: Northern WIOA Map of High Schools and Postsecondary Schools	137
Figure 11: Central WIOA Map of High Schools and Postsecondary Schools	150
Figure 12: Eastern WIOA Map of High Schools and Postsecondary Schools	163
Figure 13: Southwestern WIOA Map of High Schools and Postsecondary Schools	175

Preface

Labor market economists project that by 2020, about two-thirds of all jobs (65 percent nationally and 63 percent in New Mexico¹ by one estimate) will require some postsecondary education — meaning an advanced industry credential or a postsecondary certificate, credential or degree at the associate level or higher. At present, however, analyses of educational pipeline data suggest that most New Mexico students will not earn a postsecondary credential or degree. **New Mexico is just one of many states facing significant college and career readiness gaps that prevent students from successfully entering and completing postsecondary programs.**

New Mexico merits recognition for its leadership in seeking to prepare more students for success in postsecondary education and 21st-century careers. The state's legislators, policymakers and educators are committed to the New Mexico Common Core State Standards, which challenge students to learn, engage and apply their knowledge and understanding of concepts more deeply. New Mexico is also a member state of the Partnership for Assessment of Readiness for College and Careers (PARCC) and has demonstrated its commitment to the PARCC assessment.

New Mexico also deserves acknowledgement for recognizing the importance of career pathways to its educational and economic goals and for significantly investing in improving the quality of career and technical education (CTE). In March 2015, the New Mexico House of Representatives passed House Memorial 14, which commissions the state's secondary, postsecondary and workforce agencies to establish high-quality career pathways spanning high school, postsecondary studies and 21st-century job opportunities. At the request of Governor Susana Martinez, New Mexico has experienced a growing investment of state funds to support career-ready programs. The state has also aligned its existing pathways with the 16 national Career Clusters® and the Common Career Technical Core workplace readiness standards. And in 2014, as a decisive step toward retooling and reinvigorating its career pathways and better aligning them with postsecondary and workforce opportunities, New Mexico contracted with the Southern Regional Education Board (SREB) to conduct a comprehensive needs assessment of CTE across the state.

This report, ***Building Career Pathways to Credential Attainment and Workforce Opportunities in New Mexico***, presents the outcomes of that needs assessment. The sections that follow link the results of SREB's analyses of course enrollment data, state and regional workforce data, stakeholder survey data and other data with an extensive review of the literature on college and career readiness and examples of policies and practices in New Mexico and other states. Organized around 10 core goals, the report offers dozens of targeted recommendations for building and strengthening career pathways that respond to regional and state workforce needs.

With so many and such detailed recommendations, there is more than a little danger of losing sight of the forest for the trees. There is also a need for a careful, deliberate plan of action for achieving them. The Executive Summary of this report narrows its dozens of recommendations to the 20 most essential. In this Preface, SREB outlines the five core recommendations it believes New Mexico should address first.

¹ Anthony P. Carnevale, Nicole Smith and Jeff Strohl. *Recovery: Job Growth and Education Requirements through 2020 – State Report*. Georgetown University Center on Education and the Workforce, 2013.

Building Career Pathways in New Mexico: Five Core Recommendations

Core Recommendation 1 — New Mexico needs to establish a vision of rigorous, relevant career pathways that build bridges from high school to postsecondary education and the workplace and help more young adults earn industry and postsecondary credentials.

As described throughout this report, career pathways include these six essential elements. High-quality career pathways must:

- be driven by **academic and technical college- and career-readiness standards** that align with a **college-ready academic core** (Goals 1 and 3);
- include a sequence of **four challenging, progressively intensive, related CTE courses** that lead to ongoing postsecondary studies (Goal 1);
- engage and excite students through intellectually demanding, **project-based assignments** that require the use of academic and technical knowledge and skills and produce products or services of value beyond the classroom (Goal 1);
- include opportunities for students to earn **dual credit** through dual enrollment programs (Goal 1) and to participate in **work-based learning experiences** (Goal 7);
- integrate ongoing, grade-appropriate **career exploration and guidance** (Goal 6); and
- lead to **further postsecondary study and workforce opportunities** (Goal 2).

Findings presented in Goals 1 and 2 of this report show that **New Mexico has very few career pathways** that not only include all of these critical elements, but also lead to postsecondary programs and job opportunities in the high-priority industries identified in New Mexico's Jobs Council report.²

However, New Mexico has the political will needed to build and sustain high-quality career pathways. The first step the state must take to bring them to scale is to **leverage state and federal funds**, along with additional resources, to incentivize districts, community colleges and employers to work with the New Mexico Public Education Department (PED), the New Mexico Higher Education Department (HED) and the New Mexico Department of Workforce Solutions (DWS) to **develop four-course career pathway sequences that align with regional postsecondary programs and workforce needs in key sectors**. The state may need to redirect some of its Perkins dollars, seek new investments, pool funds across PED, HED, DWS and other agencies, and identify other ways to encourage and incentivize employer participation, as described in Goal 2.

New Mexico should take a staggered approach to working with clusters of schools to create, adopt or redesign career pathways that meet the criteria for quality laid out in this report. The state's goal should be to ensure that each school offers at least two four-course career pathway sequences that students can pursue into further postsecondary studies and high-skill, high-wage jobs in its region's high-demand industry sectors. Recommendations made in Goal 2 include detailed descriptions of such potential pathways.

This work may include:

- **creating new state-approved, industry-validated career pathways** that blend college-ready academics with challenging technical studies;

² *New Mexico Legislative Jobs Council Final Report*. New Mexico Legislature, 2013. See http://www.nmlegis.gov/fileExists/interimreports/JOBS13_2.pdf.

- **adopting nationally recognized career pathway curricula** that align with high-demand industries identified in the Jobs Council report; or
- **redesigning existing pathways** in traditional CTE areas to offer robust curriculum, instruction and assignments that meet the rising requirements of business and industry.

PED, HED and DWS must work together to support districts and schools in developing four-course career pathway sequences that suit their unique contexts. For example, pathways in small schools need to be organized around broad Career Clusters — such as science, technology, engineering and math (STEM); business; and information technology — and offered in hybrid formats that blend online courses with hands-on instruction at the high school, at a regional community college or in structured work-site learning programs. Recommendations made in Goals 2 and 5 describe the varied settings, schedules and formats through which New Mexico can offer career pathways.

Core Recommendation 2 — In order to prepare more students for college and careers, New Mexico needs to raise the quality of instruction and assignments offered by its high school CTE teachers.

SREB's analyses show that New Mexico still has a long way to go in helping students complete career pathways that include the foundational literacy, math, technical, technological, problem-solving and 21st-century skills they need for success in the wide variety of postsecondary education and training programs offered across the state. Such programs include not just bachelor's degree programs at the state's four-year colleges and universities, but also certificate, credential and associate degree programs at New Mexico's community colleges; apprenticeships; and work-based learn-and-earn programs.

In order to help more students achieve readiness for college and careers, New Mexico must provide CTE teachers with intensive preparation and professional development that:

- Supports CTE teachers in **mastering effective teaching strategies**. Research-based teacher induction systems like those described in Goal 8 help CTE teachers plan robust, standards based assignments, design curricula around real-world problems, manage diverse classrooms and create assessments that measure students' mastery of foundational learning skills.
- Supports CTE teachers in **redesigning their assignments around real-world problems** (see Goal 1) that blend college-ready literacy, math and science standards, leading-edge technical and technological knowledge, and engineering design principles with critical soft skills like teamwork and time management. NMTEACH may serve as a catalyst for teachers engaged in designing project-based assignments.

As described in Goals 1, 3 and 8 of this report, New Mexico's teachers need to receive research-based preparation and professional development focused on the foundational skills of effective teaching and learning as well as the more advanced strategies resident in project-based instruction and curriculum integration. Teachers need to master effective teaching strategies before moving on to more challenging pedagogies like project-based learning.

SREB recommends that New Mexico take a staggered approach to working diligently with a few clusters of schools at a time to provide CTE teachers in those schools with a yearlong series of teacher institutes on **effective teaching strategies**. Such institutes should be modeled on research-based teacher induction systems that help teachers learn how to plan, deliver and assess instruction.

Once they master effective teaching strategies, CTE teachers should then begin participating in at least two years of intensive professional development on **project-based teaching and learning**. Commencing with a two-week summer session and continuing with ongoing development throughout the school year, CTE teachers in related fields should work with each other in supportive communities of practice to design project-based assignments that integrate literacy, math and science with CTE curricula. A sidebar in Goal 1 outlines the 10 indicators of rigorous CTE assignments. As CTE teachers develop these authentic projects, they should, where possible, work with literacy, math and science teacher partners to align their curricula and schedules so that students grasp the connections between what they are studying in their core academic courses and the projects they are asked to complete in their pathway courses.

A staggered training plan will give the state time to fully develop and test its training models and identify and allocate the resources it needs to deliver training on a more widespread basis. SREB further recommends that New Mexico train a cadre of support staff to lead development activities in their respective regions.

Core Recommendation 3 — New Mexico’s middle grades schools and high schools need to prepare their students for challenging high school and postsecondary studies and for the rising requirements of the workplace by implementing strategies designed to improve literacy and math achievement.

New Mexico’s high schools cannot meet the state’s bold college- and career-readiness goals on their own. Helping more students acquire the foundational literacy and math skills they need to graduate on time, enroll in and complete postsecondary programs and enter the workforce must be the shared responsibility of middle grades schools and high schools.

Reading and writing skills are essential to learning new content. Yet as described in Goals 1 and 3, SREB’s analyses of student survey data show that most of New Mexico’s CTE students are not encountering rich literacy experiences that require them to read grade-level texts and present their knowledge through authentic written products. Nor are students benefitting from a balanced approach to math instruction that builds their procedural fluency and deepens their math reasoning and understanding skills.

Starting in the middle grades and continuing throughout high school, students need to experience challenging instruction and assignments that blend essential reading and writing skills across the curriculum and build and develop math teachers’ abilities to not only teach procedural mathematics, but teach with a greater emphasis on advancing students’ abilities to reason, understand and apply math. This emphasis on literacy and math must be coupled with efforts to create assignments that engage students in taking greater ownership of their learning. As described in Goal 3, SREB recommends that New Mexico adopt literacy and math frameworks that help teachers (1) engage students in reading grade-level texts and presenting their knowledge through authentic written products and (2) use math strategies designed to reinforce students’ procedural fluency and enhance their abilities to reason, understand and apply math concepts.

SREB recommends that, on a rolling basis, New Mexico begin working with small clusters of middle grades schools and high schools to provide three years of ongoing, intensive professional development on strategies to improve students’ literacy and math achievement. Following such an approach, (1) **teachers in all disciplines** except math would learn how to use instructional planning processes to create reading and writing tasks that embed literacy standards across the

curricula; and (2) **math teachers** would learn how to use formative assessment lessons to deepen students' problem-solving skills.

Ideally, in their first year of learning these literacy and math strategies, lead teachers in each middle grades school and high school would receive intensive professional development on (a) supporting academic and CTE teachers in adopting reading and writing strategies in all core academic areas and career pathway courses and (b) helping math teachers use formative assessment lessons. In later years, lead teachers would receive additional training on how to help teachers adopt these literacy and math strategies, with principal support. As key participants in these efforts, principals would need to receive special training on how to support teachers in implementing these literacy and math strategies.

SREB recommends that New Mexico develop regional and district trainers who will provide training and support for wall-to-wall implementation of literacy and math strategies in participating schools.

Core Recommendation 4 — New Mexico needs to broaden its graduates' horizons by ensuring that all students have ongoing opportunities to explore life after high school with caring adults in their schools, on postsecondary campuses, at work sites and in their communities.

SREB's surveys of New Mexico high school CTE students show that few students are participating in a range of activities that help them understand their career and college options and bring them into close and frequent contact with employers, postsecondary faculty and admissions counselors, and members of their communities. Such activities may include career exploratory lessons and assignments, visits to work sites and postsecondary campuses, regularly scheduled guidance and advising sessions with a dedicated teacher-adviser, and opportunities to engage in progressively intensive work-based learning experiences like job shadowing, internships and co-ops (see Goal 7).

As described in Goal 6 of this report, SREB recommends that New Mexico support schools in adopting grade-appropriate career exploration courses and activities in the middle grades and high school and help all schools design and implement **distributed, curriculum-based career guidance systems** that make career and college counseling the shared responsibility of adults in the school and in the larger community. To support such a system, guidance counselors will need to receive professional development on how to develop and support **teacher advisement systems** in which teachers design planned lessons and assignments that help students understand their career interests, plan their courses and identify a career focus for their postsecondary studies. Work-based learning, treated separately in Goal 7, is an essential element of career exploration.

The state should consider providing pacesetter grants to a small number of middle grades schools and high schools in each region to design and implement career exploration, guidance and advisement systems. As with other core recommendations, SREB suggests that the state take a staggered approach to working with small clusters of schools to create these systems.

Core Recommendation 5 — To support its efforts to build high-quality career pathways, New Mexico needs to refine its accountability system to ensure that it equally values academic and technical readiness for college *and* careers.

Many of the recommendations made in this report involve blurring the lines between secondary and postsecondary education and the workplace by providing career-oriented high school students with accelerated, intellectually demanding learning experiences, not only at the high school, but also in work settings and on postsecondary campuses. Such experiences demand that schools fundamentally change their instructional practices. Yet some of the most important changes needed to build and sustain high-quality career pathways must occur not in the classroom but in state policies.

As described in Goal 10, New Mexico's key stakeholders — including the New Mexico Legislature, the New Mexico Secretary of Education, the New Mexico Public Education Commission, PED, HED, DWS and the state's employer partners — should supplement the state's existing accountability system with more career-ready measures to better assess and reward districts, schools, community colleges and employers for their achievements implementing the six elements of career pathways described in Core Recommendation 1 and throughout this report. The state's accountability system should be grounded in formal **academic and technical college- and career-readiness standards** that reflect the foundational literacy and math skills New Mexico's graduates need to succeed in the full range of postsecondary education and training programs available across the state. SREB urges New Mexico to award bonuses to schools and students who meet college- and career-readiness standards and earn industry and postsecondary credentials that contribute to the state's economic security.

As described in Goal 10, SREB encourages New Mexico to fully support PED's efforts to correct structural issues in the state's course catalog, data collection and reporting systems that present barriers to New Mexico's accountability goals.

Summary

Once New Mexico commits to implementing these and other recommendations made in the report, it should not expect to see significant results within just a year or two. **Building high-quality career pathways statewide may require five or more years of cooperation, compromise and concerted support from the state's key stakeholders** — including the New Mexico Legislature, the New Mexico Secretary of Education, the New Mexico Public Education Commission, PED, HED, DWS and individual teachers, counselors, administrators, district leaders, industry partners, community members and others.

Both quick, decisive actions and slow, steady steps will be needed to achieve New Mexico's bold goals for improving the postsecondary and labor market outcomes of all of its students. In submitting this report, SREB offers its support to the state as it undertakes these efforts.



James E. (Gene) Bottoms, Ed.D.
Senior Vice President, Southern Regional Education Board

Building Career Pathways to Credential Attainment and Workforce Opportunities in New Mexico

Executive Summary

The United States is gaining ground on high school graduation rates. Eighty percent of American students now graduate on time from high school — continuing a decade of steady progress.³ In New Mexico, 70 percent of students graduate on time from high school.

The future looks bleak for young people with a high school diploma or less and no postsecondary credential of value in the workplace. The number of jobs available to those with a high school diploma or less has steadily declined for decades — and the Great Recession hit such individuals especially hard.⁴ Workers with a high school diploma or less are continuing to lose jobs despite the economic recovery.⁵

In the post-Recession economy, nearly two-thirds of all jobs require education and training beyond high school. “Middle-skill jobs” pay between \$35,000 and \$75,000 a year⁶ and are found in such fields as advanced manufacturing, energy, health care, information technology, and science, technology, engineering and mathematics (STEM).⁷ To secure these jobs, individuals need to know how to analyze data, apply math, use technology, think critically and solve problems — skills students can develop in high schools, work-based training programs, community colleges, and four-year colleges and universities.

For young people born into poverty, educational attainment beyond the high school diploma may offer the only means of moving up the economic ladder. Research shows that 42 percent of young people born to families in the lowest fifth of income distribution will remain there⁸ — a considerably higher percentage than in countries like Great Britain (about 30 percent) or in northern European countries like Denmark, Finland and Sweden (about 15 percent).⁹ Even youth born to middle-income families are as likely to move down the economic ladder as they are to move up.¹⁰

The future looks brighter for young people with the right postsecondary credentials. Higher education attainment of any kind benefits individuals in the labor market. Post-Recession, jobs for those with bachelor’s degrees have increased, and jobs for workers with some college or a postsecondary credential have mostly recovered.¹¹

³ “Table 2: Public high school 4-year adjusted cohort graduation rate (ACGR), by race/ethnicity and selected demographics for the United States, the 50 states, the District of Columbia, and other jurisdictions: School year 2011–12.” U.S. Department of Education, National Center for Education Statistics (NCES), 2014. http://nces.ed.gov/pubs2014/2014391/tables/table_02.asp.

⁴ Anthony P. Carnevale, Tamara Jayasundera and Andrew R. Hanson. *Career and Technical Education: Five Ways that Pay along the Way to the B.A.* Georgetown University Center on Education and the Workforce, 2012.

⁵ Jeff Gagne, Joan Lord and Michaela Corrente. *Workforce Development in SREB States: The Role of Two-Year Colleges in Preparing Students for Middle-Skill Jobs*. SREB, 2014.

⁶ Carnevale, Jayasundera and Andrew R. Hanson, 2012. See also Anthony P. Carnevale and Nicole Smith. *A Decade Behind: Breaking Out of the Low-Skill Trap in the Southern Economy*. Georgetown University Center on Education and the Workforce, 2012.

⁷ Carnevale and Smith, 2012. See also Rachael Unruh. *Driving Innovation from the Middle: Middle-Skill Jobs in the American South’s Economy*. National Skills Coalition, 2011.

⁸ Julia B. Isaacs. *Economic Mobility of Families across Generations*. Brookings Institution, 2007.

⁹ Markus Jäntti Bernt Bratsberg, Knut Røed Oddbjørn Raaum, Robin Naylor Eva Österbacka and Anders Björklund Tor Eriksson. *American Exceptionalism in a New Light: A Comparison of Intergenerational Earnings Mobility in the Nordic Countries, the United Kingdom and the United States*. Institute for the Study of Labor, 2006.

¹⁰ Isaacs, 2007.

¹¹ Gagne, Lord and Corrente, 2014.

But not enough students are earning postsecondary credentials and degrees.

Although about two-thirds of U.S. students immediately enroll in some form of postsecondary education after graduating from high school, too few go on to complete a useful credential.¹² As of 2012, the three-year graduation rate for first-time, full-time certificate or associate degree-seeking students fell shy of 20 percent; the six-year graduation rate for first-time, full-time bachelor's-seeking students was about 57 percent.¹³ New Mexico's completion rates are lower. As of 2013, in New Mexico, the three-year graduation rate at two-year postsecondary institutions was 13 percent,¹⁴ and the six-year graduation rate at four-year postsecondary institutions was about 42 percent.¹⁵

SREB's pipeline analyses of these and other national and state educational attainment data suggest that at least half of all students entering ninth grade will fail to earn a credible industry or postsecondary credential or degree by their mid-twenties. **In New Mexico, the number of young adults without a credential may be between 50 and 60 percent, as SREB's analyses show** (see Table 23 and the sidebar at right).

Low educational attainment harms individuals and the economy. At current rates of attainment, the United States will fall 5 million workers short of industry demand for employees with some postsecondary education by the year 2020.¹⁶ Despite this substantial workforce gap, joblessness is persistently high, especially for minorities. According to U.S. Department of Labor data for adults aged 20 to 24 who were looking for work in 2013, unemployment was more than 11 percent for white young adults, almost 13 percent for Hispanic young adults and nearly 23 percent for black young adults.¹⁷ The economic outlook for young men is also poor. The age at which young men can expect to reach the median wage has shifted dramatically: In 1980, it was age 26; in 2010, it was age 30.¹⁸

SREB's analyses of educational pipeline data show that most New Mexico students who enter ninth grade will likely not earn a postsecondary credential or degree. Out of 100 students entering ninth grade, 30 will not graduate on time. Of the 70 who do graduate on time, 52 will immediately enroll in some form of postsecondary education. Of these, less than half will obtain a bachelor's degree in six years, and just seven will acquire an associate degree in three years.

Not enough students are earning credentials and degrees in the right fields for today's economy. Many believe that a bachelor's degree, regardless of major, is the best guarantee of a well-paying job. Yet after taking on debt, some recent college graduates find themselves without work. As of 2012, the average unemployment rate for recent college

¹² Indicator 30: Immediate Transition to College. Figure 1: Percentage of high school completers who were enrolled in 2- or 4-year colleges by the October immediately following high school completion, by level of institution: 1990–2012." *The Condition of Education 2014*. NCES, 2014.

¹³ "Table 46: 150 Percent of Normal Time Graduation Rates in Public Universities and Colleges by Racial/Ethnic Groups." *SREB Fact Book on Education*. SREB, 2014. Figures reported are for the same cohort — Fall 2009 students at public two-year colleges and fall 2006 students at public four-year colleges and universities. See http://info.sreb.org/DataLibrary/factbook/collegecompletion/FB14_45_46_47.xlsx.

¹⁴ "College Completion: Who graduates from college, who doesn't, and why it matters." *The Chronicle of Higher Education*. See <http://chroni.cl/1CarOSJ>

¹⁵ *Ibid.*, see <http://chroni.cl/1DZA7p6>.

¹⁶ Anthony P. Carnevale, Nicole Smith, and Jeff Strohl. *Recovery: Job Growth and Education Requirements through 2020*. Georgetown University Center on Education and the Workforce, 2013.

¹⁷ U.S. Department of Labor, Bureau of Labor Statistics.

¹⁸ Anthony P. Carnevale, Andrew R. Hanson, and Artem Gulish. *Failure to Launch: Structural Shift and the New Lost Generation*. Georgetown University Center on Education and the Workforce, 2013.

graduates aged 22 to 26 with a bachelor's degree was 7.5 percent.¹⁹ And according to one estimate, as many as 23 percent of recent college graduates may be underemployed, defined as working in a job that requires less than a college degree.²⁰

Overall, SREB's analyses of educational and labor market data suggest that for many young adults, the 20s are a lost decade. After years of underemployment or unemployment, many return to school when they are nearly 30.²¹ **Simply put, the bridge from high school to postsecondary attainment and career opportunities is broken.** To solve this problem, more high school students in New Mexico and nationwide need to get into community colleges — and on pathways to postsecondary attainment and career advancement — much sooner.

***The challenge:** How can New Mexico provide more young people with an education that connects the classroom with the workplace and prepares them to succeed in postsecondary education and 21st-century careers?*

***The solution:** New Mexico can build bridges from high school to postsecondary attainment and career advancement by developing rigorous, relevant career pathways that align secondary, postsecondary and workplace learning and lead to great jobs in high-demand industries.*

What Are Career Pathways?

In this report, the terms **career pathways** and **programs of study**²² refer to aligned sequences of academic and technical courses that span high school and postsecondary education and lead to certificates, credentials, degrees and jobs in high-demand fields. The National Association of State Directors of Career Technical Education Consortium (NASDCTEc) outlines over 79 pathways in 16 Career Clusters®.²³ New Mexico has sought to align its career pathway efforts with the 16 Career Clusters® and career pathways. The state has also adopted NASDCTEc's Common Career Technical Core (CCTC) readiness standards.²⁴ **Many states have developed additional career clusters and pathways that reflect the unique, complex workforce needs of their states or regions within their states.** The term

¹⁹ Anthony P. Carnevale and Ban Cheah. *From Hard Times to Better Times: College Majors, Unemployment, and Earnings*. Georgetown University Center on Education and the Workforce, 2015.

²⁰ Personal communication, Anthony P. Carnevale, Director, Georgetown University Center on Education and the Workforce, February 18, 2015.

²¹ "Students at Community Colleges." American Association of Community Colleges, 2014. See <http://www.aacc.nche.edu/AboutCC/Trends/Pages/studentsatcommunitycolleges.aspx>

²² The federal legislation governing CTE — Carl D. Perkins Career and Technical Education Improvement Act of 2006, known as Perkins IV — requires states to offer *programs of study* that incorporate opportunities to earn college credit in high school and lead to an industry-recognized credential or certificate at the postsecondary level or an associate or baccalaureate degree. See <http://cte.ed.gov/nationalinitiatives/localstudyimplementation.cfm> for resources produced by the Perkins Collaborative Resource Network for Program and Data Quality, Office of Career, Technical and Adult Education, U.S. Dept. of Education.

²³ See <http://careertech.org/career-clusters>.

²⁴ Additional career pathway-specific technical standards are also needed.

career pathways is sometimes used to refer to initiatives targeting adult learners that span postsecondary education, adult basic education, job training, workforce development, and health and human services.²⁵

What Do Career Pathways Look Like?

As will be described in the 10 sections of this report, high-quality career pathways:

- are driven by **academic and technical college- and career-readiness standards** that align with a **college-ready academic core**;
- include a sequence of **four challenging, progressively intensive, related CTE courses** that lead to ongoing postsecondary studies;
- engage and excite students through intellectually demanding, **project-based assignments** that require the use of academic and technical knowledge and skills and produce products or services of value beyond the classroom;
- include opportunities for students to earn **dual credit** through dual enrollment programs and to participate in **work-based learning experiences**;
- integrate ongoing, grade-appropriate **career exploration and guidance**; and
- lead to **further postsecondary study and workforce opportunities**.

What Goals Can Career Pathways Help New Mexico Achieve?

Increasing College and Career Readiness. By implementing the recommendations made in this report, New Mexico can make significant strides toward increasing the percentage of students who leave high school ready for college and careers to 80 percent or higher.

Increasing High School Graduation Rates. Rigorous, relevant career pathways can help New Mexico raise its high school graduation rates to 90 percent or higher in all high schools within the next decade, and help struggling schools with graduation rates of 70 percent or lower raise their graduation rates to 80 percent or higher within the next five years.

Increasing Access to High-Quality Workplace Learning Experiences. Career pathways can help New Mexico increase the number of secondary and postsecondary students who participate in progressively intensive employer-sponsored work-based experiences like job shadowing, paid and unpaid internships, apprenticeships, and learn-and-earn programs at the postsecondary level.

Increasing Rates of Postsecondary Attainment and Employment. New Mexico's Jobs Council Report²⁶ identified the critical industry sectors in which the state is striving to expand employment opportunities. High-quality career pathways can help New Mexico increase the percentage of high school graduates who immediately enter some form of postsecondary education leading to jobs in these critical sectors — including employer-sponsored work-based training programs, community colleges, and four-year colleges and universities. Career pathways can also help the state greatly increase the percentage of young adults who complete advanced industry and postsecondary credentials and degrees and secure good jobs by their mid-twenties.

²⁵ Led by the U.S. Departments of Education, Health and Human Services and Labor, the Career Pathways Joint Initiative seeks to align federal and state funding streams and resources to help adult learners acquire skills and credentials. See http://cte.ed.gov/nationalinitiatives/career_pathways.cfm. See also *Shared Vision, Strong Systems: The Alliance for Quality Career Pathways Framework Version 1.0: Executive Summary*. Center for Law and Social Policy (CLASP), 2014.

²⁶ *New Mexico Legislative Jobs Council Final Report*. New Mexico Legislature, 2013. See http://www.nmlegis.gov/fileExists/interimreports/JOBS13_2.pdf.

Strong Policies and Powerful Practices for Building Career Pathways: 20 Essential Recommendations

The 10 goals outlined in this report offer New Mexico a comprehensive set of **strong policies** and **powerful practices** the state can use to help more young people earn the credentials they need — including advanced industry credentials as well as the full spectrum of postsecondary certificates and associate, bachelor's and graduate degrees — to secure good jobs in the state's critical industry sectors. These goals arose from SREB's analyses of a broad host of educational, workforce and stakeholder survey data and reviews of the literature on college and career readiness. The 10 goals were also guided by the Scope of Work for this needs assessment prepared by the New Mexico Public Education Department (PED).

A complete set of recommendations related to these goals is presented in the full report. In this Executive Summary, SREB outlines **20 essential recommendations** that will help New Mexico create high-quality career pathways that prepare all students with the academic, technical, cognitive, technological and 21st-century knowledge and skills they need to achieve college and career readiness; graduate on time; earn meaningful industry and postsecondary certificates, credentials and degrees; and secure high-paying jobs in high-demand career fields.

Goal 1 — Establish rigorous, relevant career pathways driven by workplace opportunities.

Recommendation 1: Require all students to complete a concentration that provides the foundational learning skills they need to earn industry and postsecondary credentials and secure good jobs. This concentration may be either a career pathway consisting of four or more progressively intensive CTE courses designed around authentic, project-based assignments or a set of Advanced Placement (AP) or International Baccalaureate (IB) courses.

Recommendation 2: Leverage state and federal funds to incentivize school districts, community colleges, and employers to work with PED, the New Mexico Higher Education Department (HED) and the New Mexico Department of Workforce Solutions (DWS) to develop four-course career pathways that align with regional postsecondary programs and workforce needs in key state and regional industry sectors.

Recommendation 3: Continue to promote structured dual credit programs for career pathways and establish uniform statewide policies so students can earn credits toward high school graduation that are automatically added to their transcripts at community colleges and four-year institutions offering two-year degrees. In addition, identify readiness benchmarks for student participation in all dual credit courses.

Goal 2 — Close the gap between career pathways and workforce opportunities.

Recommendation 4: Commission and fund a comprehensive study of state workforce needs that includes a survey of employers regarding areas of existing and emerging job growth. Examine and compare employer survey results with available New Mexico Jobs Council data, DWS data and U.S. Bureau of Labor Statistics data, among other sources.

Recommendation 5: Prioritize the investment of state and federal funds to develop rigorous, relevant career pathways that align with regional postsecondary programs and workforce needs in key industry sectors experiencing a shortage of skilled workers. Such sectors may include, but are not limited to, areas like advanced manufacturing, emerging technologies, energy and natural resources, health care science and information technology. The state may consider

developing new pathways, adopting recognized pathways, or redesigning existing pathways to meet the emerging workforce needs. To support this effort, establish a state career pathway council composed of PED, HED, DWS and other economic and workforce development agencies, labor organizations and employers to guide the state's career pathway initiative.

Recommendation 6: Conduct curriculum audits of existing CTE courses and career pathway programs in which the state may not be producing enough high school and postsecondary graduates to meet existing and emerging workforce demands.

Goal 3 — Set college- and career-readiness standards in literacy and math.

Recommendation 7: Launch a statewide effort to improve the literacy and math achievement of all middle grades and high school students. First, build the capacity of all middle grades and high school teachers to create reading and writing tasks that embed literacy standards across the curricula and result in higher student achievement in both academic and career pathway-related courses. Second, help all middle grades and high school math teachers learn how to enhance students' procedural fluency in math and use formative assessment lessons to advance students' abilities to reason, understand, and apply math concepts to multi-step conceptual and applied problems.

Recommendation 8: Commission and fund a comprehensive study of the foundational literacy and math skills New Mexico's students need to be academically ready for *the full spectrum of postsecondary education and training programs* available in the state — including early advanced credential programs; work-based learn-and-earn programs; apprenticeships; community college certificate, credential and associate degree programs; and baccalaureate and graduate degree programs offered by four-year colleges and universities. Using the outcomes of this study, establish benchmark cut scores of academic college- and career-readiness on multiple validated, nationally normed assessments like the ACT, the PSAT,²⁷ the SAT, the ASVAB²⁸ or the PARCC,²⁹ which is currently being rolled out in New Mexico as a replacement for the state's Standards Based Assessment (SBA). Use one or more of these state-approved assessments in the sophomore or junior year of high school as a measure of students' academic preparedness for postsecondary education and training programs.

Goal 4 — Identify technical and workplace readiness standards and assessments.

Recommendation 9: Designate a state agency to work with PED, HED, DWS and employers to identify, evaluate and approve value-added industry certification examinations, technical skills assessments, dual credit courses and end-of-course assessments³⁰ that are part of a system of stackable credentials. In lieu of teacher- or school-created end-of-course assessments of student competency, assessments must be recognized by industry and postsecondary institutions and offer value to students, employers and the economy.

²⁷ New Mexico's partnership agreement with the College Board allows all 10th-grade students to take the PSAT for free. See Goal 3 and Goal 5 for discussions of the state's partnership with the College Board.

²⁸ The Armed Services Vocational Aptitude Battery (ASVAB).

²⁹ The Partnership for Assessment of Readiness for College and Careers (PARCC). A PARCC member state, New Mexico has demonstrated strong support for this assessment. See <http://ped.state.nm.us/ped/NMPARCCindex.html>:

Starting in the 2014–2015 school year, New Mexico's current reading, writing, and mathematics components of the Standards Based Assessment (SBA) will be replaced with the New Mexico Partnership for the Assessment of Readiness of College and Careers (NMPARCC) assessments developed to measure the full extent to which students are demonstrating mastery of the New Mexico Common Core State Standards (NMCCSS).

³⁰ See Goal 4 for a full discussion of industry-recognized credentials and examinations. Such end-of-course assessments might include, for example, NOCTI exams, Precision exams and other assessments developed and validated by third-party industry bodies like the CompTIA A+ certification exams or the Automotive Service Excellence (ASE) Certification Test Series, among many others.

Goal 5 — Offer career pathways in settings that accelerate postsecondary attainment and career advancement.

Recommendation 10: Incentivize school districts to offer career pathways in diverse, innovative settings that allow students to earn advanced industry and postsecondary credentials while still participating in activities at their home high schools. In partnership with PED, HED and DWS, incentivize districts, community colleges and four-year universities to create early advanced credential programs modeled after early college high schools that allow students to graduate with a high school diploma plus an advanced industry certification, postsecondary credential or significant credits that may be applied toward an associate degree. Following this recommendation will involve expanding and increasing support for New Mexico's existing Early College High School (ECHS) and Workforce Readiness Programs, described in Goal 5.

Recommendation 11: Provide extra weight in the state accountability system and/or bonus funding to postsecondary institutions that partner with districts to create career pathways that increase the percentage of students who earn advanced industry credentials or degrees.

Goal 6 — Create a guidance system of career information, exploration and advisement.

Recommendation 12: Work with districts to provide grade-appropriate career exploration courses and activities in the middle grades and high schools, and adopt distributed, curriculum-based career guidance systems that make career and college counseling the shared responsibility of adults both in the school and in the community.

Recommendation 13: Offer counselors professional development on how to develop and support teacher advisement systems in which teachers design planned lessons and assignments that help students understand their career interests, plan courses and identify a career focus.

Goal 7 — Increase access to high-quality work-based learning experiences.

Recommendation 14: Incentivize the state's industry partners to expand ongoing, structured, progressively intensive work-based learning experiences that engage students in authentic applications of academic, technical and workplace skills. Develop policies with insurers, workforce commissions and other agencies to protect students and their employers in work-based learning experiences.

Goal 8 — Attract, prepare and retain high-quality career pathway teachers.

Recommendation 15: Adopt standards and policies that require CTE teachers to meet the academic standards expected of all teachers, show mastery of technical content, hold a state license as well as a bachelor's degree if required by the state, demonstrate effective teaching practices, and engage in ongoing professional development. Specifically require secondary and postsecondary CTE teachers to hold the industry credentials they are preparing students to acquire, and provide training for teachers who do not currently hold these credentials.

Recommendation 16: Encourage all new teachers from industry to participate in research-based fast-track induction programs that span at least the first full year of teaching, and include paid employment in the summer before they enter the classroom.

Recommendation 17: Work with PED-approved programs, industry partners and external providers to deliver research-based professional development that teaches academic and CTE

teachers how to design real-world, project-based instruction, assignments and assessments that integrate literacy, math and science with technical content.

Goal 9 — Use career pathways to restructure high schools with low graduation rates.

Recommendation 18: For low-performing high schools serving 500 or more students, draw upon research evidence and lessons learned from reform efforts undertaken by the state's Priority Schools Bureau and other research-based approaches to restructure high school curricula around rigorous career pathways. For low-performing schools serving fewer than 500 students, especially those located in rural areas, adopt creative strategies to provide greater access to career pathways. Such pathways may be based in broader Career Clusters, like STEM, business, or information technology, and offered in hybrid formats that blend online instruction with hands-on classroom learning at the high school and a local postsecondary institution.

Goal 10 — Correct structural issues in the state's course catalog, data collection and reporting systems that present barriers to New Mexico's accountability goals.

Recommendation 19: Refine the state accountability system to ensure that it equally values academic and technical readiness for college *and* careers. Consider creating a multi-measure, college- and career-ready performance index that assesses, tracks and reports progress made by districts, high schools, community colleges and employers delivering state-approved career pathways in critical industry sectors. In lieu of a performance index, another option is to consider allocating extra weight in the state's accountability system for each high school student who meets both academic college-readiness standards and technical career-readiness standards. Extra credit in the accountability system can also be allocated for those students who successfully earn a state-approved industry-recognized credential.

Recommendation 20: Establish a uniform statewide course numbering, titling and reporting system that accurately captures the CTE and dual courses students complete and ensures the seamless transfer of high school and college credits across secondary and postsecondary institutions.

Reader's Guide to the Report

Researchers at the Southern Regional Education Board (SREB) were charged by PED with conducting a needs assessment of career and technical education (CTE) career pathways / programs of study in the state's public high schools. Programs of study are defined under the federal Carl D. Perkins Career and Technical Education Improvement Act of 2006 (Perkins IV).³¹ In its pre-proposal presentation, PED noted that the results of this needs assessment would be used to establish the state's baseline for its efforts to improve CTE and "more fully develop the academic and career and technical skills of secondary and postsecondary education students who enroll in [CTE] courses" (P.L. 109-270, Section 2).

³¹ Carl D. Perkins Career and Technical Education Improvement Act of 2006, Pub L. No. 109-270.

In carrying out this needs assessment, SREB drew on its expertise and experience conducting similar statewide evaluations of CTE systems to:

- **analyze state and regional workforce data** and current **secondary and postsecondary CTE course and program offerings**;
- **conduct a literature review** of current research on college and career readiness;
- **survey key stakeholders across the state** — including parents, students, teachers, guidance counselors, principals, business leaders, community representatives and postsecondary administrators — to gather their input on CTE in the state;
- **complete a SWOT analysis** (Strengths, Weaknesses, Opportunities and Threats) of collected data;
- **generate a list of 10 core goals** for building high-quality career pathways; and
- **write a final report** describing the outcomes of the needs assessment process.

Section 1 — Ten Goals for Building High-Quality Career Pathways in New Mexico

The report is divided into 10 sections. The first section of this report outlines 10 core goals for building high-quality career pathways to credential attainment and workforce opportunities in New Mexico. Each of these 10 sections includes the following components:

Literature Review — This section offers a summary of the current college- and career-readiness research underpinning the specific goal.

Findings — This section offers SREB's findings related to the specific goal. Data sources may include, but are not limited to: (1) CTE course analysis data (including CTE, dual credit and AP course enrollment data and industry-recognized credential completion data); (2) state and regional workforce data from DWS, the New Mexico Legislative Jobs Council Report and other key sources; (3) stakeholder survey data; and (4) other data sources, including High Schools That Work (HSTW) school data and data on CTE-related programs and policies collected from PED, HED and other sources.

Recommendations — This section outlines additional steps New Mexico can take to implement the specific goal.

Section 2 — SWOT Analyses

To achieve the vision of preparing all youth and adult students in New Mexico to be productive participants in the economy of the future, SREB conducted a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis based on the results of its reviews of secondary and postsecondary CTE course and program offerings, New Mexico workforce data and needed skills, 2010 Census data, and stakeholder surveys.

SWOT analyses are organized according to the state's four Workforce Innovation and Opportunity Act (WIOA) board regions, as follows:

Northern WIOA Region

Central WIOA Region

Eastern WIOA Region

Southwestern WIOA Region

Each region's section begins with a SWOT analysis, followed by a workforce chart, a regional map and lists of regional educational and workforce opportunities.

The SWOT analysis for each region includes the following components. **Strengths** are represented by positive secondary school and college demographic information, positive school outcomes, and school successes. **Weaknesses** are negative secondary school and college demographic information, negative school outcomes, and school challenges. **Opportunities** are the external factors that are likely to have an effect on achieving the desired objectives, such as a variety of work opportunities for students or strong business involvement in the schools. **Threats** are external factors that could have a negative effect on achieving CTE success, like a high unemployment rate in the region or few regional businesses. At the end of each analysis, a regional conclusion is provided.

Section 3 — Technical Appendices

Two Technical Appendices, available electronically, are included with this report.

Technical Appendix A: CTE Course Enrollment Analyses. SREB analyzed whether current high school course offerings allow students to complete career pathways leading to postsecondary certificate, credential and degree programs and high-skill, high-wage jobs in high-demand fields. SREB's goal was to generate actionable data to help PED, districts and schools improve the quality and alignment of their career pathways with workforce opportunities. This appendix includes:

- A **Reader's Guide** that explains the process SREB used to analyze high school course offerings in 145 high schools in the state's four WIOA regions.
- A set of **Regional Career Pathway / Program of Study Analysis Tables**:
 - a summary analysis of the mandated elements of career pathways / programs of study available regionally, broken out according to whether pathways / programs are offered in sequences of three-or-more versus four-or-more progressively intensive courses in a specific Student Teacher Accountability Report System STARS area;
 - a summary of available programs of study by school and STARS area, broken out by sequence length (three+ courses vs. four+ courses);
 - a tally of individual school data, following a three+ course sequence analysis; and
 - a tally of individual school data, following a four+ course sequence analysis.
- **High School Career Pathway / Program of Study Reports.** Individual Excel spreadsheets for 145 high schools include data from the 2013-14, 2012-13 and 2011-12 school years. School report data sources include CTE course enrollments, AP course enrollments, dual credit course enrollments, industry-recognized credential (IRC) completion data and information on regional postsecondary certificate, credential and associate degree programs.

Technical Appendix B: Stakeholder Survey Results. Technical Appendix B includes complete survey results for eight different stakeholder groups. The first group of survey results

includes **Business Leaders, Community Representatives** and **Parents**. These three groups were surveyed by mail by The Program Evaluation Group (TPEG), an approved subcontractor to SREB. TPEG's analyses of these results are presented in Technical Appendix B.

The second group of survey results includes New Mexico **Postsecondary Administrators** and high school **Counselors, Principals, 11th- and 12th-grade CTE Students**, and **CTE Teachers**. These five groups were surveyed electronically by SREB at high school and community college sites. Tabular survey results for these five stakeholder groups are presented in Technical Appendix B.

SECTION 1 – TEN GOALS FOR BUILDING HIGH-QUALITY CAREER PATHWAYS IN NEW MEXICO

Goal 1 – Establish rigorous, relevant career pathways driven by workplace opportunities.

Goal 1 and each of the nine remaining goals outlined in this report follow this format: Literature Review, Findings and Recommendations.

Goal 1 – Literature Review

Across the nation and in New Mexico, far too few students meet academic college- and career-readiness standards. At the national level, recent 12th-grade National Assessment of Educational Progress results indicate that only 38 percent of students score at or above Proficient in reading and just 26 percent score at or above Proficient in math.³² In New Mexico, 69 percent of New Mexico's graduating class of 2014 took the ACT. Fifty-five percent of these students met English college readiness benchmarks; 37 percent met reading benchmarks; 33 percent met math benchmarks; 29 percent met science benchmarks; and 18 percent met benchmarks in all four subjects.³³

SREB set a goal that 80 percent or more of all high school students should graduate ready for college and careers.³⁴ Many states have accepted this challenge. New Mexico's high schools will need to focus on more than academics if they are to reach graduation rates of 90 percent or higher and college- and career-readiness rates of 80 percent or higher. New Mexico's high schools must also improve the quality and rigor of their CTE and better connect it to postsecondary programs and regional workforce opportunities.

Four-Course Career Pathway Sequences: Uniting College-Ready Academics and Technical Studies through Project-Based Learning

New Mexico must establish policies that clearly outline a vision of **high-quality career pathways** that:

- are driven by **academic and technical college- and career-readiness standards** (see Goal 3 for an extended discussion of these standards);
- include **four rigorous, progressively intensive, related CTE courses**;
- engage and excite students through intellectually demanding, **project-based assignments** (see below) that require the use of academic and technical knowledge and skills and produce products or services of value beyond the classroom;
- include opportunities to earn **dual credit** through dual enrollment programs (see below) and participate in **work-based learning experiences** (see Goal 7);
- integrate ongoing, grade-appropriate **career exploration and guidance** (see Goal 6); and
- lead to **further postsecondary study and workforce opportunities** (see Goal 2).

³² See <http://nces.ed.gov/nationsreportcard/>.

³³ *The Condition of College & Career Readiness 2014: New Mexico*, ACT, 2014.

³⁴ Dave Spence. *State Policies to Support a College- and Career-Readiness Agenda*. SREB, 2013.

At present, New Mexico's Perkins plan defines programs of study as consisting of three courses. Based on 25 years of research in thousands of High Schools That Work (HSTW) schools, SREB strongly recommends the adoption of career pathways / programs of study that consist of **four or more progressively intensive courses**. Recent research confirms that high-intensity CTE course-taking (three, four or more courses, with or without a concentration) is associated with high-level academic course-taking. A study conducted by the National Research Center for Career and Technical Education using National Center for Education Statistics *Education Longitudinal Study of 2002* data (overall reporting weighted sample, $N = 2,698,609$) found that 44 percent of all U.S. high school students completed three or more credits of CTE; 36 percent completed more than three credits. NRCCTE researchers also found that many students taking high-intensity CTE were also taking higher levels of math and, to a somewhat lesser extent, higher levels of science courses.³⁵

Project-based learning challenges students to apply academic and technical knowledge and 21st-century skills to solve real-world problems.³⁶ In a project-based approach, teachers support students as they take greater responsibility for completing assignments. Industry and postsecondary partners can contribute to these assignments, which are authentic, take place over an extended period, replicate issues students might encounter in their communities or the workplace, and require students to use software and technology. The sidebar at right outlines the Buck Institute's essential elements of project-based learning.³⁷

Rigorous career pathways use project-based assignments to capture students' natural interests and help them make connections between what they learn in school and their future goals. At the same time, they promote deeper learning and increase college and career readiness. In SREB's 2014 HSTW assessment, 68 percent of students at high-performing schools reported experiencing assignments featuring five or more of SREB's 10 indicators of rigorous CTE assignments, as outlined in a sidebar in this section. At these schools, 90 percent of students met college- and career-readiness benchmarks. At low-performing schools, only 21 percent of students reported experiencing similar assignments, and only half met college- and career-readiness benchmarks.³⁸ Across surveyed HSTW and

The Buck Institute: Essential Elements of Project-Based Learning

Significant Content: At its core, the project is focused on teaching students important knowledge and skills derived from standards and key concepts at the heart of academic subjects.

21st-Century Competencies:

Students build competencies valuable for today's world, such as problem solving, critical thinking, collaboration, communication, and creativity / innovation, which are explicitly taught and assessed.

In-Depth Inquiry: Students are engaged in an extended, rigorous process of asking questions, using resources, and developing answers.

Driving Question: Project work is focused by an open-ended question that students understand and find intriguing, which captures their task or frames their exploration.

Need to Know: Students see the need to gain knowledge, understand concepts, and apply skills in order to answer the Driving Question and create project products, beginning with an Entry Event that generates interest and curiosity.

Voice and Choice: Students are allowed to make some choices about the products to be created, how they work, and how they use their time, guided by the teacher and depending on age level and PBL experience.

Critique and Revision: The project includes processes for students to give and receive feedback on the quality of their work, leading them to make revisions or conduct further inquiry.

Public Audience: Students present their work to other people, beyond their classmates and teacher.

³⁵ Oscar Aliaga, Pradeep Kotamraju and James R. Stone III. "Understanding Participation in Secondary Career and Technical Education in the 21st Century: Implications for Policy and Practice." *The High School Journal*, 97:3 (2014): 128-158. See also Oscar Aliaga, Pradeep Kotamraju and James R. Stone III. *A Typology for Understanding the Career and Technical Education Credit-Taking Experience of High School Students*. NRCCTE, 2012.

³⁶ Thom Markham, John Larmer and Jason Ravitz. *Project Based Learning Handbook: A Guide to Standards-Focused Project Based Learning for Middle and High School Teachers*. Buck Institute for Education, 2003.

³⁷ See http://bie.org/about/what_pbl.

³⁸ Gene Bottoms. *Assignments Matter*. Keynote address delivered at the SREB HSTW Staff Development Conference, July 2014.

Technology Centers That Work (TCTW) sites, little more than a third of CTE students report receiving rigorous assignments like these.

To take career pathways to scale, New Mexico should consider developing its own career pathway curricula or investing in nationally recognized curricula that blend college-ready academics with challenging technical studies and provide a framework for creating rigorous, project-based assignments. Examples include **Project Lead the Way's** (PLTW) biomedical, engineering and computer science programs; the **National Academy Foundation's** (NAF) array of career academies of finance, hospitality and tourism, information technology, health sciences, or engineering; or state-developed **Advanced Career** (AC) pathways.

In New Mexico, **Alamogordo High School** is implementing an AC Innovations in Science and Technology pathway program of study, and **Farmington High School** will begin offering an AC Energy and Power pathway beginning in 2015-16. Nine states have developed AC pathways in Advanced Manufacturing, Aerospace Engineering, Clean Energy Technology, Energy and Power, Global Logistics & Supply Chain Management, Health Informatics, Informatics, Oil and Gas, and STEM.

Designed in partnership with secondary, postsecondary and industry experts, each pathway includes four courses built around challenging projects that incorporate rigorous academic and technical knowledge and encourage students to explore careers. English, math and science teachers share professional development with AC teachers. These teacher teams meet during common planning times to determine how to support students as they acquire the literacy, math and science knowledge and skills they need to complete project-based assignments. During classroom observations, principals look for evidence that lessons connect academics with projects.

Aligning Secondary and Postsecondary Studies through Dual Enrollment

The 21st-century economy calls for millions more workers with advanced credentials.³⁹ If New Mexico is to greatly increase the number of young people who earn credentials in high-demand fields, it needs to significantly increase the percentage of students who graduate from high school as well as the percentage of those graduates who (1) *immediately* enter the state's community colleges and four-year universities offering two-year degrees and credentials *and* (2) complete their credential and degree programs. Such programs offer quick and affordable routes to credentials, degrees and employment. But at present, the average age of the New Mexico community college student — mirroring the national average — is 29.⁴⁰

SREB Research Shows That Rigorous CTE Assignments Ask Students to:

1. Perform background research for a problem or project, such as reading technical articles, before developing a plan or solution.
2. Predict outcomes based on observations or information provided.
3. Develop a logical argument for the solution to a problem or project.
4. Make inferences from information to develop a solution for a problem or project.
5. Use math to solve complex problems related to a CTE area.
6. Apply academic knowledge and skills to a CTE area.
7. Apply technical knowledge and skills to new situations.
8. Develop and test hypotheses.
9. Complete an extended project that requires planning, developing a solution or product, and presenting results orally or in writing.
10. Use software or other technology related to a CTE area at least weekly to complete assignments.

Across the country, and in New Mexico, most high schools and community colleges operate without interacting meaningfully with each other, in part due to their separate funding and governance structures. **New Mexico must use its funding and accountability systems**

³⁹ Carnevale, Smith and Strohl, 2010.

⁴⁰ "Students at Community Colleges." American Association of Community Colleges, 2014. See <http://www.aacc.nche.edu/AboutCC/Trends/Pages/studentsatcommunitycolleges.aspx>

to incentivize its districts, high schools and postsecondary institutions to expand and improve currently available opportunities for high school students to earn an advanced industry credential and college credits through dual enrollment programs, AP courses and other strategies. Such strategies offer a valuable means of creating a curricular and instructional bridge from high school to postsecondary education.

Highly structured **dual enrollment** programs are partnerships between secondary and postsecondary institutions that allow students to take college-level classes for high school and college credit. Dual enrollment courses may be offered at the high school, on a college campus, or online, and taught by college faculty or certified high school instructors.⁴¹ At their best, dual enrollment programs allow high schools and community colleges to share limited resources⁴² while offering students opportunities to take rigorous college classes, explore careers, gain familiarity with college, save money and shorten their time to a credential or degree.⁴³ With particular benefits for males and low-income students, dual enrollment is associated with higher high school GPAs, increased high school graduation, and higher rates of college enrollment, full-time enrollment, credits earned, persistence and degree attainment.⁴⁴ Dual enrollment is also associated with a reduced need for remediation.⁴⁵ Once largely intended for high-achieving students seeking greater challenge during high school, dual enrollment is now perceived as a means of helping more students, especially low-income students and first-generation college-goers, get and stay on pathways to postsecondary education and training.⁴⁶

High school juniors and seniors in **North Carolina's** Career & College Promise program⁴⁷ earn college credits leading to postsecondary credentials and high-wage jobs through defined pathways. The Career & College Promise program has three components: a *college transfer pathway* for students headed to four-year institutions, a series of *career pathways* leading to community college programs, and an *innovation pathway* for students enrolled in early college high schools. These pathways eliminate unfocused course-taking and lead to postsecondary programs in high-demand fields. High schools and colleges both receive funding for student participation.

In New Mexico, state graduation requirements call for all students to complete at least one Honors, AP, dual credit *or* online course. A 2013 Legislative Finance Committee report evaluated the effectiveness of New Mexico's dual credit program and found higher persistence and completion rates for dual credit students, while acknowledging that dual credit eligibility requirements limit participation to those who are already considered college-ready.⁴⁸ The state's dual credit program allows students to earn one high school credit for each three credits of college credit earned; tuition is waived by state postsecondary institutions; districts or local education agencies cover materials; and students and parents pay for fees and transportation.⁴⁹ In 2012-13, 14,151 students (15.6 percent of the high school population) enrolled in one or more dual credit courses; most students (41.6 percent) took just one dual credit course during the

⁴¹ SREB. *Redesigning Dual Enrollment to Promote College Completion: SREB Policy Brief*. SREB, 2012.

⁴² Jennifer Dounay Zinth, *CTE Dual Enrollment: A Strategy for College Completion and Workforce Investment*. Education Commission of the States, 2014.

⁴³ *Essential Elements of State Policy for College Completion: Dual Enrollment Courses and Credits*. SREB, 2013.

⁴⁴ Melinda Mechur Karp, Juan Carlos Calcagno, Katherine L. Hughes, Dong Wook Jeong and Thomas R. Bailey. *The Postsecondary Achievement of Participants in Dual Enrollment: An Analysis of Student Outcomes in Two States*. National Research Center for Career and Technical Education, 2007.

⁴⁵ Hughes, Katherine L., Olga Rodriguez, Linsey Edwards, and Clive Belfield. *Broadening the Benefits of Dual Enrollment: Reaching Underachieving and Underrepresented Students with Career-Focused Programs*. Community College Research Center, 2012.

⁴⁶ Linsey Edwards, Katherine L. Hughes and Alan Weisberg, *Different Approaches to Dual Enrollment: Understanding Program Features and Their Implications*. Community College Research Center, Teachers College, Columbia University, 2011.

⁴⁷ North Carolina Session Law 2011-145.

⁴⁸ *Dual Credit Report for the School Year 2012-2013*. Legislative Finance Committee, 2013.

⁴⁹ *Dual Credit Cost Effectiveness and Impact on Remediation and On-Time Degree Completion*. Legislative Finance Committee, 2012.

school year. Students are deemed successful if they score a C or better; between 79 and 80 percent of enrolled students met this standard in 2012-13.⁵⁰ Both academic and CTE dual credit courses are available in classroom and online formats; the availability of online course work increased from 16 percent to 21 percent in the three-year period from 2009-10 to 2011-12.⁵¹

In a 2012 report, the Legislative Finance Committee analyzed the cost effectiveness and impact of dual credit on remediation and degree completion and described efforts to better evaluate the impact of dual credit on student outcomes and determine the return on investment of the state's dual credit program.⁵² This report acknowledged that without a state longitudinal data system, it is difficult to track student outcomes from high school to college. Evaluation is also difficult given the high degree of variability of dual credit programs across the state — program designs, course offerings, eligibility requirements and transfer policies vary from postsecondary institution to postsecondary institution. Among other recommendations, this report urges the state to ensure that courses offered for dual credit show evidence of **positively affecting student outcomes**. Citing a Kentucky dual credit task force report, the Legislative Finance Committee recommended that academic and CTE dual credit courses should form part of a “core” that “‘align[s] with and expand[s] upon’ high school graduation requirements.”⁵³ The Legislative Finance Committee also recommended that the state:

Convene Local Education Agencies (LEA) and postsecondary institutions to develop common eligibility standards for high school students to participate in dual credit courses across the state to promote participation of qualified students.

Consider setting a minimum amount of college credit hours that can be earned by high school students to ensure dual credit participation will result in a shorter time to degree for students, once course quality matters have been reviewed.⁵⁴

A 2014 Legislative Finance Committee report on college readiness reiterated these and other recommendations, urging the state to ensure that dual credit courses have a purpose and promote college readiness.⁵⁵ All dual credit course offerings — but especially CTE courses — need to be more rigorous. Further, all students need to be adequately prepared to succeed in dual credit courses — which is not presently the case. The Legislative Finance Committee's analyses show that academically rigorous dual credit courses are associated with a reduced need for remediation:

*Based on a sample of high school seniors in FY12 who took dual credit courses and then enrolled in a college-level math course in FY13, those who enrolled directly into credit-bearing college math classes were more likely to take **language arts, math, science, or business dual credit courses**. In contrast, of the students who needed a developmental math class in FY13, a higher percentage were likely to take a **[CTE]-related dual credit course, such as carpentry, culinary arts, or welding**.⁵⁶*

These findings show that dual credit course work should align with college- and career-readiness standards. The Legislative Finance Committee report recommends that PED and HED work together to align graduation requirements with college admissions requirements and require all high schools to use the New Mexico Standards Based Assessment (SBA) or an

⁵⁰ Legislative Finance Committee, 2013.

⁵¹ Legislative Finance Committee, 2013.

⁵² Legislative Finance Committee, 2012.

⁵³ Legislative Finance Committee, 2012, pg. 8.

⁵⁴ Legislative Finance Committee, 2012, pg. 10.

⁵⁵ *College Readiness in New Mexico*. Legislative Finance Committee, 2014.

⁵⁶ Legislative Finance Committee, 2014, pg. 24. Emphasis added.

equivalent assessment (e.g., the ACT, the PSAT, the SAT, the PARCC) to assess student readiness for postsecondary study and provide targeted interventions (like readiness courses) for those students identified as needing extra help.⁵⁷ **Goal 5 outlines ways New Mexico’s high schools and postsecondary institutions can use rigorous, relevant career pathways to ensure all students are ready for the full range of postsecondary study options.**

Crafting Legislation in Support of Career Pathways

In January 2015, Frances Ramirez-Maestas, Director of the New Mexico Legislative Education Study Committee (LESC), contacted SREB for advice and guidance regarding the state’s efforts to draft a comprehensive career pathway policy. SREB reached out to its network of member states and other partners to solicit their input on two specific questions regarding (1) state definitions of career pathways and (2) how other states acknowledge industry-recognized credentials on the high school diploma. Here is a selection of their responses.

In Kentucky, a **career pathway** is defined in state policy as:

A coherent, articulated sequence of rigorous academic and career-related courses, commencing in ninth grade and leading to an associate degree, an industry-recognized certificate or license, or a baccalaureate or higher degree. A career pathway is developed, implemented and maintained in partnership among secondary and postsecondary education institutions, businesses and employers. Career pathways are available to all students, including adult learners, ... are designed to lead to rewarding careers ... [and include] dual credit opportunities.⁵⁸

Kentucky maintains a **list of recognized industry credentials**, but does not require that these credentials be listed on the high school diploma. However, many schools do list them on students’ diplomas.⁵⁹ (See Goal 4 for a more in-depth discussion of Kentucky’s college- and career-readiness policies related to industry credentials.)

In **Delaware**, a **career pathway** is defined in state policy as: “the three (3) credits of pre-planned and sequential courses required for graduation designed to develop knowledge and skills in a particular career or academic area. The Career Pathway shall be included in the Student Success Plan,” which is:

A plan encompassing a minimum of five years including one year beyond high school, which sets postsecondary goals for a student based on academic and career interests. The student’s plan includes a program of study based on the academic courses, electives, and extracurricular opportunities needed in preparation for immediate entry into the workforce and postsecondary education. The plan also includes the support services necessary for the student to graduate from high school.

Delaware defines a **program of study** as: “an academic and career plan based on postsecondary goals and comprised of academic, career, and technical content that prepares students to make successful transitions to postsecondary education and the workplace.”⁶⁰ Delaware’s high school graduation requirements do not require credentials to be listed on diplomas.

⁵⁷ Legislative Finance Committee, 2014.

⁵⁸ Source: Kentucky Revised Statutes 158.810 to 158.816.

⁵⁹ Source: Kentucky KOSSA and Industry Certifications, 2014-2015.

⁶⁰ Source: Delaware Regulations, Administrative Code Title 14: 505.

North Carolina students can receive a Career Endorsement on their high school diplomas provided certain requirements are met:

- The student must complete the core curriculum required for graduation, as well as a concentration in one of the 16 national Career Clusters.
- The student must have a GPA of at least 2.6.
- The student must earn at least one industry-recognized credential, which can include Career-Readiness Certificates at the Silver level or above.⁶¹

Goal 1 – Findings

CTE Course Analysis Data

SREB sought to determine whether New Mexico's current CTE course offerings allow high school students to complete career pathways leading to postsecondary certificate, credential and degree programs and good jobs. SREB's goal was to generate actionable data to help PED, HED, districts and schools improve the quality and alignment of their career pathway programs with postsecondary credential and degree programs and workforce opportunities in critical state and regional industry sectors identified in the recent Jobs Council report.

The **Technical Appendices**, available electronically, describe the process through which SREB researchers analyzed three years' worth of CTE, dual credit and AP course enrollment and industry credential completion data for a selection of 145 comprehensive high schools and state-approved charter schools in the state's four WIOA regions. Using these data, researchers sought to determine whether students could potentially complete career pathway / program of study course sequences of three-or-more versus four-or-more progressively intensive, related CTE courses in a given STARS (Student Teacher Accountability Reporting System) area (e.g., agriculture, business, computer science, health science) or a closely related STARS area.⁶²

Researchers conducted these two separate analyses because New Mexico and SREB define career pathways / programs of study slightly differently. New Mexico's five-year Perkins plan for 2008-2013⁶³ defined programs of study as consisting of three or more courses. **SREB holds that rigorous career pathways / programs of study should consist of four or more progressively intensive, related CTE courses.** *Programs of study* are defined under the federal Carl D. Perkins Career and Technical Education Improvement Act of 2006, frequently referred to as Perkins IV.⁶⁴ Under Perkins IV, federally funded programs of study:

1. must incorporate secondary education and postsecondary education elements;
2. must include coherent and rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated, non-duplicative progression of courses that align secondary education with postsecondary education to adequately prepare students to succeed in postsecondary education;
3. may include the opportunity for secondary education students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits; and
4. must lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.

⁶¹ Source: North Carolina State Board of Education Policy Number GCS-L-007.

⁶² Researchers used the 2013-2014 STARS manual as a reference. See <http://ped.state.nm.us/stars/index.html>.

⁶³ *Carl D. Perkins Five-Year State Plan 2008-2013*. New Mexico Public Education Department, Career Technical and Workforce Education Bureau, 2007.

⁶⁴ Carl D. Perkins Career and Technical Education Improvement Act of 2006, Pub L. No. 109-270.

To analyze school data, researchers drew on a number of sources, including: (1) the four mandated elements of programs of study under Perkins IV, as above; (2) the Program of Study Design Framework developed by the Office of Career, Technical and Adult Education (OCTAE) at the U.S. Department of Education;⁶⁵ and (3) an evaluative matrix used in a five-year mixed-methods study of the impact of program of study participation on 5,000+ high school students in three states.⁶⁶ This five-year study was conducted by researchers at the U.S. Department of Education-funded **National Research Center for Career and Technical Education** NRCCTE. The NRCCTE has produced the nation's only systematic body of evidence on federally mandated programs of study.⁶⁷

For each region, the Technical Appendices include the following summary tables: (1) an analysis of three- versus four-course career pathways / programs of study; (2) a summary of pathways by school and STARS area (three-course vs. four-course); (3) a tally of individual school pathway data using a three-course analysis; and (4) a tally of individual school pathway data using a four-course analysis. The individual school career pathway / program of study reports on which these summary tables are based are available separately in Excel format.

Regional and Statewide Findings

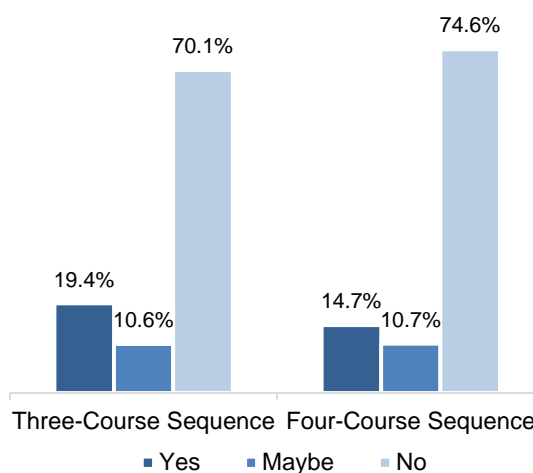
Table 1 summarizes the results of SREB's analyses of career pathways / programs of study by region and statewide. **As Table 1 shows, the 145 high schools and charter schools selected for analysis offered a total of 1,343 potential career pathways.** A school was considered to have a potential career pathway / program of study if it offered more than one thematically related course (high school or dual credit) within a given STARS program area. To be considered a full career pathway / program of study, the pathway had to

- include opportunities to earn dual credit,
- feature three or more (or four or more) progressively intensive courses, *and*
- lead to an industry credential and/or postsecondary study at a state institution.

Potential pathways meeting these criteria are included in the table's "Yes" column. Programs reported under the "Maybe" column include cases in which researchers were unable to clearly determine whether a program featured a complete sequence of three or more courses or whether reported dual credit courses were related to a potential pathway. Programs reported in the "No" column lacked evidence of one or more of the elements listed above.

As Table 1 and Figure 1 show, **few New Mexico high schools are offering career pathways / programs of study** that lead to industry-recognized credentials and postsecondary certificates and degrees and feature a sequence of *at least three* progressively intensive CTE courses, integrated secondary and postsecondary content and dual credit-earning opportunities. Even fewer schools are offering more intensive course sequences of four or more courses, as recommended by SREB.

Figure 1: Statewide Totals, Career Pathways / Programs of Study: (N = 1,343)



⁶⁵ <http://cte.ed.gov/nationalinitiatives/rposdesignframework.cfm>

⁶⁶ <http://www.nrccte.org/resources/publications/rigorous-tests-student-outcomes-cte-programs-study-final-report>

⁶⁷ See <http://www.nrccte.org/core-issues/programs-study>.

Detailed school-level course data analyses, discussed at length below, showed that many schools' CTE course offerings are shallow and introductory. Dual credit course offerings are similarly shallow, and participation in work-based learning opportunities like co-ops, internships or on-the job training (see Goal 7) was limited. Further, many schools' CTE programs are traditional in focus and not strongly linked to postsecondary and workplace opportunities in New Mexico's most important state and regional industry sectors (see Goal 2). **Simply put, most of New Mexico's high schools are not offering students rigorous, academically and technically challenging pathways to postsecondary study and workplace opportunities.**

Statewide, less than 20 percent of CTE programs offered career pathways consisting of three or more courses. When researchers analyzed the same data using SREB's recommended four-course definition, this number dropped to **less than 15 percent.** *Researchers were unable to make a clear determination of whether a CTE program offered a full three- or four-course pathway and related dual credit courses in about 11 percent of cases.*

Table 1: Career Pathways / Programs of Study by Region and Statewide

WIOA Region: Number (N) of High Schools Analyzed and Potential Career Pathways/ Programs of Study	Potential Career Pathways / Programs of Study*			
	Yes	Maybe**	No	Total
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Northern Region: N = 44 high schools with 403 potential career pathways / programs of study				
Three-Course Sequence Analysis†	92 22.8%	59 14.6%	252 62.5%	403 100.0%
Four-Course Sequence Analysis‡	59 14.6	59 14.6	285 70.7	403 100.0
Central Region: N = 37 high schools with 388 potential career pathways / programs of study				
Three-Course Sequence Analysis	68 17.5	27 7.0	293 75.5	388 100
Four-Course Sequence Analysis	63 16.2	27 7.0	298 76.8	388 100
Eastern Region: N = 42 high schools with 305 potential career pathways / programs of study				
Three-Course Sequence Analysis	38 12.5	24 7.9	243 79.7	305 100
Four-Course Sequence Analysis	30 9.8	24 7.9	251 82.3	305 100
Southwestern Region: N = 22 high schools with 247 potential career pathways / programs of study				
Three-Course Sequence Analysis	62 25.1%	32 13.0%	153 61.9%	247 100
Four-Course Sequence Analysis	45 18.2	34 13.8	168 68.0	247 100

WIOA Region: Number (N) of High Schools Analyzed and Potential Career Pathways/ Programs of Study	Potential Career Pathways / Programs of Study*			
	Yes	Maybe**	No	Total
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Statewide Totals: N = 145 high schools with 1,343 potential career pathways / programs of study				
Three-Course Sequence Analysis	260 19.4	142 10.6	941 70.1	1,343 100
Four-Course Sequence Analysis	197 14.7	144 10.7	1,002 74.6	1,343 100

Notes. * = A school was considered to have a potential career pathway / program of study if it offered *more than one thematically related course* (high school or dual credit) within a given STARS program area (e.g., agriculture, business, cosmetology, family and consumer sciences, health science). Multiple distinct potential pathways could be counted in some STARS areas (e.g., culinary arts and child development under 0500: Family and Consumer Science; teacher education and criminal justice under 2500: Public, Protective and Social Services). If only a single course was offered within a STARS program area (once or repeatedly over time), that STARS area was omitted from analyses.

** = Researchers were unable to determine in all cases whether certain program areas offered complete sequences of three or more courses, or whether certain dual credit courses fit within a potential program of study area. For this reason, some potential programs were coded as "Maybe," meaning findings were ambiguous.

† = For this analysis, following PED's existing Perkins five-year plan (PED, 2007), researchers counted a program area as offering a career pathway / program of study if it included a sequence of *three or more progressively intensive courses* (i.e., including introductory, intermediate, and advanced courses). Courses did not necessarily have to be in an identical area (e.g., Computer Graphics I, II, III, etc.), but they did have to be in a closely thematically related subject area to count as a sequence.

‡ = For this analysis, researchers re-examined the same course data following SREB's recommendation that career pathways / programs of study consist of a sequence of *four or more progressively intensive courses* (i.e., including introductory, intermediate, and advanced courses). Courses did not necessarily have to be in an identical area (e.g., Computer Graphics I, II, III, IV), but they did have to be in a closely thematically related subject area to count as a sequence.

As Table 1 shows, the presence of three- or four-course career pathways varied by region. The **Northern WIOA region** had the largest number of schools analyzed (44) and offered the most potential pathways (403). Less than a quarter — 23 percent — of this region's potential pathways met the three-course definition. Under 15 percent met the four-course definition. The **Southwestern WIOA region** contained far fewer schools (22), but 25 percent of its programs met the three-course definition and 18 percent met the four-course definition. The **Eastern WIOA region** had the second largest number of schools (42) but the lowest number of pathways, whether defined as three-course sequences (under 13 percent) or four-course sequences (under 10 percent). In the **Central WIOA region**, under 18 percent of the region's 388 potential pathways met the three-course definition and 16 percent met the four-course definition.

Career Pathways Offered

After breaking out the number of potential three- versus four-course career pathways / programs of study available regionally, SREB researchers compiled a table of those pathways (available in Technical Appendix A) and noted the prevalence of pathways / programs by region. These pathway descriptors are not intended to be prescriptive but instead attempt to indicate in which general areas pathways could be said to exist within a larger STARS / Career Cluster area. For example, in a broad STARS category like Family and Consumer Sciences (FACS), a number of potential pathways could be available, like Child Development, Culinary Arts, or Lodging Management/Hospitality and Tourism.

Table 2 tallies the number of three- versus four-course pathways / programs available by region and highlights the top five pathways in each region and for the state as a whole.

Table 2: State and Regional Career Pathways / Programs of Study by STARS / Career Cluster Area and Three-Course Versus Four-Course Sequence, Rank Ordered

STARS Cluster Area Career Pathway	Number of Pathways / Programs									
	Northern		Central		Eastern		Southwestern		State	
	3+ Seq.	4+ Seq.	3+ Seq.	4+ Seq.	3+ Seq.	4+ Seq.	3+ Seq.	4+ Seq.	3+ Seq.	4+ Seq.
Ag, Food, Natl. Res.	5	4	2	2	17	17	8	8	32	31
Business	11	4	11	10	2	2	7	6	31	22
Computer Science	--	--	--	--	--	--	--	--	--	--
General/Other	1	0	1	1	1	0	2	1	5	2
Graphics	2	2	2	2	0	0	2	1	6	5
Networking	0	0	0	0	0	0	1	0	1	0
Programming	1	1	0	0	0	0	1	0	2	1
Construction Trades	--	--	--	--	--	--	--	--	--	--
Carpentry	10	6	10	10	2	1	1	1	23	18
Electrical	2	1	0	0	0	0	0	0	2	1
FACS	--	--	--	--	--	--	--	--	--	--
Child Development	1	1	2	2	2	1	2	2	7	6
Culinary	12	10	8	6	5	5	4	4	29	25
Hosp./Tourism/Lodg.	0	0	0	0	0	0	3	2	3	2
Cosmetology	6	6	0	0	2	1	0	0	8	7
Drafting	4	3	8	8	1	0	5	5	18	16
Energy/Power/Trans	--	--	--	--	--	--	--	--	--	--
Automotive	9	7	12	12	3	2	5	4	29	25
Fine/Perf. Arts	--	--	--	--	--	--	--	--	0	0
Computer-Asst. Art	0	0	0	0	1	0	0	0	1	0
Digital Film/Video	3	1	4	2	0	0	1	0	8	3
Graphic/Print Comm.	2	1	0	0	0	0	0	0	2	1
Health Sciences	3	2	4	4	0	0	4	2	11	8
Tech. Education	--	--	--	--	--	--	--	--	--	--
PLTW/Pre-Engineer.	3	1	0	0	0	0	6	2	9	3
Adv. Manufacturing	0	0	0	0	0	0	1	0	1	0
Marketing	1	1	0	0	0	0	0	0	1	1
Mass Communication	1	1	0	0	0	0	1	1	2	2
Military / ROTC	0	0	0	0	0	0	0	0	0	0
Precision Metalwork	11	6	4	4	2	0	7	5	24	15
Pub., Protect., Social	--	--	--	--	--	--	--	--	--	--
Teacher Ed/Child Dev	0	0	0	0	0	0	2	1	2	1
Crim. Justice Assist	2	0	0	0	0	0	0	0	2	0

Table 3 outlines the top five career pathways / programs of study by WIOA region and the state. In the Eastern region, only the top four pathways are listed, as three pathways tied for fifth place: Construction Trades (Carpentry), FACS/Child Development, and Cosmetology.

Table 3: Top Five Most Prevalent Career Pathways / Programs of Study – Region and State

Rank	Northern	Central	Eastern	Southwestern	State
1	Culinary Arts	Automotive	Agriculture	Agriculture	Agriculture
2	Welding	Business	Culinary Arts	Business	Business
3	Business	Carpentry	Automotive	Welding	Automotive / Culinary
4	Carpentry	Drafting	Business	Pre-Engineering	Welding
5	Automotive	Culinary Arts	--	Drafting	Carpentry

As Table 4 shows, **just eight career pathways / programs of study** make up the most prevalent programs regionally and statewide. Business was ranked within the top five in all four regions. Many of these top-ranked programs could arguably be described as “traditional” CTE, especially Automotive, Culinary Arts, Agriculture, Carpentry and Welding.

Table 4: Top-Ranked Career Pathways / Programs of Study Statewide by STARS Area

STARS Area (Career Pathway/Program of Study)	WIOA Regions Ranking the Pathway/Program in the Top 5
Business	4
Energy, Power and Transportation Technology (Automotive)	3
Family and Consumer Science (Culinary Arts)	3
Agriculture, Food and Natural Resources	2
Construction Trades (Carpentry)	2
Drafting	2
Precision Metalwork (Welding)	2
Technology Education (PLTW/Pre-Engineering)	1

As will be discussed at length in Goal 2, such programs, although traditional, are not out of sync with the key industry sectors identified in the Jobs Council report as important for New Mexico’s economic future. In fact, many are still in high demand. **However, in order to secure high-skill, high-wage jobs in these areas, high school graduates must obtain additional industry and postsecondary credentials and degrees.** SREB’s analyses suggest that existing CTE programs in these areas are both lacking in rigor and only weakly connected to postsecondary and workplace learning opportunities.

Individual School Analysis Findings

Overall, as these state and regional findings show, many schools are **not offering career pathway / program of study sequences of three or more (or four or more) progressively intensive courses.** *Progressively intensive course sequences* were defined as three-or-more or four-or-more courses that (1) begin with a broad-based *introductory* course that exposes students to the general scope, skills and knowledge of the career field, (2) lead to deeper studies in more challenging pathway-specific courses at the *intermediate* level, and (3) culminate in intensive courses, capstone experiences, internships, or other work-based learning experiences at the *advanced* level. The *Reader’s Guide to the High School Career Pathway / Program of Study Reports* (see Technical Appendix A) describes the approach researchers took in coding courses as introductory, intermediate and advanced. Individual school analyses (see Technical Appendix A) showed that many schools appear to be offering a range of disconnected courses within a given STARS program area, including “singleton” courses that cannot be combined with other courses to form a coherent sequence. **For example, under 0300: Computer and Information Sciences, a school might offer three introductory-level courses in computer programming, networking and graphic design, but no**

intermediate or advanced courses in any of these specific areas of computer science. A student could take all three introductory courses and technically qualify as a CTE completer, but that student could not be considered a career pathway / program of study completer because she did not complete a sequence of at least three progressively intensive courses within a specific pathway area (e.g., Computer Graphics I, II and III plus a capstone or work-based learning course to enrich the experience).

In many STARS program areas, such progressively intensive sequences **do appear to be available.** Some STARS areas offer multiple potential sequences. In other cases, students could conceivably form a coherent, progressively intensive sequence of courses out of courses offered across multiple STARS areas. For example, a student interested in creating a pathway in biomedicine could combine courses from 1700: Life Sciences (an “academic” field of study) with courses from 1500: Health Science and 1600: Technology Education (e.g., PLTW Biomedical courses). **However, as shown in Table 1 and Figure 1, too few schools statewide are offering full or even partial sequences that would allow students to complete a robust pathway of three or four or more progressively intensive courses in a thematically coherent area.** Statewide, less than 20 percent of career pathways feature three or more courses and less than 15 percent feature four or more courses.

Researchers found that many high schools are offering mostly **introductory CTE courses** (e.g., defined within the STARS manual as introductory and/or as suitable for students in any grade, whether grades 6-12 or grades 9-12). Schools’ CTE course offerings are frequently shallow, broad and traditional. Students wishing to complete a pathway in a given program area **often appear to lack intermediate, advanced, capstone and dual credit options that would allow them to go deep in their studies.** Further, few introductory courses appear to expose students to modern, STEM-related fields — for example, energy (e.g., renewable energy, oil and gas) information technology (e.g., informatics or health informatics) and advanced manufacturing — that the Jobs Council considers crucial to New Mexico’s economic future. (See Goal 2.) As will be described in the Recommendations, SREB suggests that New Mexico redesign its introductory CTE courses to ensure that they not only expose students to potential careers in the state’s key industries, but also emphasize a project-based approach to instruction in which students draw on a mix of academic, technical, technological and workplace readiness skills to complete a series of projects that simulate real work experiences.

Course enrollment data suggest that students appear to have limited opportunities to participate in **advanced, capstone and work-based learning courses** like internships or co-ops. When present, such courses most frequently appeared in STARS areas like Agriculture and Business. See Goal 7 for a discussion of the role of work-based learning in career pathways.

Course data analyses also showed that regardless of school size, **many CTE courses had enrollments of just one or two students.** In rural schools with very small student bodies and less capacity to offer a broad range of CTE courses, low enrollments may be common and a necessary evil. Researchers assumed that such courses were being taught by a single teacher serving multiple students at the same time. However, researchers also questioned whether students in such courses were benefitting from high-quality instruction. Online postsecondary courses overseen by a master teacher may offer an alternative to such experiences.

Conversely, course data analyses of pathways / programs in larger urban areas or districts sometimes showed **a lack of programmatic diversity at the regional or district level.** That is, the same or similar programs appear to be duplicated across most high schools in an area, although with greater and lesser depth and intensity. Some schools within the region or district appeared to offer stronger, deeper course sequences (e.g., more intermediate, advanced

and dual credit courses and capstones) in some programs than other schools. If students in a large urban area or district can choose which high school to attend, or their families are choosing their neighborhood based on which high school they can attend, this lack of diversity effectually reduces student choice. It also limits the region's ability to respond to emerging workforce needs. For example, SREB's pathway analyses showed many automotive and carpentry/construction programs being offered in large urban areas, regionally and statewide. However, SREB's workforce data analyses (see Goal 2) suggest that the state may be over-producing graduates in these areas while under-producing graduates in other important areas, like the state's diverse energy-related industries. SREB urges the state to rebalance its pathway offerings in urban areas, regionally and statewide in alignment with workforce demand.

Regional pathway analyses suggest that CTE-related dual credit course offerings are shallow, and many may duplicate high school course content. Judging by their STARS course codes, most appear to be offered at an **introductory level**. However, the dual credit courses students are taking may not be the same as those described in the STARS catalog. Some schools reported community college course numbers and titles along with their corresponding STARS numbers. Some of these community college course titles did not match STARS course numbers and titles; some were very different. See Goal 10 for a discussion of how such reporting issues may hamper the state's college- and career-readiness accountability goals.

Overall, researchers found it difficult to discern whether the dual credit CTE courses being taken merit college credit. As Table 5 shows, dual credit grades received from HED via PED show that most students are achieving grades of C or better in their CTE dual credit courses.

Table 5: High School Dual Credit CTE Course Grades – State Totals

Grade	Number of Grades Given	Percentage of Total
Grade of "A"	7,992	55%
Grade of "B"	3,223	22
Grade of "C"	1,516	11
Grade of "D"	472	3
Grade of "F"	384	3
Other Grade Given	824	6

Source: HED 2013-14 data, CTE areas only, as received from PED.

Absent more information regarding the actual content of these courses, it is not possible to say why most students are receiving grades of C or better. It may be the case that dual credit students are better prepared for such courses, as they must first meet eligibility requirements to participate.⁶⁸ **However, it is more likely that CTE dual credit courses are not sufficiently challenging or tightly aligned with college- and career-readiness standards.** As noted in the Literature Review, a recent HED study⁶⁹ showed that despite holding all students to dual credit course eligibility requirements, **more students who took CTE-related dual credit courses later required remediation at the college level**, compared to students who took more academically-focused dual credit courses. As noted in the analysis of course enrollment data, findings like this underline the need to establish college- and career-readiness standards for dual credit participation, assess students' readiness for dual credit courses and support students identified as in need of extra help with supplemental instructional supports to achieve readiness for challenging postsecondary course work.

⁶⁸ Legislative Finance Committee, 2013.

⁶⁹ Legislative Finance Committee, 2014.

HED reports show that New Mexico has made considerable investments in its dual credit program and seen some positive returns in academic performance, persistence and completion. However, SREB was unable to find evidence that students taking dual credit courses, especially CTE students, are being supported with the **supplemental instruction in literacy and math** needed to ensure that they not only pass their dual credit courses but successfully **receive credit for those courses and avoid developmental education** once enrolled in college. Nor did SREB find evidence that CTE dual credit courses are part of **planned, progressively intensive course sequences** designed to bridge high school and postsecondary education and lead to postsecondary credentials and degrees. Recommendations in this section include strategies New Mexico can adopt to ensure that CTE students can participate and succeed in dual credit courses that give them a true taste of the rigors and challenges of college-level course work.

Regional course analyses show that **most potential career pathways lead to local community college programs and dual credit-earning opportunities**, although researchers questioned the quality of the alignment of such programs, given the limited and mostly introductory selection of CTE dual credit courses offered. Two career pathway / program areas — Marketing and Military Science / Reserve Officer Training Corps (ROTC) — stand out as being largely **unconnected to regional dual credit-earning opportunities**. Both areas of study appear popular with high school students where they are offered, but few community colleges or four-year institutions offering two-year degrees around the state offer programs in either area. **Creative and flexible dual credit and online courses** may be needed to better connect programs without regional postsecondary programs with postsecondary institutions located elsewhere in the state.

At present, however, the state's **IDEAL-NM online course delivery system** does not offer a robust selection of pathway-related courses. Analyses of online course enrollment data showed that **few students appear to be taking online course work, and available online courses are entirely introductory**. An extremely limited selection of CTE-related courses currently offered through the IDEAL-NM online system includes introductory-level courses in business math, general health and wellness, and electives (e.g., computer fundamentals; consumer/business math; general business). Note that 46 percent of all student respondents ($N = 2,483$) to SREB's CTE survey reported having taken an online CTE and/or college course, with 38 percent of those reporting that they successfully completed it. As noted, New Mexico graduation requirements require all students to complete at least one Honors, AP, dual credit or online course. Recommendations made in this section urge PED, HED and postsecondary institutions around the state to work together to develop a wider, deeper selection of rigorous online courses across all program areas but especially in the state's most critical industry sectors. Introductory or theoretical courses in nearly all fields could be delivered online as part of a hybrid program that blends online instruction with classroom and work-based learning experiences in the community. Some fields — for example, business and information technology — are particularly well suited for online delivery.

New Mexico Workforce Data

Goal 2 explicitly addresses the alignment of career pathways / programs of study with state and regional workforce opportunities.

Stakeholder Survey Data

Selected survey findings related to CTE programs and career pathways are presented below. Survey findings related to the alignment of career pathways with workforce opportunities are

discussed in Goal 2. Complete tabular survey findings for all stakeholder groups are available electronically in Technical Appendix B.

External stakeholder groups differed slightly in their perceptions of **how well high school CTE programs are preparing students across a range of important skill areas** (e.g., literacy, math, science, technical, thinking, communication, etc.). SREB surveyed **business leaders** responsible for hiring New Mexico's graduates — lead administrators and chief executives at businesses employing 10 or more workers. These business leaders were most critical of high school graduates' academic preparedness for the workplace. Just half of all business leaders (51 percent) felt that high school CTE programs prepared students at least somewhat in the area of literacy skills. Less than half thought these programs prepared students at least somewhat with technology (47 percent) and math (45 percent) skills needed in the workplace. **Community representatives** — who included mayors, members of local governing bodies, school board members and county-level leaders — were slightly more positive: Half to nearly three-quarters (between 50 and 71 percent) of respondents ($N = 127$) felt that high school CTE programs prepared students at least somewhat in all skill areas identified in the survey, but especially in literacy (71 percent), technology (71 percent), and math (64 percent).

Both business leaders and community representatives, but especially business leaders, indicated a need for improvement in all areas they were asked to consider. These perceptions appear consistent with New Mexico students' poor performance on the ACT.

External stakeholders asked about strengths and weaknesses in the state's CTE system questioned whether CTE was a high enough priority in high schools. Some **community representatives** commented that CTE was not high priority in the open-ended responses they submitted. About one-quarter of community representatives (27 percent; $n = 45$) who responded to the survey's strengths and weaknesses question remarked on the need for more resources for CTE, including stable funding, local flexibility to use funds, and community support.

Ninety-five percent ($n = 21$) of the **business leaders** who responded to this same question **identified gaps, not strengths, in the CTE system.** Of these respondents, 32 percent commented on the need for **more choice in CTE programs.** Other comments included a need for higher quality career pathways in the construction trades, higher quality teaching in CTE programs, more of an emphasis on soft skills, more locally developed CTE curricula — especially in New Mexico's most critical emerging industries — and more follow-up with businesses that employ CTE students. **Overall, business leaders did not appear to see a strong connection between high school and postsecondary programs.** One business respondent from a small county said that a lack of cooperation at the local high school led to a missed opportunity to sustain capacity for technical training at the local community college. The community college had counted on the high school to send them students for dual enrollment CTE courses, but the high school decided to retain all CTE instruction. This decision limited students' opportunity to “*work with people who are professionals in their field*” and also prevented the community college from offering a CTE course due to insufficient enrollment.

Overall, parent survey data showed that some parents may not be aware that their children are taking CTE and may not be aware of the options available to them in career pathway programs. Out of 2,000 parents of CTE students surveyed ($N = 271$ respondents), an average of only 72 percent statewide ($n = 195$) were aware that their child was taking or had taken a CTE course. Of these, just 41 percent statewide said that counselors encouraged their child to combine **college-preparatory academic courses** with their CTE studies. Nearly 80 percent of parents who were aware that their child had taken CTE believed that their child had **completed challenging projects and assignments** in those classes.

However, less than two-thirds of these parents (62 percent) believed that their child could **earn college credits** for taking CTE courses, and 58 percent believed that their child's high school career pathway / program of study **continued at a local community college**. Sixty percent of respondents believed that their child would continue in the same pathway after high school. Responding parents most frequently reported that their child participated in the following pathway areas (per the Jobs Council report): Health and Social Services, Digital Media and Agriculture. Note that only one of these areas, Agriculture, was ranked in the top five of all pathway programs in two regions. Out of all parent respondents ($N = 271$), 93 percent expressed support for **more high school CTE learning opportunities** that prepare students for college and good jobs.

Surveyed principals ($N = 128$) appeared to be supportive of their CTE programs and CTE teachers and confident about the quality of the instructional experiences their CTE students were receiving. Sixty-eight percent reported that they often or always **took action to address the quality of their CTE programs**, and 70 percent said that they often or always worked with CTE teachers to **integrate literacy and math in CTE classes**. By comparison, over 50 percent of teachers ($N = 239$) said that they met as **academic and CTE teachers teams** at least several times a year.

School stakeholders differed in their perceptions of whether their CTE programs were aligned or sequenced with postsecondary programs and standards. Over 90 percent of principals reported that most or all of their CTE programs were aligned with postsecondary programs. Yet just 62 percent of responding CTE teachers ($n = 239$) believed that most or all of their programs were aligned with postsecondary programs. Nearly 43 percent of CTE teachers reported they or other teachers in their school **worked with postsecondary partners to align curriculum and assessments** in most or all of their programs; just 37 percent of principals agreed.

Dual credit courses appeared to be an integral part of the CTE experience, but respondents varied in their perceptions of how many students were participating. Fifty-nine percent of student respondents said they had earned dual credit while in high school. However, two-thirds of CTE teachers reported that *less than half* of their students were earning dual credit.

Respondents also differed when asked whether they were aware of any problems or logistical issues encountered by students in earning or transferring credits across postsecondary institutions. Overall, results suggest that some stakeholders believe the current dual credit system may not be reliable: 30 percent of counselors ($n = 81$), 10 percent of postsecondary administrators ($n = 19$), 22 percent of principals ($n = 119$), and 21 percent of teachers ($n = 234$) believed students experienced difficulties earning or transferring credits. SREB's course enrollment analyses show that dual credit courses may not be aligned with college- and career-readiness standards, which may lead to later issues with credit transfer and remediation. This may be a problem for both academic and CTE dual credit courses.

Overall, student surveys offered valuable information regarding students' perceptions of the quality and rigor of their CTE course-taking experiences. Most respondents ($N = 2,483$) reported taking multiple CTE courses. Forty-eight percent said that they would take four or more CTE courses between ninth and 12th grade; 85 percent said that they would **complete a concentration** (three or more courses in a specific area) by the time they graduated: The most **popular CTE concentration areas** reported, by Career Cluster, were STEM (14 percent); Arts, Audio/Video Technology and Communications (13 percent); Health Science (11 percent); Business (7 percent); and Agriculture (7 percent). Sixteen percent reported completing some other CTE concentration.

Tables 6 through 13 summarize student survey responses by region and statewide on a range of indicators related to challenging CTE studies combined with college-ready literacy and math instruction.

Indicators of Rigorous CTE Assignments

Tables 6 and 7 summarize the percentages of student survey respondents who reported experiencing any of SREB's **10 indicators of rigorous CTE assignments** by WIOA economic region and statewide. Table 6 breaks out student responses by individual indicators. Table 7 compares the overall percentage of New Mexico student survey respondents who indicated that they had experienced intensive, moderate and low levels of exposure to rigorous CTE assignments with respondents to SREB's 2014 Student Survey ($n = 14,776$ CTE students). CTE assignments could be said to be *intensive* if students reported frequently experiencing assignments that included 5 or more of the 10 indicators; *moderate* if they experienced 2 to 4 indicators; and *low* if they experienced 1 or zero indicators. Student experiences differed by region, and SREB encourages PED to explore possible explanations for this variation.

Statewide, the least frequently reported indicators include (1) making inferences from information to develop a solution, (2) developing and testing hypotheses, and (3) developing a logical argument to a solution. Slightly more than half (53 percent) of students reported doing background research on a problem or project. **Overall, New Mexico's CTE students clearly need richer, more challenging assignments in their CTE classes that incorporate the critical learning and thinking skills outlined in Table 6.**

Table 6: Percentage of Students Reporting Experiencing Rigorous CTE Assignments

Ten Indicators of Rigorous CTE Assignments	Northern ($n = 537$)	Central ($n = 442$)	Eastern ($n = 504$)	South- western ($n = 990$)	State ($n = 2,483$)
Predict outcomes based on observations or information provided.	43%	44%	44%	51%	46%
Develop a logical argument for your solution to a problem or project.	38	43	45	48	44
Do background research for a problem or project, such as reading technical article(s), before developing a plan or solution.	52	58	55	57	55
Make inferences from information provided to develop a solution for a problem or project.	37	40	43	46	42
Use math to solve complex problems related to your career-technical area.	40	43	46	48	45
Apply academic knowledge and skills to your career-technical area.	45	57	53	51	51
Apply technical knowledge and skills to new situations.	50	53	57	52	53
Develop and test hypotheses.	38	42	44	45	43
Complete an extended project that requires planning, developing a solution or product, and presenting the results orally or in writing.	44	51	48	50	48

Table 6: Percentage of Students Reporting Experiencing Rigorous CTE Assignments

Used computer software or other technology related to your career-technical area to complete assignments weekly.	48	50	53	52	51
--	----	----	----	----	----

Note. Intensive = 5-10 indicators; Moderate = 2-4 indicators; Low = 0-1 indicators.

Table 7 compares New Mexico CTE student survey responses to the 2014 HSTW Student Survey (CTE students only). By design, HSTW schools structure the entire school experience around high-quality CTE, college-ready academics and rigorous assignments that blend academic, technical, cognitive, technological, and workplace readiness knowledge and skills. Table 7 links HSTW students' experiences of rigorous CTE assignments with their academic readiness for careers and college.

Overall, statewide, **less than half** of New Mexico CTE students (48 percent) experienced an intensive level of exposure to the 10 indicators of rigorous CTE assignments. HSTW students who benefitted from an intensive level of exposure to rigorous CTE assignments met readiness goals for reading (68 percent), math (68 percent) and science (65 percent) at significantly higher rates than students who experienced only low levels of exposure to rigorous CTE assignments. **High-quality CTE assignments have a powerful impact on students' academic outcomes.**

Table 7: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Rigorous CTE Assignments and Percentage of HSTW Students Meeting Readiness Goals

Level of Exposure	# of Indicators	State* (n = 2,483)	North. (n = 537)	Cent. (n = 442)	East (n = 504)	South-west (n = 990)	% of HSTW Students Reporting ** (n = 14,776)	% of HSTW Students Meeting Readiness Goals (n = 14,776)		
								Read-ing	Math	Science
Intensive	5-10	48%	41%	51%	50%	51%	40%	68%	68%	65%
Moderate	2-4	33	36	28	33	33	33	51	54	50
Low	0-1	19	23	21	17	17	28	36	40	36

Sources: * = New Mexico High School CTE Student Surveys. ** = 2014 HSTW Student Surveys, CTE students only.

Indicators of Rich Literacy Experiences

Tables 8 and 9 summarize student survey responses related to **nine indicators of rich literacy experiences**. Table 8 breaks out student responses by individual indicators. Table 9 compares the overall percentage of New Mexico student survey respondents who indicated that they had experienced intensive, moderate and low levels of exposure to assignments that included rich literacy experiences with CTE student respondents to SREB's 2014 Student Survey (n = 14,776). Students could be said to have been exposed to rich literacy experiences at an *intensive* level if they reported frequently experiencing seven or more of the nine indicators; at a *moderate* level if they experienced four to six indicators; and at a *low* level if they experienced zero to three indicators.

As Table 8 shows, the two indicators least often reported by students are (1) making inferences from information to develop a solution using literacy strategies, (2) discussing or debating with other students, and (3) completing an extended project that requires planning, developing a solution and presenting results. On the positive side, (1) 76 percent of students reported that teachers required them to complete writing assignments that made them defend their thinking, and (2) 67 percent said that they analyzed works of literature in their English classes at least monthly.

Table 8: Percentage of Students Reporting Rich Literacy Experiences

Nine Indicators of Rich Literacy Experiences	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South- western (n = 990)	State (n = 2,483)
I read an assigned book and demonstrate understanding of the significance of the main ideas at least monthly.	52%	50%	44%	52%	50%
I analyze works of literature in English class at least monthly.	67	71	68	66	67
I discuss or debate with other students about what they read in English or language arts classes at least monthly .	44	43	43	53	47
My teachers require writing assignments that make me defend my thinking with support evidence from what I read.	79	74	76	77	76
Writing assignments require me to assess the reasoning and evidence from a text or other readings to support or refute the author's position.	62	64	69	66	65
I am often asked to read challenging materials and write multi-paragraph papers on the readings to demonstrate my understanding.	61	61	60	58	60
The comments I get on my work help me understand how to improve.	66	60	61	65	63
I make inferences from information provided to develop a solution for a problem or project.	37	40	43	46	42
I complete an extended project that requires planning, developing a solution or product, and presenting the results orally or in writing.	44	51	48	50	48

Note. Intensive = 7-9 indicators; Moderate = 4-6 indicators; Low = 0-3 indicators.

Table 9 compares New Mexico student survey responses to CTE student responses from SREB's 2014 Student Survey ($n = 14,776$). Statewide, **slightly more than one-third** (35 percent) of New Mexico student survey respondents reported an intensive level of exposure to rich literacy experiences. HSTW Student Survey results presented in Table 9 clearly show that an intensive level of exposure to rich literacy experiences is associated with much stronger readiness outcomes in reading (73 percent), math (70 percent) and science (68 percent). **These results align with research** (see Goal 3 – Literature Review) **showing the vital importance of literacy skills across the entire high school curriculum**. Goal 3 outlines ways New Mexico can build powerful literacy strategies into all curricula, but especially rigorous career pathway curricula, to enhance students' readiness for postsecondary education and the workplace. Further, only about one-third of New Mexico CTE students reported experiencing assignments across academic and CTE areas that required the use of literacy strategies to complete.

Table 9: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Rich Literacy Experiences and Percentage of HSTW Students Meeting Readiness Goals

Level of Exposure	# of Indicators	State* (N = 2,483)	North. (n = 537)	Cent. (n = 442)	East. (n = 504)	South-west. (n = 990)	% of HSTW Students Reporting ** (n = 14,776)	% of HSTW Students Meeting Readiness Goals (n = 14,776)		
								Reading	Math	Science
Intensive	7 - 9	35%	35%	35%	31%	31%	28%	73%	70%	68%
Moderate	4 - 6	36	35	36	41	41	39	56	57	53
Low	0 - 3	29	30	30	28	28	33	35	42	37

Sources: * = New Mexico High School Student Surveys. ** = 2014 HSTW Student Surveys, CTE students only.

Indicators of a Balanced Approach to Teaching Math

Tables 10 and 11 summarize student survey responses related to **nine indicators of a balanced approach to teaching math**. Table 10 breaks out student responses by individual indicators. Table 11 compares the overall percentage of New Mexico student survey respondents who indicated that they had experienced intensive, moderate and low levels of exposure to a balanced approach to teaching math with CTE student respondents to SREB's 2014 HSTW Student Survey. Students could be said to have been exposed to a balanced approach to teaching math at an *intensive* level if they reported frequently experiencing at least six of the nine indicators; at a *moderate* level if they experienced three to five indicators; and at a *low* level if they experienced zero to two indicators.

As Table 10 shows, **half or less** of students statewide said that they (1) used math to solve complex problems related to their CTE area (45 percent) and (2) were grouped with other students of similar math abilities in their math classes (50 percent). On the positive side, three-quarters reported that their teachers gave them problems to solve that required the use of multiple math concepts.

Table 10: Percentage of Students Reporting a Balanced Approach to Teaching Math

Nine Indicators of a Balanced Approach to Math Instruction	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South-western (n = 990)	State (n = 2,483)
I am encouraged to understand math concepts instead of just memorizing rules and procedures.	60%	64%	63%	68%	64%
My teachers provide feedback frequently to help me understand my mistakes and improve my performance in mathematics.	60	66	60	70	65
I am often grouped in math classes with students who have similar math skills to me.	47	51	48	52	50
My teachers review my work and provide feedback questions to help me solve the problem rather than telling me what to do.	49	61	52	62	57
Teachers give me problems to solve that require using multiple math concepts.	71	78	75	76	75
Teachers give me challenging problems to solve and sometimes allow me to work on them independently.	65	67	66	69	67

Table 10: Percentage of Students Reporting a Balanced Approach to Teaching Math

My mathematics teachers guide my understanding of mathematics through questioning as well as through explaining.	59	64	60	63	62
My teachers give me the opportunity to revisit the concept that I had not mastered before taking a big test.	51	60	53	62	57
I use math to solve complex problems related to my career-technical area.	40	43	46	48	45

Note. Intensive = 6-9 indicators; Moderate = 3-5 indicators; Low = 0-2 indicators.

Table 11 compares New Mexico student survey responses to responses from SREB's 2014 Student Survey. Table 11 shows that **only about half** (51 percent) of New Mexico CTE students are experiencing an intensive level of exposure to a balanced approach to math assignments and instructional strategies that develop their abilities to problem-solve and understand and apply math concepts, compared to CTE students who responded to the 2014 HSTW survey. Of the 40 percent of HSTW CTE students who reported experiencing a balanced approach to math at an intensive level, 69 percent met readiness goals in math. **An approach to math instruction that focuses on helping students learn how to solve problems and use multiple math concepts may contribute to better outcomes in math.**

Table 11: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of a Balanced Approach to Math and Percentage of HSTW Students Meeting Readiness Goals

Level of Exposure	# of Indicators	State* (n = 2,483)	North. (n = 537)	Cent. (n = 442)	East. (n = 504)	South-west. (n = 990)	% of HSTW Students Reporting ** (n = 14,776)	% of HSTW Students Meeting Readiness Goals (n = 14,776)		
								Reading	Math	Science
Intensive	6-9	51%	44%	53%	47%	56%	40%	68%	69%	65%
Moderate	3-5	32	36	29	37	29	27	55	56	53
Low	0-2	17	20	18	16	15	33	35	39	36

Sources: * = New Mexico High School Student Surveys. ** = 2014 HSTW Student Surveys, CTE students only.

Indicators that Assignments Matter

Tables 12 and 13 summarize the percentage of students who reported experiencing one or more of 11 **indicators that assignments matter**. These indicators, which overlap slightly with SREB's 10 indicators of rigorous CTE assignments, are derived from Eleanor Dougherty's work on quality assignments.⁷⁰ Table 12 breaks out student responses by individual indicators. Table 13 compares the overall percentage of New Mexico student survey respondents who indicated that they had experienced intensive, moderate and low levels of exposure to a school climate in which assignments matter with respondents to SREB's 2014 Student Survey. Students could be said to have been exposed to a climate in which assignments matter at an *intensive* level if they reported eight to 11 of the 11 indicators; at a *moderate* level if they experienced five to seven indicators; and at a *low* level if they experienced zero to four indicators.

As Table 12 shows, statewide, **only about half** of all CTE student survey respondents reported that they (1) developed and analyzed tables, charts and graphs (50 percent); (2) completed work that is relevant in the world today (51 percent); and (3) saw a connection between their

⁷⁰ Eleanor Dougherty. *Assignments Matter: Making the Connections That Help Students Meet Standards*. ASCD, 2012. See <http://www.ascd.org/Publications/Books/Overview/Assignments-Matter.aspx>.

classwork and future studies or careers (52 percent). On the positive side, 74 percent reported that they had created written products that helped them learn content. **CTE courses should be the first and most natural place in which students complete relevant work and recognize the links between the classroom and the real world.** Yet only about half of student survey respondents experienced this relevance.

Table 12: Percentage of Students Reporting that Assignments Matter (n= 2,483)

Eleven Indicators That Assignments Matter	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South- western (n = 990)	State (n = 2,483)
I have been given challenging assignments that take several days to complete.	70	67	66	71	69
I complete work that is relevant in the world today.	50	51	49	53	51
My daily classroom activities are linked together to help me accomplish a larger assignment.	54	51	52	61	56
I see a connection between what I do in class and potential further studies and careers.	46	51	53	56	52
I am required to read textbooks and related documents, and write to show my comprehension.	64	63	64	63	63
I have created written products (essays, lab reports, speeches, etc.) that have helped me learn content.	70	74	75	76	74
I am required to read materials that are complex.	60	57	52	55	56
Teachers have encouraged students to help each other and to learn from each other often.	59	62	62	64	62
I have used knowledge and skills from different courses to complete assignments weekly.	66	65	70	68	68
I often develop and analyze tables, charts and graphs in my school work.	50	46	50	52	50
I analyze works of literature in English class at least monthly.	67	71	68	66	67

Note. Intensive = 8-11 indicators; Moderate = 5-7 indicators; Low = 0-4 indicators.

Table 13 compares New Mexico student survey responses to responses from SREB's 2014 Student Survey. Overall, **less than half** of New Mexico student survey respondents (44 percent) reported being exposed to a climate in which assignments matter at an intensive level. HSTW survey results show that intensive exposure to a climate in which assignments matter is strongly associated with readiness in reading, math and science. **Across the entire high school curriculum, students need to be challenged with assignments that help them apply what they are learning in the classroom to the solution of real-world problems.** Such assignments not only develop their academic, technical, technological and cognitive skills, they also show students that what they are learning is relevant to their postsecondary aspirations and plans. Where assignments matter, students' aspirations and plans matter. More than half of all New Mexico student survey respondents (56 percent) are not

benefitting from a climate in which challenging assignments are a top priority across the curriculum.

Table 13: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators that Assignments Matter and Percentage of HSTW Students Meeting Readiness Goals

Level of Exposure	# of Indicators	State* (n = 2,483)	North. (n = 537)	Cent. (n = 442)	East. (n = 504)	South-west. (n = 990)	% of HSTW Students Reporting** (n = 14,776)	% of HSTW Students Meeting Readiness Goals (n = 14,776)		
								Reading	Math	Science
Intensive	8-11	44%	42%	43%	43%	45%	29%	72%	71%	68%
Moderate	5-7	29	32	28	30	28	28	62	61	59
Low	0-4	27	26	28	27	27	43	36	42	37

Sources: * = New Mexico High School Student Surveys. ** = 2014 HSTW Student Surveys, CTE students only.

Goal 1 – Recommendations

Require ALL students to pursue a college- and career-ready academic core aligned with New Mexico state graduation requirements.

- Require all students to take **four years of math before graduation** — including Algebra I and geometry, plus two years of math related to their career pathways and plans for postsecondary study.
- Require students who plan to pursue advanced industry credentials and postsecondary degrees in STEM fields to follow an **advanced math pathway** that includes Algebra II and higher math.

Require all students to complete a concentration that provides the foundational learning skills they need to earn industry and postsecondary credentials and secure good jobs. This concentration may be either a career pathway consisting of four or more progressively intensive CTE courses designed around authentic, project-based assignments, or a set of AP or IB courses.

- Ensure that this concentration **fully aligns with the college-ready academic core.**
- **Develop, adopt or redesign existing CTE courses into progressively intensive four-course career pathway sequences** that align with postsecondary programs and regional workforce opportunities (see Goal 2). Consider retiring CTE courses that do not align with postsecondary and industry opportunities or form part of state-approved pathway sequences.
- Ensure that, across all STARS areas or Career Cluster areas, students have access to **(1) intellectually challenging introductory courses** in which they can test and explore their interests through real-world, authentic projects that require them to draw upon academic, technical and technological skills to complete, and **(2) a progressively intensive sequence of advanced courses, capstone courses, dual credit courses and work-based learning courses** that prepare them to earn advanced industry and postsecondary credentials and degrees. Consider adopting a **statewide conceptual framework for introductory CTE courses** that ensures that all such courses are challenging, rigorous, exciting and expose students to potential careers in the state's critically important industries, especially in STEM-intensive fields. The state

should consider basing this framework on a project-based approach to instruction in which students complete a series of projects (e.g., six 6-week projects throughout the school year) that simulate real work experiences. For example, from project to project, students would move through job rotations, exploring different responsibilities and careers associated with the specific project and career field.

- Discontinue offering **singleton CTE courses** that are not part of career pathway programs of study developed in cooperation with employers and postsecondary partners.
- Where possible, use dual credit and/or online courses to **supplement schools' intermediate and advanced course offerings**, especially where resources or teaching staff are limited.
- Ensure that **every school offers at least two high-quality four-course career pathways**, depending on its size, resources, postsecondary partners and regional workforce needs.
- Expand access to **high-quality career pathway courses through the state's IDEAL-NM system**. Ensure that online CTE courses are as rigorous as CTE courses offered in traditional classroom settings. Trained teacher facilitators may be needed to support students' online learning activities.
- Use these online courses to ensure that **all students receive high-quality career pathway instruction**, especially in schools in which class sizes are extremely small or in which course enrollments may be limited to just one student.
- In small schools and/or rural districts with limited resources, **consider creating four-course Career Clusters-based sequences** that are more general in nature.
- In larger urban areas or districts, **consider expanding the range of career pathway options available to students by streamlining high school program offerings across schools**. Target resources to (a) enhance some existing programs and (b) replace other under-unenrolled or duplicative programs with challenging new programs that respond to state and regional workforce needs in high-demand industry sectors (see Goal 2). PED and districts may also wish to consider creating magnet programs of choice in selected high schools.

Leverage state and federal funds to incentivize school districts, community colleges, and employers to work with PED and HED to develop four-course career pathways that align with regional postsecondary programs and workforce needs in key state and regional industry sectors. See Goal 2 for more on alignment with key industry sectors.

- To qualify for incentive funds, PED, HED and DWS need to agree on ways to **jointly develop and administer** career pathways.⁷¹
- Fund career pathways that meet key conditions of **high quality**.

Continue to promote structured dual credit programs for career pathways and establish uniform statewide policies so students can earn credits toward high school graduation that are automatically added to their transcripts at community colleges and four-year institutions offering two-year degrees.

- Under the statewide dual credit policy, establish criteria through which HED and the state's postsecondary institutions **approve curricula, standards, benchmarks, assessments and teacher qualifications** for all career pathway dual credit courses.
- **Identify readiness benchmarks for participation in academic and CTE-related dual credit courses** that take into account the different literacy, math and science skills needed in those courses as well as the postsecondary certificate, credential and degree programs of which they form a part. Use the results of readiness assessments (e.g., the ACT, the PSAT, the SAT, the PARCC or the ASVAB, for example) to provide students with **supplemental supports in literacy and math**. Some students may need transitional readiness courses to prepare for dual credit courses, whereas other students may benefit from a co-requisite approach in which they take dual credit courses but receive extra literacy or math support at the same time. (See Goal 3 and Goal 5 for more on academic readiness for postsecondary study and strategies New Mexico can use to support career pathway students.)
- Structure the state's dual credit program to focus on **required academic courses or courses in state-approved career pathways**, not elective course work.
- Ensure that **dual credit CTE courses advance student progress toward credentials and degrees**. Dual credit courses must reflect truly college-level content and deepen students' knowledge and skills, instead of mirroring the introductory courses offered at the high school. Dual credit courses should enhance students' academic, technical and technological knowledge and skills; include rigorous assignments; and feature end-of-course assessments that are jointly developed by high school and college faculty.
- **Develop more high-quality dual credit courses** across all of the 16 national Career Cluster areas represented in STARS, especially for schools that lack the capacity to offer in-depth study in more than two CTE program areas.
- Create a **comprehensive statewide transfer and articulation agreement** for dual credit courses that is transparent to students, parents, schools and colleges.

⁷¹ See [California Senate Bill 1070](#) for an example of state legislation requiring the joint administration of career pathway funds.

- **Study existing dual credit eligibility requirements** and ensure that they are flexible enough to encourage broad student participation but also stringent enough to ensure that students are truly prepared for college-level studies.
- **Maximize student participation in dual credit courses** by making them truly free for the student and offering courses in high schools, community colleges *and* online.
- **Fund high schools and community colleges equitably** for students' time in dual enrollment courses.

Provide professional development to school administrators on how to develop and implement rigorous state-approved career pathways.

Involve industry and postsecondary partners in designing and aligning project-based career pathway assignments with industry, postsecondary, and college- and career-readiness standards. See Goals 3 and 4 for more on academic and technical readiness standards.

- PED, HED and state postsecondary institutions should partner to determine which state-approved career pathway courses have rigorous-enough assignments to **carry college credit or extra weight toward the GPA**, like AP, IB and honors courses.
- Use local, state and federal funds to develop an **online repository of rigorous field-tested career pathway assignments** developed by New Mexico CTE teachers and their postsecondary and industry partners.
- Commission **annual benchmarking studies** to assess a random selection of assignments and use the results to showcase exemplary work and inform future professional development efforts across the state.

Develop and use appropriate classroom assessment measures to capture the quality and rigor of curricula, instruction, work experiences and assignments in academic and career pathway courses.

- Use elements of nationally recognized (e.g., HSTW's Student Survey indices) and state-developed instruments (e.g., PED's 10-question Opportunity to Learn Survey) to **create new career pathway surveys** that query the presence or absence of integrated instruction, rigorous assignments and other elements of high-quality career pathway curricula and instruction. Such survey questions could potentially be added to end-of-course exams for CTE courses.

Goal 2 – Close the gap between career pathways and workforce opportunities.

Goal 2 – Literature Review

New Mexico needs to significantly increase the percentage of students who enter postsecondary education immediately after high school graduation and earn valuable credentials and degrees by their mid-twenties. To meet this goal, New Mexico can invest in career pathways that span secondary and postsecondary education and offer students clear, easy-to-follow road maps to advanced industry and postsecondary credentials and degrees and good jobs. As Goal 1 outlined, the state may need to develop new pathway curricula, adopt nationally recognized curricula or redesign existing curricula to meet postsecondary and industry standards. **Innovative, rigorous, relevant career pathways will help the state achieve the ambitious economic and workforce development goals expressed in the Jobs Council report.**

Like other states, New Mexico also needs to do more with less money. Across the nation, states are making the most of their Perkins dollars and limited economic and workforce development funds by employing **regional partnership and planning models** or **statewide sector strategy models** to meet workforce demands within key industry sectors.⁷² Sector strategies unite government, education and training, economic and workforce development, labor groups, and community organizations to align education and workforce systems, reduce inefficiencies and improve outcomes for employees, employers and regional and state economies. They also offer a mechanism through which to “integrate career pathway initiatives focused on the education and skills of workers with the kind of high-growth industry clusters that have been the focus of economic development initiatives for decades.”⁷³ Sector strategy approaches also draw in the many small- and medium-sized businesses that may otherwise lack the resources needed to engage directly with schools and colleges. **Incentives** — like tax credits for employers and bonus funds for high schools and community colleges — may be needed to encourage career pathway partnerships (see the sidebar).

After identifying its workforce needs, **Ohio** adopted a five-tier weighted funding formula that prioritizes pathways in high-demand fields: Tier I, for example, includes agricultural and environmental systems, construction technologies, engineering and science technologies, finance, health science, information technology and manufacturing technology.⁷⁴

Incentivizing Secondary, Postsecondary and Industry Partnerships

Many of the recommendations made in this report hinge on offering **incentives** to partners who create career pathways that lead to advanced industry and postsecondary credentials and degrees, and high-skill, high-wage jobs in critical industry sectors.

Such incentives include:

- **Career pathway-related scores** in New Mexico’s accountability system
- **Competitive state funds** for districts, schools and postsecondary institutions that develop, adopt or redesign pathways aligned with workforce needs in key industry sectors
- **Tax credits** for employers who provide work-based learning for students
- **Bonus funds** for district and community college partnerships that increase annually the percentage of students who enroll in postsecondary programs immediately after high school and earn advanced credentials by the age of 25
- **Bonus funds** for districts, schools and teachers who help students acquire advanced industry credentials
- **College credits** guaranteed to transfer among New Mexico’s postsecondary institutions
- **Diploma endorsements** for students who complete pathways and earn credentials
- **Scholarships for students** who, immediately after high school, enroll in postsecondary programs that lead to advanced credentials and jobs in industry sectors with critical workforce gaps

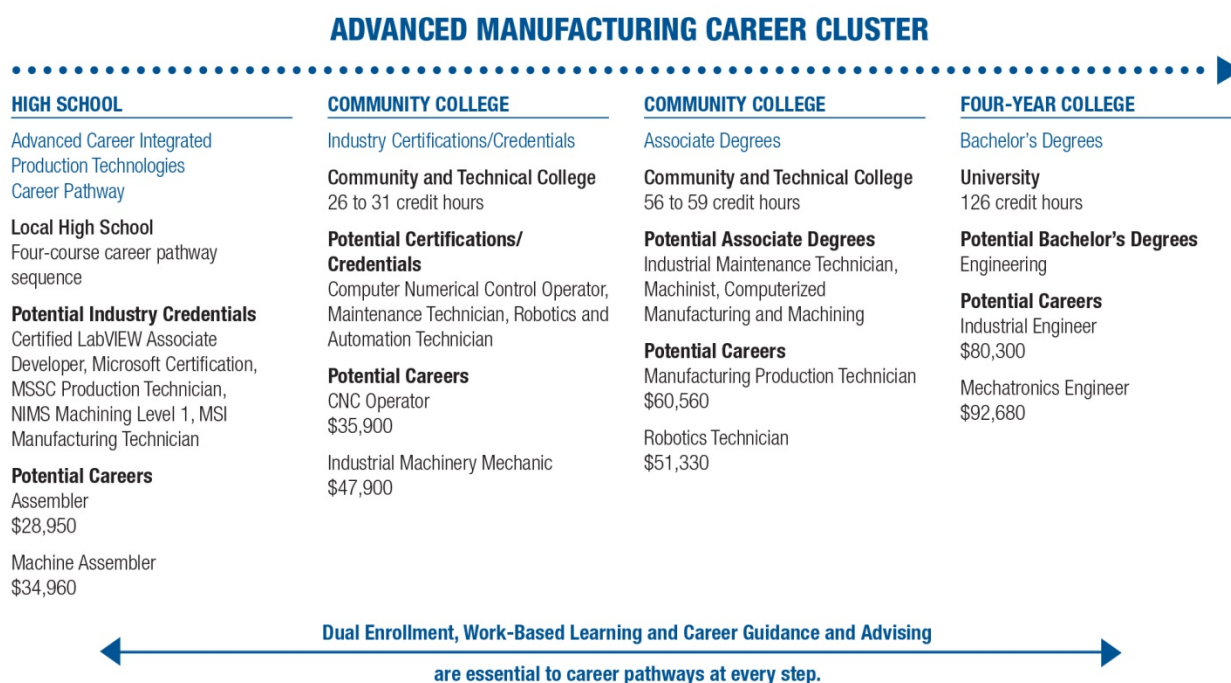
⁷² Gagne, Lord and Corrente, 2014.

⁷³ National Governors Association. *State Sector Strategies Coming of Age: Implications for State Workforce Development*. Governors Association Center for Best Practices, 2013, p. 2.

⁷⁴ *Budget Information: FY 2014 -15*. Ohio Association for Career and Technical Education, 2014. See www.ohioacte.org/budget.

Rigorous, relevant career pathways, designed in partnership with state, industry and postsecondary partners, align with postsecondary and industry standards and regional workforce needs. Figure 2 offers an example of the educational and career trajectory of a hypothetical New Mexico student who explored an Advanced Manufacturing pathway in high school. Advanced manufacturing was chosen for this example because it is a high-demand, high-wage field that requires strong STEM skills. After graduating from high school with an entry-level industry credential, this student secured a job paying nearly \$35,000 a year as a machine assembler at the same company where he or she job-shadowed and had a paid internship during high school. While working, the student applied the dual credits earned at the local community college toward a robotics and automation technician certificate. With this certificate, the student could seek a promotion to an industrial machinery mechanic position paying more than \$47,000 a year. He or she could also step back into the educational pipeline and earn an associate degree in computerized manufacturing and machining, which would lead to production or robotics technician positions. Or he or she could pursue a 126-hour bachelor's degree leading to even higher-paying jobs in industrial or mechatronics engineering.

Figure 2: Sample Career Pathway – Advanced Manufacturing



Tennessee is retooling its career pathway curricula to offer greater academic and technical rigor and align seamlessly with postsecondary programs linked to high-demand jobs. The state retired outdated courses and is developing new courses and revising existing courses to blend academic college- and career-readiness standards with technical standards. In a plant and soil science course, for example, one module's older standards required students to define terms related to soil chemistry and plant nutrition, perform soil pH analyses and assess plants for diseases. The revised standards require students to use their knowledge of plant growth and diseases to recommend treatments and prescribe preventive control measures for major crops. The module's technical standards are now linked with new college- and career-ready reading, writing and biology standards. The state plans to pilot new end-of-course assessments for revised courses in 2015-16.

Louisiana’s Jump Start initiative, launched in the fall of 2014, is a comprehensive approach to creating career pathways to industry credentials and postsecondary certificates and degrees approved by the state’s Workforce Investment Council. Regional teams of schools, community colleges, industry representatives and workforce development agencies create pathways that align with local jobs. Public–private partnerships help fund them. Pathways begin with a college-ready academic core, include elective career-planning courses in the ninth and 10th grades, and lead to more intensive career studies in grades 11 and 12. Extra time in the school day helps students earn advanced credentials. Schools and districts earn accountability rewards for students’ achievements.⁷⁵

Goal 2 – Findings

New Mexico Workforce Data

Table 14 illustrates the projected jobs within each of New Mexico’s 13 targeted economic sectors, per the Jobs Council report, as well as the number of students concentrating in the career pathways within those sectors. The table identifies gaps between projected job openings and career pathways. Employment data are derived from a report prepared by Ashley Leach at the DWS, along with Jobs Council report data. SREB was asked by PED’s College and Career Readiness Bureau to base its workforce gap analyses on the Jobs Council report.

In Table 14, Column 1 lists the economic sectors targeted as important for economic development by the state of New Mexico. Column 2 lists the CTE career pathways that match each sector. Programs within each pathway lead to jobs within the sector with which it is matched. Column 3, derived from a report on wage counts and employment totals and projections prepared for SREB by DWS economist Ashley Leach, shows the average hourly wage for all areas of employment within the sector. Columns 4 and 5 are derived from a DWS report on job projections for 2012-2022.⁷⁶ Column 4 shows the projected job growth over the ten-year period from 2012-2022, while Column 5 shows the average number of annual job openings over this ten-year period. It is important to note that these numbers are derived from U.S. Census data and reflect actual jobs reported. The 10-year projection is based on these data along with recent events and projected industry trends. This projection assumes that nothing will change to affect those trends.

⁷⁵ **Jump Start: Expanding Opportunities for Louisiana Students.** Louisiana Department of Education, February 2014.

⁷⁶ *New Mexico Employment Projections 2012-2022: Growth Trends of New Mexico’s Industries and Occupations.* New Mexico Department of Workforce Solutions, Economic Research & Analysis Bureau, November 2014.

Table 14: New Mexico Current and Projected Jobs by Economic Sector										
1	2	3	4	5	6	7	8	9	10	11
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Work-force Solutions – Avg. Hourly Wage	2014 New Mexico Employment Projections Report – Projected Job Growth, 2012-2022 ¹	2014 New Mexico Employment Projections Report – Annual Job Openings, 2012-2022 ¹	2013 Jobs Council Report – Projected Job Growth 2013-2023 ²	2013 Jobs Council Report – Annual Job Openings 2013-2023 ²	2014 Total Secondary Concentrators ³	2013 Total Post-Secondary Concentrators ³	Annual Gap Between Job Growth and Concentrators (Positive = More concentrators than openings, Negative = More openings than concentrators)	
									NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Agriculture	Agriculture, Food, & Natural Resources ⁶	\$13.23	-618	-62	3,000	300	295	26	383	21
									+	+
Back Office	Business Management & Administration	\$17.13	7,318	732	25,000	2,500	195	1,138	601	-1,167
									+	-
Digital Media	Arts, Audio/Video Technology & Communication ⁶	\$20.90	-161	-16	9,100	910	2,649	279	2,944	2,018
									+	+
Education Services	Education & Training	\$16.25	18,425	1,843	2,500	250	37	677	-1,129	464
									-	+
Emerging Technologies ⁴	Science, Technology, Engineering & Mathematics	No Data Available	No Data Available	No Data Available	1,000	100	699	458	No Data Available [^]	1,057
										+
Exported Services ⁴	Finance; Marketing Sales & Services; Arts, Audio/Video Technology & Communication ⁶ ; Architecture & Construction; Science, Technology, Engineering & Mathematics	\$20.65	9,012	901	15,000	1,500	4,976	1,340	5,415	4,816
									+	+

Table 14: New Mexico Current and Projected Jobs by Economic Sector										
1	2	3	4	5	6	7	8	9	10	11
Government	Government & Public Administration; Law, Public Safety & Security	\$21.45	-730	-73	8,100	810	353	674	1,100	217
									+	+
Health and Social Services	Health Science; Human Services	\$18.63	29,487	2,949	23,000	2,300	914	3,103	1,068	1,717
									+	+
Information Technology	Information Technology	\$33.08	43	4	16,000	1,600	197	226	419	-1,177
									+	-
Manufacturing	Manufacturing; Architecture & Construction; Transportation, Distribution & Logistics	\$28.08	385	39	15,000	1,500	1,488	1,375	2,825	1,363
									+	+
Oil, Gas, Mining Extractives/ Energy	Agriculture, Food, & Natural Resources	\$35.60	2,668	267	10,000	1,000	295	26	54	-679
									+	-
Solo/ Independent Work⁵		No Data Available	32	3	12,000	1,200	No Data Available	No Data Available	No Data Available	No Data Available
Tourism	Hospitality & Tourism	\$7.80	20,190	2,019	22,400	2,240	1,499	174	-346	-567
									-	-
Totals:			86,051	8,605	162,100	16,210	13,597	9,496	13,334	8,083

¹This projection is based on current employment data and industry trends. It assumes that there will be no change to the current trends over the next ten years.

²This projection is based on a consensus among industry experts. It indicates the number of jobs that could be created if action is taken to increase economic development.

³Students may have concentrations in more than one area. Concentrator numbers include these multiple concentrations, so they may not accurately reflect the actual number of students in each of these pathways. There may be fewer students than what is shown in these columns.

⁴Emerging Technologies is a small subset of Professional, Scientific and Technical Services, an industry within Exported Services. Because there is no detail regarding the breakdown of this area, it cannot be determined how many of these jobs fit into Emerging Technology. Therefore, all Professional, Scientific and Technical Services data are listed under Exported Services.

⁵This number is most likely underreported. Many jobs in the Solo/Independent category are captured in the other twelve economic sector categories. The data for these categories do not distinguish between individuals who are self-employed and those who are employed by an organization.

⁶The Agriculture, Food & Natural Resources cluster and the Arts, Audio/Video Technology & Communication cluster are each listed under two different sectors. This is because pathways in each of these clusters fit under different sectors. For example, in Agriculture, Food & Natural Resources, pathways in food processing, animal systems and plant systems fit under Agriculture, while pathways in natural resources fit under Oil, Gas, Mining and Extractives/Energy.

Column 6 shows employment numbers for each economic sector as reported in the Jobs Council report, which projects 10-year increases in the number of jobs available in each sector from 2013-2023. Column 7 shows the average annual number of job openings projected by the Jobs Council report for this ten-year period. Many of these projections differ greatly from the projections provided in the DWS report. It is important to note that unlike the projections provided by DWS, the Jobs Council projections consider changes to industry trends. These projections represent the number of jobs experts and industry leaders believe can *potentially be created* if certain actions are taken, like enacting state policies in support of key industries or offering incentives to secondary, postsecondary and industry partners that develop career pathways in those areas. The Jobs Council sought to determine the number of jobs that would be needed to reach pre-Recession employment levels over the next 10 years.

Columns 8 and 9 of Table 14 show the number of secondary concentrators and the number of postsecondary concentrators by Career Cluster area, respectively, as defined in the PED's Perkins Consolidated Annual Report (CAR) for 2013-14.⁷⁷ A secondary concentrator is:

A secondary student who has completed three courses or more in a single CTE program area, or one course in a two-course CTE program area, but only in those program areas where two course sequences are recognized by the state.

A postsecondary concentrator is a student who:

1. *completes at least 12 academic or CTE credits, of which 9 credits are CTE, within a single program area that is comprised of 12 or more academic and CTE credits and terminates in the award of an industry-recognized credential, a certificate or a degree; or*
2. *completes a short-term CTE program of less than 12 credit units that terminates in an industry-recognized credential, a certificate, or a degree.*

Columns 10 and 11 indicate the gap between the total number of concentrators (secondary and postsecondary) and the projected number of available jobs. This gap was calculated for the projections given by the DWS report and again for the Jobs Council report. SREB researchers calculated the gap by simply dividing the 10-year projection by 10 to arrive at the projected number of new job openings per year, then subtracting this number from the total number of concentrators. A positive number in these columns indicates that there are projected to be more annual concentrators than available job openings in that area. A negative number indicates that there are projected to be more annual job openings than concentrators.

SREB's approach to conducting a gap analysis can be illustrated using **Agriculture** as an example. The Agriculture sector is related to the Agriculture, Food and Natural Resources Career Cluster. Career pathways or programs within this Cluster lead to jobs within the sector. The average hourly wage for all employment areas within the Agriculture sector is \$13.23. **According to the DWS report, the number of jobs in this area will decrease by 618 jobs from 2012-2022. Yet the Jobs Council report projects that it may be possible to create 3,000 jobs in Agriculture by 2023.** According to PED Perkins Consolidated Annual Report (CAR) data, there were 295 concentrators in the Agriculture, Food and Natural Resources Career Cluster at the secondary level, and 26 concentrators at the postsecondary level. Table 10's gap analysis columns (Columns 10 and 11) show that there will be 383 more

⁷⁷ Carl D. Perkins Career and Technical Education Improvement Act of 2006 (P.L. 109-270). 2013-2014 Consolidated Annual Report, July 1, 2013 – June 30, 2014. New Mexico Public Education Department, 2014, pg. 24.

concentrators than job openings projected by DWS, and that there will be 21 more concentrators than job openings projected in the Jobs Council report.

Note that due to the broad way in which the Jobs Council report organized and defined industry sectors, some industry sectors overlap each other and contain duplicative Career Clusters. This made interpreting workforce data difficult (Table 15 crosswalks the different industry sector names used in New Mexico with the 16 national Career Clusters). **As such, the analyses offered below and included in the regional SWOT analyses (see Section 2) should be treated as preliminary and suggestive.**

SREB strongly recommends that New Mexico engage in an extensive analysis of state and regional workforce data, including the input of expert labor market economists, to ensure that the Jobs Council's industry sectors and workforce projections can be reconciled with DWS data as well as employers' perceptions of existing and emerging areas of job growth. Such a study should include an analysis of the skills required in the state's most critical industry sectors.

Table 15: Crosswalk of New Mexico Industry Sectors and the 16 National Career Clusters

New Mexico Economic Development Department: Industry Sectors Targeted for Development	New Mexico Jobs Council: Industry Sectors	16 National Career Clusters
Value-Added Agriculture	Agriculture	Agriculture, Food and Natural Resources
Back Office and Technical Support	Back Office	Business Management and Administration
	Information Technology	Information Technology
Digital and Emerging Media	Digital Media	Arts, Audio/Video Technology and Communication
Advanced Manufacturing	Manufacturing	Architecture and Construction
Aerospace and Defense		Manufacturing
Distribution, Logistics and Transportation		Transportation, Distribution and Logistics
Energy and Natural Resources	Oil, Gas, Mining Extractives/Energy	Agriculture, Food and Natural Resources
Technology and Commercialization/ Emerging Technology	Exported Services	Finance
		Architecture and Construction
		Arts, Audio/Video Technology and Communication
	Emerging Technologies	Marketing Sales and Services
		Science, Technology, Engineering and Mathematics
	Education Services	Education and Training
	Government	Government and Public Administration
		Law, Public Safety and Security
		Health Science
	Health and Social Services	Human Services
	Solo/Independent Work	
	Tourism	Hospitality and Tourism

As Table 14 shows, across DWS and Jobs Council job projections, the state as a whole appears to be most significantly **over-producing CTE concentrators** in:

- **Exported Services** (an area spanning multiple Career Clusters, including Finance; Marketing; Arts, A/V and Communications; Architecture and Construction; and STEM)
- **Digital Media** (Arts, A/V and Communications Cluster)
- **Manufacturing** (spanning the Manufacturing; Architecture and Construction; and Transportation, Distribution and Logistics Career Clusters).
- **Health and Social Services** (Health Science and Human Services Clusters).

Jobs Council data show that the state may be **under-producing CTE concentrators** in:

- **Back Office** (Business Management and Administration Cluster).
- **Information Technology** (Information Technology Cluster)
- **Oil, Gas, Mining, Extractives and Energy** (Agriculture, Food and Natural Resources Cluster).
- **Tourism** (Hospitality and Tourism Cluster).

Across these sectors, Information Technology (\$33.08) and Oil, Gas, Mining, Extractives and Energy (\$35.60) offer the highest average hourly wages. Tourism is the least well-paid of the Jobs Council report sectors, at an average hourly wage of just \$7.80.

DWS data show that the state may be **under-producing CTE concentrators** in:

- **Education Services** (Education and Training Cluster)
- **Tourism** (Hospitality and Tourism Cluster).

An Alternative Approach to Workforce Data Analysis

The previous analyses were based on the number of reported CTE secondary and postsecondary concentrators matched with workforce data obtained from DWS and the Jobs Council report. SREB urges caution in interpreting these workforce data analysis results. Merely linking currently existing career pathways with broad economic sectors is not enough to determine whether there is truly an adequate supply of persons equipped with the right skills to meet workforce needs in the 21st-century economy envisaged in the Jobs Council report. Although SREB's analyses suggest that good jobs do appear to be available in certain traditional career fields, existing career pathways are not equipping New Mexico's high school students with the academic, technical, technological, cognitive and 21st-century skills demanded by the 21st-century economy. **SREB recommends that New Mexico further disaggregate its workforce data in order to uncover previously unknown skills gaps and determine whether New Mexico's students are being prepared with the skills they need for the modern workforce.**

As a supplement to the findings described above, researchers examined New Mexico workforce data sources *without* including CTE secondary and postsecondary concentrator numbers. Table 16 shows the projected job growth trends that emerged from an analysis of DWS and Jobs Council data that did not include CTE concentrator numbers.

Table 16: New Mexico Projected Job Growth, 2013-23

Industry Sectors	Projected Job Growth*
Technology Support	25,000
Health Care Services	23,000
Tourism	22,240
Advanced Manufacturing	15,000
Finance	15,000
Energy and Natural Resources	10,000
Aerospace and Defense	8,100
Agriculture Production and Business	3,000
Emerging Technologies	1,000

Source: * New Mexico Jobs Council Report, 2013.

Some of the top areas of projected growth were **Technology Support**, **Health Services**, **Tourism** and **Advanced Manufacturing**. Additional workforce data for each of these top sectors, in addition to **Emerging Technologies** and **Energy and Natural Resources**, are provided below. Note that these sectors align with the top-ranked areas for career pathway development identified by surveyed stakeholders: Health Care Services, Energy and Natural Resources, Emerging Technologies and Technology Support (see Table 17).

Advanced Manufacturing. Jobs in this sector involve planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities. These activities include production planning and control, maintenance and manufacturing/process engineering. Between 2010 and 2020, the fastest-growing jobs in this area are projected to include carpenter helpers, brick masons, block masons and stonemasons, machine feeders and off beaters.⁷⁸ As of February 2015, New Mexico's top 20 online job postings in this area included tractor-trailer truck drivers (1,111 jobs) and laborers, freight/stock/material movers (521 jobs).⁷⁹

Emerging Technologies. Jobs in this sector involve hardware design, development, support and management and software and systems integration services. They also involve optics/photonics, sensors, biomedical, nano-technology, and cyber-security. Between 2010 and 2020, the fastest-growing jobs in this area are projected to include database administrators, software developers, systems software and logisticians.⁸⁰

Energy and Natural Resources. Jobs in this sector involve energy and extraction (energy production facilities, natural gas, coal, wind, solar, geothermal, biomass, nuclear), oil and gas (production, transport and refinement), mining, and uranium processing. Between 2010 and 2020, the fastest-growing jobs in this area are projected to include riggers, roustabouts, derrick operators and service unit operators.⁸¹

Health Care Services. Jobs in this sector involve planning, managing and offering therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. Between 2010 and 2020, the fastest-growing jobs in this area are projected to include home health aides, personal and home care aides, diagnostic medical sonographers, physical therapist assistants, physical assistant aides, physical therapists, medical secretaries and health educators.⁸² As of February 2015, New Mexico's top 20 online job postings in this area included registered nurses (4,952 jobs), physicians and surgeons (811 jobs), physical therapists (582 jobs), occupational therapists (529 jobs), medical and health service managers (491 jobs), licensed practical and vocational nurses (472 jobs), nurse practitioners (463 jobs), and speech-language pathologists (411 jobs).⁸³

Technology Support. Jobs in this sector involve planning, organizing, directing and/or evaluating business services, along with such areas as data processing, call centers, accounting, payroll services, sales and procurement. As of February 2015, the top 20 online job postings in this area included customer service representatives (1,273 jobs), retail salespersons (1,119 jobs), retail supervisors (683 jobs), general managers (663 jobs), sales managers (506 jobs), executive secretaries and administrative assistants (451 jobs) and tellers (440 jobs).⁸⁴

⁷⁸ *New Mexico Annual Social and Economic Indicators*. DWS, 2014.

⁷⁹ *New Mexico Labor Market Review*, Volume 44:2. DWS, 2014.

⁸⁰ *New Mexico Annual Social and Economic Indicators*. DWS, 2014.

⁸¹ *Ibid.*

⁸² *Ibid.*

⁸³ *New Mexico Labor Market Review*, Volume 44:2. DWS, 2014.

⁸⁴ *Ibid.*

Tourism. Jobs in this sector involve the management, marketing and operations of restaurant and food services, lodging, attractions, recreation events and travel-related services. Between 2010 and 2020, the fastest-growing jobs in this area are projected to include entertainment attendants, food preparation and servers.⁸⁵ As of February 2015, New Mexico's top 20 online job postings in this area included supervisors of food preparation (481 jobs).⁸⁶

CTE Course Analysis Data

SREB analyzed CTE course data and outlined the eight most prevalent three- or four-course career pathway programs in the state (see Table 4 in Goal 1). The workforce gap analyses reported in Table 14 show that the state may be under-producing CTE concentrators in the areas described below. For a detailed summary of existing three- and four-course career pathway course sequences available in the state, see Table 2.

- **Business.** SREB's course data analyses found that 32 programs around the state offer three-course sequences in Business (31 of which rise to the level of four-course sequences). Business is the most prevalent program in all four WIOA regions of the state (see Tables 2 and 3 in Goal 1). In general, Business course offerings tend to be broad and shallow rather than focused and deep, although some schools are offering solid three- to four-course career pathways in areas like business management and accounting. Many courses are introductory (e.g., word processing, keyboarding, introductory business, general business or consumer business math). Higher-level course offerings are available, like accounting, financial services and business ethics.

As noted, although researchers found evidence that **Marketing** programs are popular in the schools in which they are offered, such programs typically lack connections to regional postsecondary institutions.

No programs appear to focus on business-related career pathways that include content from multiple Career Clusters, like Business, Information Technology and Health Science. Pathways like these may help meet workforce needs in the Back Office sector identified in the Jobs Council report.

- **Education.** SREB found that seven programs around the state offer a three-course sequence in FACS/Child Development (with six rising to the level of a four-course sequence) and just two Teacher Education programs (under Public, Protective and Social Services) offer three-course sequences (only one of these programs rises to the level of a four-course sequence). Across schools, child development and related teacher education courses tend to be confined to the same few largely introductory courses. Opportunities to take advanced high school or dual credit courses or engage in work-based learning are limited, as are opportunities to earn industry credentials in this area.
- **Information Technology.** SREB found that just 14 programs across the state offer three-course career pathways in the Computer and Information Sciences (eight of which rise to the level of four-course pathways). These pathways span several areas — Graphics, Networking, Programming and an "Other" category that includes Technology Assisting. Overall, SREB's course data analyses showed that many of the courses being taken in this STARS area appear introductory in nature, and many are repeated as dual credit. Such courses must be redesigned with more advanced content and assignments. Few intensive

⁸⁵ *New Mexico Annual Social and Economic Indicators*. DWS, 2014.

⁸⁶ *New Mexico Labor Market Review*, Volume 44:2. DWS, 2014.

course sequences are offered in specific areas of computer science like programming, networking, coding or design. No programs appear to emphasize the use of information systems. Few opportunities to earn industry-recognized credentials tied to high-skill, high-wage workforce opportunities currently exist in this area.

- **Oil, Gas, Mining, Extractives and Energy.** SREB's course data analyses found that no high school career pathway programs are preparing students for postsecondary studies and careers that are specifically focused on the state's diverse energy sources and natural resources. However, Agricultural Mechanics, Automotive Technology and Precision Metalwork (Welding) are among the most common three- or four-course career pathways in the state. Drawing on these programmatic strengths, New Mexico should retool some of these programs to meet the needs of this important sector.
- **Tourism.** Across the state, SREB found 32 three-course programs (27 of which rise to the level of four-course programs) categorized under **FACS: Culinary Arts** and **FACS: Lodging Management or Hospitality and Tourism**. Researchers also found a few Hospitality-related courses less than 0200: Business. Many existing **Culinary** programs feature the ProStart curriculum, but comparatively few offer truly intensive advanced high school and dual credit courses and internship experiences. SREB received little data with which to determine whether these ProStart programs also culminate in ProStart credentials. Only a few **Hospitality** programs were identified across the state (3 three-course, 2 four-course). Few advanced, capstone and dual credit courses exist in this area.

SREB's alternative workforce data analyses (see above) showed additional areas of need:

- **Advanced Manufacturing / Emerging Technologies.** Few New Mexico high schools currently offer courses in **Advanced Manufacturing** under 1600: Technology Education. Just one high school was identified as offering a three-course pathway in this area. Courses infrequently offered in this area included materials and processes, metal and wood technology, manufacturing systems and production systems. 1600: Technology Education also includes engineering-related courses from the Project Lead the Way (PLTW) **Pre-Engineering** curriculum. Researchers found a few PLTW pre-engineering programs around the state: Nine offered three-course pathways and just three offered four-course pathways. Researchers also noted that a few of these programs appear to report PLTW end-of-course exams as industry-recognized credentials.
- **Health Care Science.** Researchers found only a few high schools offering health-related pathways in the areas of **Pre-Nursing** or **Medical Assisting**. Statewide, just 11 high schools offered three-course pathways and eight offered four-course pathways in this area. Other potential pathways remain undeveloped. These include, but are not limited to, areas like **Sports Medicine** and **Emergency Medical Technician**. In most cases, researchers found that schools offered just one or two courses in these or other health science areas — not enough to constitute either a four-course or even a three-course sequence. Some courses offered in this area clearly align with industry-recognized credentials like Certified Nurse Assistant (CNA), Licensed Practical Nurse (LPN), or Emergency Medical Technician (EMT), among others, but researchers were only infrequently able to confirm that high school students had earned these credentials. New Mexico must ensure that pathways in Health Science are of high quality and reflect the breadth of workforce opportunities that exist in health today.

Stakeholder Survey Data

SREB's surveys asked selected stakeholder groups — business leaders, community representatives, parents, postsecondary administrators, principals and CTE teachers — to rank-order, from among a list of nine high-demand industry sectors identified in the Jobs Council report, the sectors in which they would most like to see career pathway programs spanning high school and postsecondary education developed. Table 17 summarizes respondents' weighted responses to this question for the state as a whole (see Technical Appendix B for an explanation of the weighting process). As the table shows, the most popular sectors were **Health Care Services**, followed by **Energy and Natural Resources**, **Emerging Technologies** and **Technology Support**.⁸⁷

Note that stakeholders' most-desired career pathways do not neatly align with SREB's analysis of state and regional workforce gaps. (See Table 14 and following discussion.) Given the issues researchers uncovered in the process of analyzing Jobs Council and DWS data, SREB urges New Mexico to commission and fund a comprehensive study of state and regional workforce data that draws on the expertise of labor market economists and seeks to reconcile the differences between Jobs Council, DWS, U.S. Bureau of Labor Statistics and other national workforce projections.

Detailed suggestions related to the development or adoption of regionally responsive career pathways in the areas of health, energy and STEM are offered in the Recommendations section.

Table 17: Survey Respondents' Top Three Most Desired Career Pathways by Sector

Rank	Business Leaders (n = 101)	Community Leaders (n = 89)	Parents (n = 204)	Postsec. Admin. (n = 19)	Principals (n = 128)	Teachers (n = 234)
1	Health Care Services	Health Care Services	Emerging Technologies	Health Care Services	Health Care Services	Health Care Services
2	Energy & Natural Resources	Energy & Natural Resources	Energy & Natural Resources	Emerging Technologies	Energy & Natural Resources	Technology Support
3	Emerging Technologies	Emerging Technologies	Technology Support	Technology Support	Emerging Technologies	Emerging Technologies

Note. Career pathway sector options included: (1) Advanced Manufacturing; (2) Aerospace, Space Defense; (3) Agriculture Production & Business; (4) Emerging Technologies; (5) Energy & Natural Resources; (6) Financial Services; (7) Health Care Services; (8) Technology Support; and (9) Tourism. Some Jobs Council sector names were slightly revised to make them more comprehensible to the general public.

Surveyed stakeholders did not express a great deal of confidence in the alignment of the state's existing high school and postsecondary career pathways with local industries or workforce needs. As Table 18 shows, although slightly more stakeholders

⁸⁷ In some cases, titles reflect slightly revised, simplified versions of Jobs Council report sectors. "Energy and Natural Resources" was substituted for "Oil, Gas, Mining, Extractives and Energy." "Emerging Technologies" is a Jobs Council sector that includes optics/photonics, biomedical, water and environmental technologies, bio-tech, nano-technology, energy and cyber-security. "Technology Support" was substituted for "Integrated IT/Cyber," the Jobs Council title, to make it easier to understand for a lay audience.

appeared to believe that local career pathway programs align with local industries, fewer stakeholders believed that those programs were producing enough graduates to meet local workforce needs.

Table 18: State Summary – Survey Respondents’ Perceptions of Program Alignment with Industry and Workforce Needs

Respondents	Career Pathway Programs Align with Local/Regional Industries		Career Pathway Programs Meet Local Workforce Needs	
	High School	Comm. College	High School	Comm. College
	Answered Yes	Answered Yes	Answered Yes	Answered Yes
Business (<i>n</i> = 133)	20%	32%	8%	9%
Community (<i>n</i> = 127)	39	44	10	8
Postsec. Admin. (<i>n</i> = 19)	26	--	16	--
Principals (<i>n</i> = 124)	35	--	35	--

Goal 2 – Recommendations

Commission and fund a comprehensive study of state workforce needs that includes a survey of employers regarding areas of existing and emerging job growth. Examine and compare employer survey results with available New Mexico Jobs Council data, New Mexico Department of Workforce Solutions data and U.S. Bureau of Labor Statistics data, among other sources.

Prioritize the investment of state and federal funds to develop rigorous career pathways that align with regional postsecondary programs and workforce needs in key industry sectors experiencing a shortage of skilled workers.

- Establish a **state career pathway council** comprised of PED, HED, DWS and other economic and workforce development agencies, labor organizations and employers. Charge this council with:
 - (a) identifying critical state and regional industry sectors;
 - (b) determining workforce needs in those sectors through careful analysis of Jobs Council, DWS and national employment data;
 - (c) determining the skill requirements associated with these industry sectors;
 - (d) establishing procedures for developing or adopting new career pathways and redesigning or retiring pathways that do not prepare students to earn postsecondary credentials or secure good jobs in these sectors; and
 - (e) establishing a state-level career pathway approval process to ensure quality and consistency across pathways developed regionally.
- **Consider reducing or consolidating** the number of available career pathway programs in over-represented career pathway areas or in areas in which the state may be overproducing graduates.
- Ensure that all career pathways are designed as part of a system of **stackable credentials and degrees with multiple entry and exit points** to postsecondary attainment and career advancement. (See Figure 2 for an illustration of such a pathway.)
- Work with external providers, districts, and state postsecondary institutions to **audit career pathways** for quality and alignment with workplace expectations.

- Promote career pathway programs in **high-demand workforce areas** identified by the state to schools, parents and students.

Conduct curriculum audits of existing CTE course offerings and career pathway programs in which the state may not be producing enough high school and postsecondary graduates to meet existing and emerging workforce demands.

- First, examine how well existing career pathway courses **align with state and regional workforce gaps and industry needs**. Ensure that the knowledge and skills being taught in these pathways prepare students for postsecondary study and meet the needs of employers. (See Section 2, the SWOT analyses, for more on educational and workforce opportunities identified in the state's four WIOA regions.)
- **Develop rigorous homegrown, state-approved, industry-validated career pathway curricula or adopt nationally recognized curricula in areas in which the state may be under-producing graduates (see Table 14), like Business, Education, Information Technology, Oil, Gas, Mining, Extractives and Energy, and Tourism.** All career pathways should emphasize project-based instruction. In most cases, the recommendations made below include specific suggestions for larger versus smaller high schools.
 - In the area of **Business**, the state can either develop homegrown, state-approved, industry-validated pathways to meet identified workforce needs or adopt nationally recognized curricula. At present, as noted, many courses offered in this area are introductory. Such courses should be streamlined and combined with more higher-level course offerings in complete four-course pathways. All business-related pathways also need to emphasize industry certifications. SREB recommends that the state examine its existing business course offerings and programs of study across the state, and determine whether all courses and programs are aligned with (1) today's workforce requirements and opportunities within the Back Office sector, as well as (2) career pathways in business-related Career Clusters like:
 - **Business Management & Administration**, with career pathways in General Management, Business Information Management, Human Resources Management, Operations Management and Administrative Support.⁸⁸
 - **Finance**, with career pathways in Securities & Investments, Business Finance, Accounting, Insurance, and Banking Services.⁸⁹
 - **Marketing**, with career pathways in Marketing Management, Professional Sales, Merchandising, Marketing Communications and Marketing Research.⁹⁰

The state should consider whether career pathways that span two or more Career Clusters (e.g., Business, IT, Health Science), like the **Informatics** pathway developed by **Kentucky** or the **Health Informatics** pathway developed by **Ohio**, could help meet Back Office workforce needs. For schools interested in adopting career academies, the **National Academy Foundation (NAF)** has developed an **Academy of Finance** that New Mexico may wish to evaluate for

⁸⁸ See <http://www.careertech.org/business>.

⁸⁹ See <http://careertech.org/finance>.

⁹⁰ See <http://careertech.org/marketing>.

its larger high schools. Courses in such an academy should include the core content areas plus courses in the principles of finance, applied finance, business in a global economy, work-based learning, internships and financial services. At least one large high school in each of the state's four WIOA regions should feature Business-related pathways like these.

Smaller high schools may be best served by a four-course career pathway offered in a hybrid online plus classroom setting. Students would choose four out of at least six courses (e.g., basic accounting, business management, word processing, introductory digital technology, sales and marketing, and networking systems).

As an example of a career pathway spanning the Business and Transportation, Distribution and Logistics Career Clusters, New Mexico may also wish to consider adopting a logistics-related career pathway. At least one large high school in each WIOA region should offer a logistics and business-related pathway.

- In the area of **Education**, PED, HED and regional postsecondary institutions can partner to develop career pathways in teacher education and child development that prepare students for further study and careers as P20 educators and administrators.
- In the area of **Information Technology**, SREB urges New Mexico to consider developing or adopting career pathway curricula that emphasize project-based, career-focused applications of technology in a broad range of computer science and IT-related fields like coding, programming, network technology and informatics. **NAF's Academy of Information Technology** could be appropriate for schools interested in a career academy structure. PED may also wish to partner with HED and computer science and information technology departments at regional postsecondary institutions to develop regionally-appropriate, industry-responsive career pathways in specific areas of IT. In addition to associate and bachelor's degrees, many nationally recognized curricula and related certifications (e.g., **CISCO**, **CompTIA**) exist in this area.

Smaller high schools should consider offering, for example, a four-course IT Network Support Specialist pathway featuring courses in programming, networking systems and at least two progressively intensive computer applications courses.

This area may also be well served by a career pathway that takes a broad-based approach to STEM and IT.

- In the area of **Oil, Gas, Mining, Extractives and Energy**, New Mexico is uniquely positioned to develop its own **industry-responsive career pathways** that align with the needs of employers who manage the state's diverse energy resources. PED, HED and regional postsecondary institutions can partner with major regional employers to develop one or more career pathway programs that directly link high schools to regional postsecondary institutions and employer-sponsored training programs. At least one large high school in each WIOA region should adopt an energy-related pathway.

Texas is currently developing a career pathway in **Oil and Gas**, in partnership with postsecondary institutions and major employers in the state. This pathway focuses on the extraction process and the movement of related products.

South Carolina's Clean Energy Technology pathway allows students to apply the fundamentals of physics, geography, chemistry, biology, geometry, algebra and the engineering design process to solve authentic problems involving motors and generators, photovoltaic systems, water and energy conservation, wind turbines, biofuel generation, bioreactors, water power, energy harvesting, fuel cells and nuclear power. **West Virginia's Energy and Power** pathway includes courses that focus on the foundations of energy and power, energy and transmission distribution, electronics and control systems, and engineering systems. **Farmington High School** will implement this pathway in 2015-16.

- In the area of **Tourism**, New Mexico should carefully consider the types of programs it seeks to develop or enrich, given the low average hourly wage of some jobs in this sector. Tourism includes a broad range of “front of the house” and “back of the house” jobs in food service, lodging and entertainment. Many of these jobs require advanced education and training and a broad range of skills that include other Career Cluster areas — including Business. All Tourism-related career pathway curricula should emphasize advanced industry certifications and credentials.

New Mexico should strengthen its existing **Culinary** programs by deepening adoption of the complete **ProStart curriculum** and related certifications (e.g., ProStart, ServSafe) developed by the National Restaurant Association Educational Foundation (NRAEF). ProStart is already in use in a number of schools around the state.

Smaller high schools may be best served by a four-course pathway sequence that includes food and nutrition, food science (designed to count toward state graduation requirements in science) and at least two progressively intensive culinary arts courses. Such a curriculum should feature real work experiences blended with classroom instruction, and emphasize food preparation, customer service, purchasing, menu planning and restaurant management.

New Mexico is a beautiful state, with many opportunities in the area of **Hospitality**, especially in major metropolitan areas with a strong tourist economy. To develop its Hospitality pathways, New Mexico might consider, for example, the curriculum and certifications developed by the **American Hotel & Lodging Educational Institute** (AHLEI), an extension of the American Hotel & Lodging Association (AH&LA). For schools interested in adopting career academies, New Mexico could also consider **NAF's Academy of Hospitality & Tourism**. Experiences in these pathways should include opportunities to visit top hotels and resorts in the state.

- Adopt or develop **additional innovative career pathways in other critical sectors**, especially those identified by surveyed stakeholders (see Table 15), as below.
 - In the area of **Health Care Services**, SREB recommends that New Mexico expand access to **Project Lead the Way's Biomedical Science** curriculum in

at least one large high school in each WIOA region. Researchers found that a few of New Mexico's high schools currently offer courses from this curriculum, but none offer a complete three- or four-course sequence. The state may also wish to consider a career academy model like **NAF's Academy of Health Sciences** for larger high schools.

Working in partnership with regional postsecondary institutions, New Mexico should also enrich and expand existing health science pathways in **pre-nursing/medical assisting, sports medicine, emergency medical technician** and related fields to align with workforce needs. At present, courses in these areas are already aligned with industry-recognized credentials like Certified Nurse Assistant (CNA), Licensed Practical Nurse (LPN), Emergency Medical Technician (EMT) Basic or Intermediate, and many others. Opportunities to earn these and other advanced, stackable credentials must be greatly expanded.

For smaller high schools, a hybrid health science pathway might consist of a strong sequence of math and science courses combined with courses in nursing, physical therapy, medical records management and medical terminology. The intent of such a pathway would be to offer broad preparation for a range of postsecondary health science programs.

All health science-related pathways should prepare students with the advanced math, science and technical skills that will help them advance beyond entry-level health care jobs and into further postsecondary study.

- The broadly defined area of **Emerging Technologies** can be served by innovative career pathways that prepare students for a wide range of STEM-related careers. New Mexico may wish to develop or adopt a career pathway that introduces students to a wide range of potential STEM careers, like **Arkansas's Innovations in Science and Technology** pathway. **Alamogordo High School** is implementing this career pathway.

To meet the needs of its military and aerospace employers, New Mexico may wish to consider expanding access to **Project Lead the Way's engineering curriculum**, adopting a career academy model like **NAF's Academy of Engineering** or extending and enriching such programs with curricula developed by **VEX Robotics**, for example. SREB researchers found some PLTW pre-engineering programs around the state.

Emerging Technologies also encompasses the modern, computer-based field of **Advanced Manufacturing**. At present, few New Mexico high schools offer courses in this area. Here, especially in larger high schools, the state may wish to consider developing a manufacturing career pathway in partnership with regional employers. In smaller high schools, which may lack the student base to offer an advanced manufacturing curriculum, the state may wish to build career pathways consisting of courses in carpentry, electrical and/or plumbing (e.g., construction technology courses) along with more specialized courses in industrial maintenance, small motor repair and welding, plus capstone and internship courses. All such courses must be upgraded and organized around challenging, project-based instruction.

Consider developing or adopting regionally-responsive career pathways in the following industry sectors. (See Table 19.)

Table 19: Regional Career Pathway Recommendations by Industry Sector

Jobs Council Industry Sector / Jobs*	WIOA Region			
	Northern	Central	Eastern	Southwestern
Agriculture — Note that the average hourly wage in this sector is low: \$13.23. Jobs in this area involve farming and ranching, production green-housing, processing and packaging, arid agriculture, genetics and food security.	x	x	x	x
Back Office (Technology Support) — Jobs in this area involve call centers, accounting, sales, procurement, and payroll service jobs.	x	x	x	x
Digital Media — Jobs in this sector involve film, television, video gaming and testing, modeling, and simulation.	x		x	x
Extractives/Energy — Jobs in this sector involve energy production facilities, natural gas, wind, solar, geothermal, biomass and nuclear.	x	x	x	x
Government — Jobs in this area involve work with the federal government, like the United States Forestry Service and departments of defense, health and social services, energy, homeland security, education, transportation, commerce, agriculture, treasury and the environment.		x	x	
Information Technology — Jobs in this area involve commercial transaction security, software engineering and data storage.	x	x	x	x
Tourism — Note that the average hourly wage in this sector is low: \$7.80. Jobs in this area involve conferences and meetings, destination entertainment, ecotourism, retirement living, transportation, hospitality and gaming.	x		x	x

* Potential career pathway recommendations for the four WIOA regions are based on analyses of workforce data (see Table 14 and the SWOT analysis, Section 2) that include the CTE concentrator variable. SREB recommends that the state commission and fund a comprehensive study of available workforce data (e.g., DWS data, Jobs Council workforce projections, BLS data).

Goal 3 – Set college- and career-readiness standards in literacy and math.

Goal 3 – Literature Review

Although states differ in their **college- and career-readiness standards**, most agree that college-ready students are prepared to succeed, without remediation, in entry-level, credit-bearing postsecondary courses in fields that lead to industry-relevant certificates, credentials and degrees.⁹¹

Although New Mexico does not have an official definition of college and career readiness, it has demonstrated a strong commitment to the New Mexico Common Core State Standards (NMCCSS) and to the PARCC assessment. In particular, PED has worked to support the NMCCSS by expanding teacher access to its Core PD (professional development) system, offered through Solution Tree. Further, within the state's school improvement plan system, the Web Educational Plan for Student Success (Web EPSS), academic goals are stated as "Core Ready Literacy" and "Core Ready Mathematics."

In 2009, SREB's Committee to Improve High School Graduation Rates and Achievement noted that it may take time for all students to meet academic readiness standards for four-year college study.⁹² **SREB strongly urges the state to commission and fund a comprehensive study of the foundational literacy and math skills New Mexico's students need to be academically ready for the full spectrum of postsecondary education and training programs available statewide** — including early advanced credential programs; work-based learn-and-earn programs; apprenticeships; community college certificate, credential and associate degree programs; and baccalaureate and graduate degree programs offered by four-year colleges and universities.

Kentucky (see the sidebar) offers an example of a state that studied these foundational literacy and math skills and subsequently established both **academic college-readiness standards and rigorous academic career-readiness standards** that prepare students for the full array of postsecondary and advanced training options, not just four-year college degrees. Kentucky educators and policymakers embraced

Kentucky's College- and Career-Ready Accountability Model

Kentucky's accountability model defines **college readiness** as the academic preparation a student needs to succeed in entry-level, credit-bearing college courses without the need for remediation. Students must meet benchmark ACT scores in English (18), reading (20) and math (19 for introductory math, 22 for college algebra and 27 for calculus) or meet SAT or placement test benchmarks, to be considered college-ready.

The state defines **career readiness** as the level of academic and technical preparation a high school graduate needs to progress in a career pathway, whether that is postsecondary and training, acquisition of an industry certification or an entry-level job.

Career readiness is further subdivided into **academic career readiness and technical career readiness**. Academic career readiness is defined as scoring at the 50th percentile or higher on the Armed Services Vocational Aptitude Battery (ASVAB) exam or by obtaining a silver or higher certificate on ACT's WorkKeys assessment. Technical career readiness is defined as passing either a state technical skills assessment (the Kentucky Occupational Skill Standards Assessment) or an industry certification exam. To qualify as career-ready, students must be enrolled in one of the state's 96 career pathways.

Students can be identified as **both college-ready and career-ready**, provided they meet college-ready academic and career-ready academic and technical requirements.

⁹¹ Spence, David, 2013. See also David T. Conley. *A Complete Definition of College and Career Readiness*. Educational Policy Improvement Center, 2012. See also American Institutes for Research. *Overview: State Definitions of College and Career Readiness*. College & Career Readiness & Success Center, AIR, 2014.

⁹² *The Next Generation of School Accountability: A Blueprint for Raising High School Achievement and Graduation Rates in SREB States*. SREB, 2009.

these academic college- and career-readiness standards in order to help *all* students prepare for further studies after high school and increase the number of students who complete advanced credentials, associate degrees and bachelor's degrees in fields with identified workforce needs. Kentucky also used its accountability system to incentivize districts and schools to increase the number of students who graduate ready for a full spectrum of postsecondary and career options.

Differentiating curriculum and instruction to meet students' diverse career and postsecondary goals is essential to college- and career-readiness efforts. A number of organizations have sought to identify the fundamental literacy, math and science skills needed to successfully complete postsecondary education and workplace training programs.⁹³ Most researchers agree that not all postsecondary education and training programs require the same levels of academic preparation.

Although a core set of literacy, math and science standards may meet the needs of many or even most students, experts agree that further research is needed on the academic preparation required for community college non-degree programs leading to well-paying jobs (i.e., programs resulting in certificates or credentials, not associate degrees).⁹⁴ This need is especially great given the exceptionally high rates of remediation — 60 percent or more at community colleges⁹⁵ — and low rates of on-time degree attainment — 56 percent at four-year institutions and 29 percent at two-year or community colleges⁹⁶ — reported in the literature on college access and completion. Students who fail to complete college on time rarely finish, and many leave in substantial debt and with few marketable skills.⁹⁷

To increase students' academic readiness, New Mexico should carefully reevaluate the academic courses its high schools offer — especially math — and develop new courses in line with students' career and college goals.⁹⁸ Research shows that, outside of specialized STEM fields, many postsecondary programs and occupations only require Algebra I, geometry, statistics and the kinds of math required in many careers.⁹⁹ Math instruction should focus on the skills required in the career fields and education students plan to pursue. For example, students interested in careers in STEM or the health sciences may need Algebra II and beyond. Students interested in other careers may benefit from math pathways that include Algebra I, geometry, statistics and other courses that emphasize real-world math applications.

⁹³ See *Beyond the Rhetoric: Improving College Readiness through Coherent State Policy*. National Center for Public Policy and Higher Education (NCPPE) and SREB, 2010, and *State Policies to Support a College- and Career-Readiness Agenda*, SREB, 2013. See also *The Condition of College and Career Readiness 2013*. ACT, 2013, and *Readiness Matters: The Impact of College Readiness on College Persistence and Degree Completion*. ACT, 2013.

⁹⁴ *Ibid.*

⁹⁵ Thomas Bailey. "Challenge and Opportunity: Rethinking the Role and Function of Developmental Education in Community College." *New Directions for Community Colleges: Policies and Practices to Improve Student Preparation and Success*. Eds. Andrea Conklin Bueschel and Andrea Venezia. Jossey-Bass, 2009. 11-30. See also *No Time to Waste: Policy Recommendations for Increasing College Completion*, SREB, 2010.

⁹⁶ Symonds, Schwartz and Ferguson, 2011.

⁹⁷ NCPPE and SREB, 2010.

⁹⁸ *State Policies to Support a College- and Career-Readiness Agenda*. SREB, 2013. See also David T. Conley, *A Complete Definition of College and Career Readiness*. Educational Policy Improvement Center, 2012.

⁹⁹ See James R. Stone III and Cara DiMattina. *What is College and Career Ready Math?* National Research Center for Career and Technical Education (NRCCTE), 2013. See also National Center on Education and Economy (NCEE). *What Does It Really Mean to be College and Work Ready? The Mathematics Required of First Year Community College Students*. NCEE, 2013.

NRCCTE researchers mapped the math concepts and skills associated with an ACT math score of 22, ACT's benchmark for college readiness, against math syllabi from three states and the Common Core State Standards. They found that the math knowledge and skills needed for college readiness were largely found in middle school math, Algebra I and geometry. They then mapped the math knowledge and skills required for entry into specific middle-skill occupations and found that although the skills required were slightly higher, they were still located in the same courses.

Similarly, in a study of academic requirements for first-year community college students, NCEE researchers found that only one program in one college required students to demonstrate mastery of Algebra II; most required only the fundamentals of Algebra I and placed a heavier emphasis on geometry, statistics and middle school math: "arithmetic, ratio, proportion, expressions and simple equations."

Research also shows that **all career pathways need to place a greater emphasis on literacy**. One study found that community college reading requirements are set at the 11th- or 12th-grade level — a level that many high school graduates have not achieved.¹⁰⁰ Such findings show the need to integrate literacy across the curriculum, especially in career pathways. New Mexico has already demonstrated its commitment to integrating literacy in CTE through its implementation of SREB's HSTW school improvement model in high schools across state, as well as in its applications for Perkins funding. New Mexico can build on initiatives like these in future efforts to enhance literacy.

PED should work with community colleges to establish **college- and career-readiness standards for literacy and math** and select a common assessment (such as the ACT, the PSAT, the SAT, the PARCC or the ASVAB) that all students would take in the 10th or 11th grade to measure their readiness for postsecondary education — including employer-sponsored training programs, community colleges, and four-year colleges and universities. At present, New Mexico's partnership with **the College Board** allows all 10th-graders to take the PSAT for free. Based on their PSAT results, students can participate in a Khan Academy individualized study plan to prepare for the SAT. The state also uses the College Board's AP Potential reports to identify students who need more structured supports to achieve college readiness.

Whatever strategies it adopts, New Mexico needs to ensure that all students, not just those intending to pursue four-year degrees, are targeted with readiness supports that prepare them for a full range of postsecondary and career options. For example, New Mexico can use the results of academic readiness assessments to place juniors and seniors who need extra help in transitional math and literacy readiness courses that (1) promote the higher-order reasoning skills students need to apply math skills, functions and concepts across settings and (2) teach strategies for reading and understanding complex texts in all subjects. New Mexico's districts and community colleges can work together to develop such courses, or consider adopting nationally available curricula.

Tennessee's SAILS (Seamless Alignment and Integrated Learning Support) initiative is a collaborative approach that prepares students for postsecondary studies. Tennessee juniors who score less than a 19 on the math portion of the ACT are required as seniors to take a community college developmental math course — Bridge Math, which counts as a fourth math credit toward graduation. SAILS blends Bridge Math with community college learning support math competencies. Students who pass Bridge Math enroll in credit-bearing math once they enter college. SAILS is also offered in a self-paced, hybrid online environment in which students complete six modules. In the first year of statewide scale-up, 8,400 students in 118 high schools participated, with support from all 13 of the state's community colleges. Eighty-one percent completed the equivalent of a community college developmental math course; 71 percent completed all of the community college learning support competencies and were ready for college-level math.¹⁰¹

To support students in achieving college- and career-readiness standards, New Mexico's academic and CTE teachers — and their principals — need intensive professional development on how to incorporate applied literacy and math in their instruction and assignments. **New Mexico's Common Core PD system** offers one model of how to deliver professional development. However, because this system currently primarily supports academic teachers, future efforts must target expanding intensive professional development to CTE teachers statewide.

¹⁰⁰ *What Does It Really Mean to be College and Work Ready? The English Literacy Required of First Year Community College Students*. NCEE, 2013.

¹⁰¹ See <http://www.chattanooga.state.edu/high-school/sails>.

Originally developed by the Bill & Melinda Gates Foundation and now disseminated by a number of organizations nationwide, the **Literacy Design Collaborative (LDC)** improves how teachers teach and students learn.¹⁰² LDC has a flexible framework that lets teachers of all disciplines, except math, plan instruction that engages students in reading grade-level texts and presenting their knowledge through authentic written products. The LDC framework embeds literacy standards through an *instructional planning process* in which teachers create a series of reading and writing tasks. Teachers identify the specific literacy skills students need to succeed at a task. Both reading and writing are foundational skills that aid students in learning new content. Teachers at **Las Cruces High School in Las Cruces, New Mexico**, are using LDC to advance their students' literacy achievement and content knowledge. LDC provides professional development in this area.

Also developed by the Gates Foundation, the **Mathematics Design Collaborative (MDC)**¹⁰³ provides schools with instructional tools needed to help teachers understand and implement college- and career-readiness standards effectively while allowing them the flexibility to select topics and adapt assignments to their specific instructional plans. **MDC** uses formative assessment lessons (FALs) to engage students in a productive struggle that builds fluency with their procedural skills and deepens mathematical reasoning and understanding. Students participate in both individual and group learning as teachers use FALs and questioning to check for students' understanding and to correct common misconceptions. Rather than following predetermined steps to find an answer, students are supported to deepen their mathematics reasoning to solve problems. The MDC process equips teachers with research-based strategies and a process for analyzing learning in the mathematics classroom. To fully implement the formative assessment lessons, teachers need to understand changes in classroom instruction and have the support to make the changes. Teachers at **Highland High School in Albuquerque, New Mexico**, have adopted MDC (see the sidebar). The Mathematics Assessment Project offers MDC professional development for teachers.

Taking a Bite Out of Common Core Math One Unit at a Time, Using MDC Formative Assessment Lessons

Math teachers at Highland High School (HHS) in Albuquerque, NM, embraced two new ideas in their classrooms in the fall of 2012: (1) how to use TI-Nspire graphing calculators and TI's Navigator System, and (2) how to offer instruction following the Mathematics Design Collaborative (MDC) model of formative assessment lessons (FALs).

Participating team members quickly realized that MDC was all about formative assessments, and the TI-Nspire/Navigator systems gave them a terrific formative assessment tool. Highland's schedule enabled participating teachers to work as a team with their math coach during their common planning time. The team inserted the FALs into their calculators and used them to gather immediate student feedback during lessons.

Other national initiatives provide frameworks for enhancing math, science and literacy achievement. The **Math-in-CTE**, **Science-in-CTE** and **Authentic Literacy** models developed by the federally funded National Research Center for Career and Technical Education use workplace learning to teach advanced math and science concepts and improve students' reading comprehension and vocabulary.¹⁰⁴

Goal 8 discusses professional development for teachers and administrators in greater detail.

¹⁰² See <http://ldc.org/>.

¹⁰³ See <http://collegeready.gatesfoundation.org/wp-content/uploads/2015/05/Tools-for-Teachers-by-Teachers.pdf>

¹⁰⁴ See <http://www.nrccte.org/professional-development>.

Goal 3 – Findings

Other Data Sources

It has already been noted that New Mexico lacks an official definition of college and career readiness in state policy. The state also lacks uniform course requirements for entry into state colleges and universities.¹⁰⁵ However, the state has demonstrated a strong commitment to the CCSS. And as a PARCC (Partnership for Assessment of Readiness for College and Careers) member state, New Mexico began phasing out use of its end-of-course Standards Based Assessments (SBAs) in favor of the PARCC assessment in 2014-15.¹⁰⁶

New Mexico's Standards Based Assessments

By whatever measure, New Mexico's high school students are overwhelmingly not meeting readiness benchmarks in literacy, math or science. As Table 20 shows, in 2013-14, 62 percent of 10th-graders scored below Proficient in reading and 70 percent scored below Proficient in math. Although comparatively few students took an SBA in science, 55 percent of these students scored below Proficient.

Table 20: 2013-14 Standards Based Assessment Proficiency Rates of New Mexico 10th-Graders

Subject (N)	Beginning Step (%)	Nearing Proficient (%)	Total Below Proficient (%)	Proficient (%)	Advanced (%)	Total Proficient and Above (%)
Reading (N = 23,054)	20.9	41.3	62.2	32.6	5.1	37.7
Math (N = 23,038)	17.4	52.2	69.6	25.5	4.9	30.4
Science (N = 284)	19.7	35.6	55.3	35.9	8.8	44.7

Source: New Mexico Accountability Data: [Proficiencies State, District and School, by Grade 2014](#). PED, 2014.

ACT Scores

Among 2014 New Mexico high school graduates who took the ACT (12,945 students, about 69 percent of all graduates), **18 percent met ACT's college readiness benchmarks in English, reading, math and science.**

It is important to note that students' achievement in math and science are closely linked with their abilities to read and comprehend grade-level texts and express their understanding of those texts in writing and orally. As long as New Mexico's high school students struggle with literacy, they will also struggle to achieve in math and science. Enhancing achievement in all areas will require schools to build *all* teachers' capacity to plan instruction that engages students in reading grade-level texts and presenting their knowledge through authentic written products.

¹⁰⁵ Education Commission of the States. *Blueprint for College Readiness State Profile: New Mexico*. ECS, 2014. See <http://www.ecs.org/html/educationIssues/blueprint/StateProfiles/NMStateProfile.pdf>.

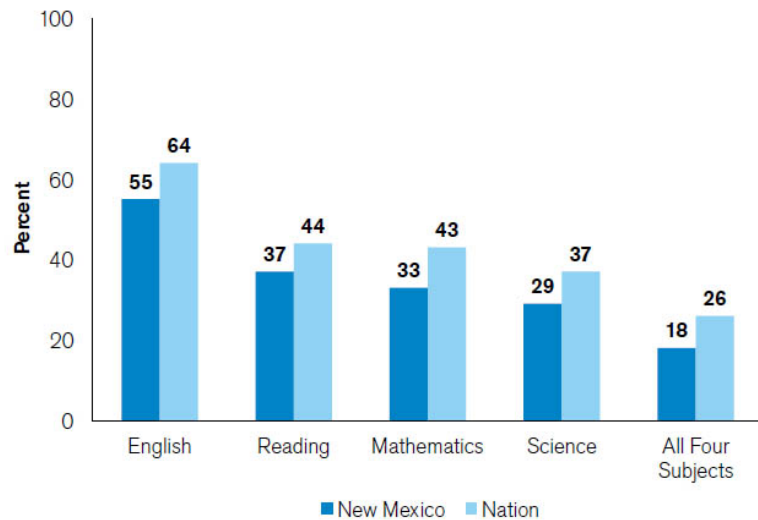
¹⁰⁶ See <http://ped.state.nm.us/ped/NMPARCCIndex.html>.

Figure 3 shows that New Mexico graduates who took the ACT **fell below national averages in each of these four subjects**. If 100 percent of New Mexico's graduates took the ACT, these scores would likely be lower.

As depicted in Figure 4, ACT data also reveal that many of New Mexico's tested graduates are **three or more points away from meeting readiness benchmarks**. Transitional readiness courses in literacy and math could help the state greatly reduce the percentage of students falling short of these benchmarks.

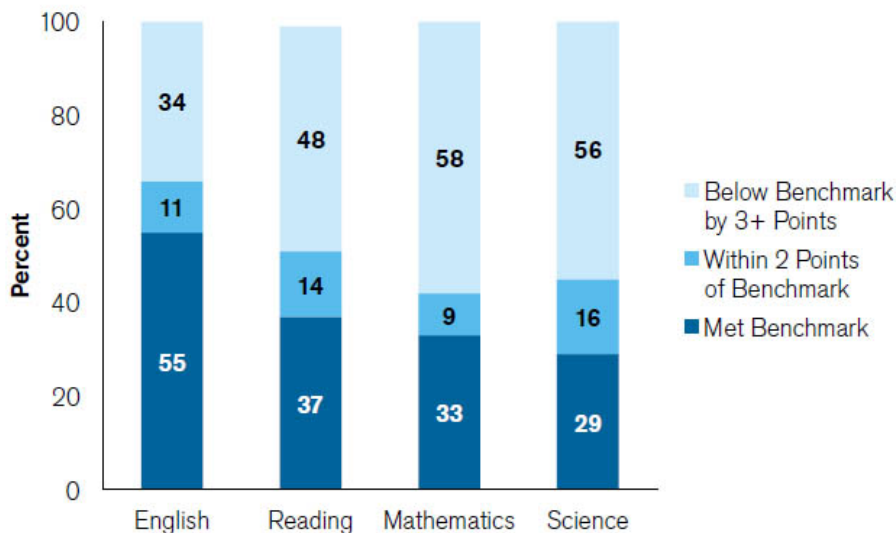
Figure 4 shows that far more students are three or more points away from meeting benchmarks than are within two points of meeting those benchmarks. Fifty-eight percent of students are three or more points away from meeting ACT's college readiness benchmark in math, with just 9 percent within two points of meeting that benchmark. Nearly half (48 percent) of tested graduates are three or more points away from meeting the college-readiness benchmark in reading. Fifty-six percent are three or more points away from meeting the benchmark for science.

Figure 3: Percent of 2014 ACT-Administered High School Graduates Meeting ACT College Readiness Benchmarks by Subject



Source: *The Condition of College & Career Readiness 2014: New Mexico*. ACT, 2014.

Figure 4: Percent of 2014 ACT-Administered High School Graduates by ACT College-Readiness Benchmark Attainment and Subject



Source: *The Condition of College & Career Readiness 2014: New Mexico*. ACT, 2014.

Students hoping to succeed in STEM studies and careers must be well prepared in math and science. Among the graduates who took the ACT in 2014 who indicated an interest in STEM, **only 41 percent met readiness benchmarks in math, and just 36 percent met benchmarks in science.**¹⁰⁷

Stakeholder Survey Data

Survey data show that external stakeholders — business leaders and community representatives — harbor concerns about how well New Mexico’s high school CTE programs are preparing students academically. About half of surveyed business leaders (51 percent, $n = 133$) felt that high school CTE programs were preparing students with adequate literacy skills; fewer business leaders felt high school programs were preparing students with math (45 percent) and science (32 percent) skills.

As will be shown in Goal 4, business leaders also harbor strong doubts about students’ technical, soft, and critical thinking skills. More community representatives ($n = 127$) felt that high school CTE programs were doing an adequate job of preparing students in literacy (71 percent), math (58 percent) and science (59 percent). However, among community representatives who responded to a question about strengths and weaknesses in students’ employability skills, 38 percent said there were gaps in students’ math skills and 31 percent identified problems with students’ reading and writing skills.

Postsecondary administrators reported that most incoming students require remediation. Nearly one-thirds of surveyed postsecondary administrators ($n = 19$) said that more than 75 percent of incoming students from local high schools are required to take remedial courses. Another 37 percent said that between 25 and 75 percent needed remediation. Administrators did not appear sanguine regarding the chances of such students going on to complete a certificate or degree. Twenty-one percent guessed that under 25 percent would go on to complete a certificate or degree, and nearly half (47 percent) did not know. **These data clearly suggest the need for junior- or senior-year transitional readiness courses and intensive professional development to prepare high school faculty to teach these courses.** By investing in such courses and related professional development, the state would save money currently being wasted on remedial education.

CTE teachers were not uniformly confident about their students’ abilities to thrive in community college programs. Asked about current seniors in their CTE classes, just 34 percent of surveyed teachers ($n = 245$) were confident that 81 percent or more of their students had the skills to do well at a community college. About one-quarter believed that 61 to 80 percent of their students would do well.

Student survey responses reveal that CTE students may not be receiving the kinds of robust, integrated curriculum and instruction that can help them achieve readiness benchmarks. As described in Goal 1, SREB’s student surveys asked New Mexico CTE students about the presence or absence of key indicators of rigorous CTE assignments (Tables 6 and 7), rich literacy experiences (Tables 8 and 9), a balanced approach to mathematics instruction (Tables 10 and 11), and a school climate in which assignments matter (Table 12 and 13). Tables 6 through 13 outlined these key indicators and then compared New Mexico student survey results with 2014 HSTW Student Survey results. HSTW survey results also included the percentage of students meeting readiness goals in reading, math and science.

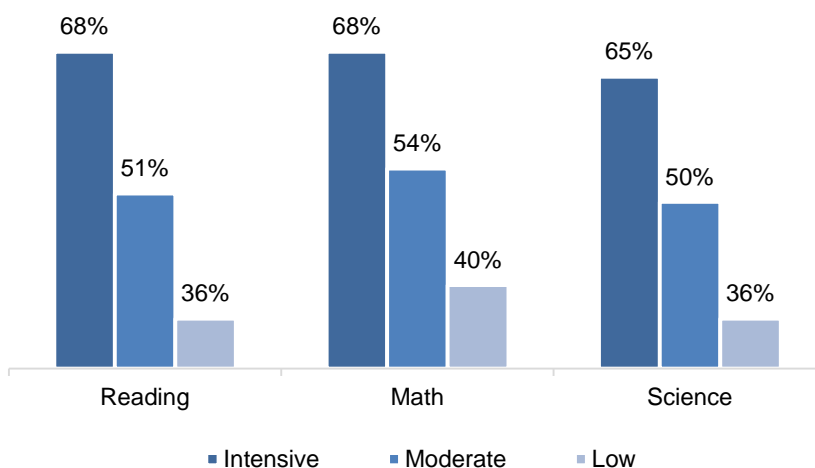
¹⁰⁷ ACT, 2014.

Figures 5, 6, 7 and 8, help explain how students' exposure to robust, integrated curricular and instructional experiences to contribute to their academic achievement in reading, math and science.

Indicators of Rigorous CTE Assignments

Table 7 showed that less than half of New Mexico CTE students who responded to SREB's survey reported experiencing indicators of rigorous CTE assignments at an intensive level. SREB's 10 indicators of rigorous assignments include, for example, asking students to predict outcomes, develop logical arguments, conduct background research, make inferences from information about how to solve a problem, apply academic and technical knowledge and skills, write research papers, develop and test hypotheses. Figure 5 visually depicts the connection between HSTW students' experiences of rigorous CTE assignments and their readiness outcomes in reading, math and science. **Rigorous CTE assignments are clearly linked with markedly better outcomes in all three areas.**

Figure 5: Percentage of HSTW Students Meeting Readiness Goals by Rigorous CTE Assignments (n = 14,776)

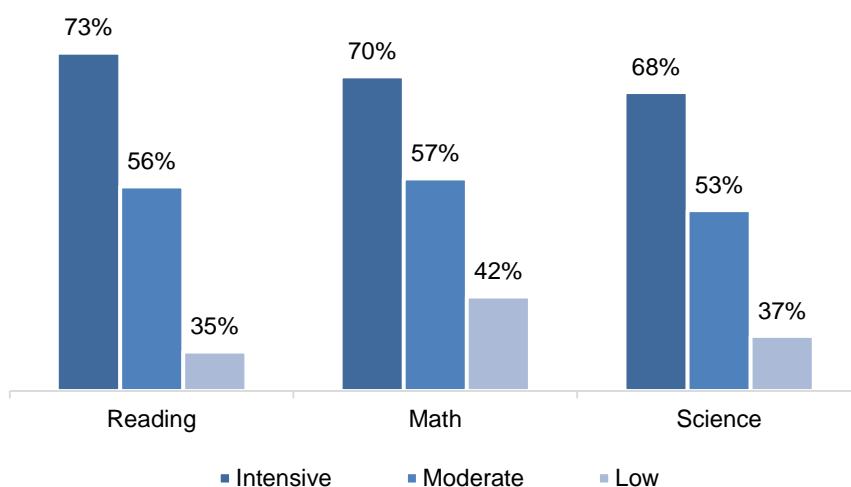


Note. Intensive = 5-10 indicators; Moderate = 2-4 indicators; Low = 0-1 indicators. *Source:* 2014 HSTW Student Surveys, CTE students only.

Indicators of Rich Literacy Experiences

Table 9 showed that slightly more than one-third of New Mexico CTE students who responded to SREB's survey reported encountering rich literacy experiences at an intensive level at their school. Such experiences include reading challenging materials, completing an extended project, making inferences from information to develop a solution, completing writing

Figure 6: Percentage of HSTW Students Meeting Readiness Goals by Rich Literacy Experiences (n = 14,776)



Note. Intensive = 7-9 indicators; Moderate = 4-6 indicators; Low = 0-3 indicators. *Source:* 2014 HSTW Student Surveys, CTE students only.

assignments that make them defend their thinking, and analyzing works of literature in their English classes. Figure 6 shows the connection between HSTW students' exposure to rich literacy experiences and their readiness outcomes. **Literacy is essential to every aspect of education: As students' literacy skills increase, so do their skills in all other curricula.** Goal 3

Recommendations show how New Mexico can use powerful literacy strategies to increase students' readiness for postsecondary education and careers.

Indicators of a Balanced Approach to Math Instruction

Table 11 showed that only about half of New Mexico CTE students who responded to SREB's survey reported experiencing indicators of a balanced approach to math instruction at an intense level.

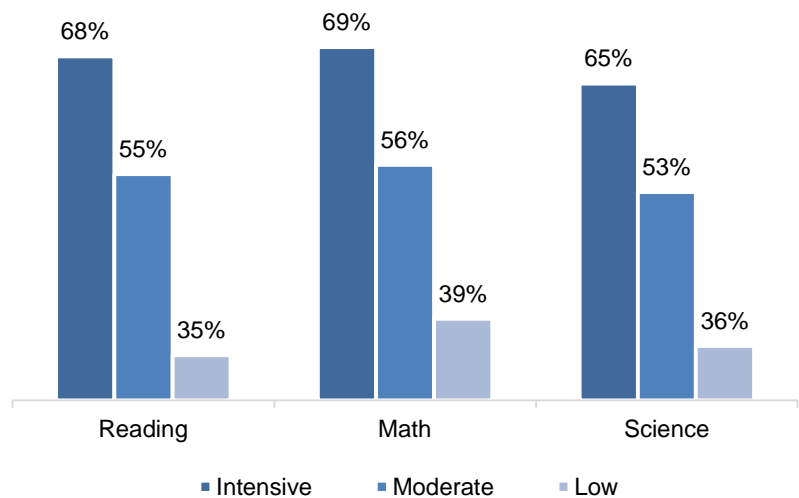
A balanced approach to math instruction includes encouraging students to understand math concepts instead of memorizing them, offering students feedback instead of telling them what to do, giving students problems that require multiple steps to solve, guiding students' understanding through questioning and explaining, and using math to solve complex problems related to a student's CTE area. Figure 7 shows the connection between HSTW students' exposure to a balanced approach to math instruction and their readiness outcomes.

This instructional approach clearly impacts math readiness but may also contribute to better outcomes in other academic areas, like science, that require critical thinking, reasoning and problem-solving skills.

Indicators of Assignments Matter

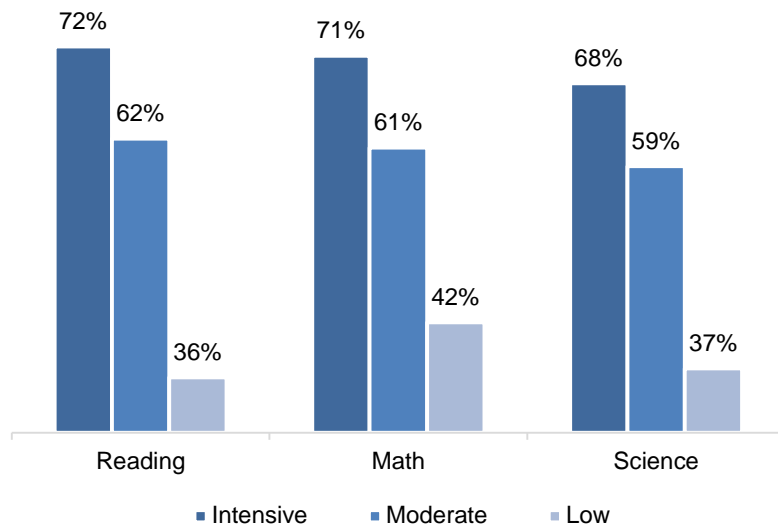
Table 13 showed that less than half (44 percent) of New Mexico student survey respondents reported an intensive

Figure 7: Percentage of HSTW Students Meeting Readiness Goals by Balanced Approach to Math ($n = 14,776$)



Note. Intensive = 6-9 indicators; Moderate = 3-5 indicators; Low = 0-2 indicators. *Source:* 2014 HSTW Student Surveys, CTE students only.

Figure 8: Percentage of HSTW Students Meeting Readiness Goals by Assignments Matter ($n = 14,776$)



Note. Intensive = 8-11 indicators; Moderate = 5-7 indicators; Low = 0-4 indicators. *Source:* 2014 HSTW Student Surveys, CTE students only.

level of exposure to a school climate in which assignments matter in all academic and CTE courses. In a culture in which assignments matter, students work in teams and help each other learn, see the relevance of what they are learning and the real world, read and analyze complex texts and demonstrate their understanding of those texts through written products, apply knowledge and skills from different areas to complete assignments, and develop and analyze tables, charts and graphs, among other indicators. Figure 8 shows that among HSTW survey respondents, intensive exposure to a school climate in which assignments matter is strongly associated with readiness in reading, math and science.

New Mexico can change the cultures of its high schools by providing intensive professional development support to all teachers that is designed to help them construct multi-day assignments that are engaging, complex, challenging and meaningful. Career pathways offer teachers a medium through which to integrate academic and technical instruction and enhance students' academic and technical achievement.

Goal 3 – Recommendations

Launch a statewide effort to build the capacity of all middle grades and high school teachers to create reading and writing tasks that embed literacy standards across the curriculum and result in raising student achievement in both academic and career pathway-related courses.

Launch a statewide effort to build the capacity of all middle grades and high school math teachers to (a) enhance students' procedural fluency in math and (b) use formative assessment lessons to advance students' abilities to reason, understand and apply math concepts to multi-step conceptual and applied problems.

Commission and fund a comprehensive study of the foundational literacy and math skills New Mexico's students need to be academically ready for the full spectrum of postsecondary education and training programs available statewide – including early advanced credential programs; work-based learn-and-earn programs; apprenticeships; community college certificates, credential and associate degree programs; and baccalaureate and graduate degree programs offered by four-year colleges and universities.

- Use the outcomes of this study to **establish benchmark cut scores of academic college- and career-readiness** on multiple validated, nationally normed assessments (e.g., the ACT, the PSAT, the SAT, the ASVAB or the PARCC) that predict success in both postsecondary degree (i.e., associate and bachelor's degree) programs and postsecondary certificate and employer-sponsored advanced training programs.
- With guidance from HED and state postsecondary institutions, consider setting **different cut scores for non-STEM programs.**
- Ensure that **academic readiness standards for each career pathway reflect the requirements of the field** — for example, students preparing for STEM- or health science-related certificate and degree programs will need an advanced algebra pathway.
- Outline recommended **college-ready academic sequences** for each career pathway.

- Develop state guidelines to inform the ongoing **development and revision of academic and technical curricula and instructional approaches** to meet the state's academic college- and career-readiness standards.
- Ensure that **curriculum and instruction in both secondary and postsecondary institutions** are aligned with the state's college- and career-readiness standards.

Use state-approved sophomore- or junior-year academic readiness assessments (e.g., the ACT, the PSAT, the SAT, the PARCC or the ASVAB) as a measure of students' academic preparedness for college and advanced training programs.

- Use these readiness assessments as the basis of an **early warning system** that identifies students who need extra help meeting readiness benchmarks. Use the junior and senior years of high school to prepare students for success in credit-bearing postsecondary courses.
- Allow local districts and schools, especially New Mexico's Supplemental Accountability Model (SAM) schools (see Goal 9), which serve high proportions of students at risk of educational failure, to **use assessments like the ASVAB, ACT's WorkKeys and the TABE¹⁰⁸** to measure postsecondary readiness and target students for individualized academic supports in the junior and senior years of high school. New Mexico can capitalize on existing arrangements to offer such assessments. For example, DWS holds an open-use contract that allows all students to take the WorkKeys free of charge.
- Work with two- and four-year postsecondary institutions to **adopt or develop junior- and senior-year transitional literacy and math courses** that count as fourth English or math credits. Allow students who pass these courses to be exempted from developmental education at the postsecondary institution. Ensure that teachers receive **intensive professional development** in how to deliver these transitional courses.

¹⁰⁸ Tests of Adult Basic Education. See <http://www.ctb.com/ctb.com/control/productFamilyViewAction?productFamilyId=608&p=products>.

Goal 4 – Identify technical and workplace readiness standards and assessments.

Goal 4 – Literature Review

Today's jobs demand that individuals acquire both occupationally specific technical knowledge and a broad range of skills suitable for the larger industry. Employers also require **workplace readiness skills** – sometimes referred to as **employability skills**, **soft skills** or **21st-century skills** – that include the ability to think critically, analyze information, anticipate and solve problems, communicate effectively, function on a team, follow directions, find and use information, and adapt to new technology.¹⁰⁹ Personal qualities like integrity, motivation, persistence, reliability and willingness to learn are also important.

High-quality career pathways use instructional strategies like project-based learning, work-based learning, and enriched co-curricular activities like career and technical student organizations to teach students technical- and workplace-readiness skills. All high school curricula, not just career pathway courses, should teach and assess these skills.

PED, HED, workforce agencies and employer associations can work together to set technical standards for career pathways at the secondary and postsecondary levels and identify appropriate, industry-driven measures of technical and workplace readiness in those pathways.

Many states use **industry certification examinations** developed by third-party industry bodies to assess preparation for an industry or job.¹¹⁰ Also known as **industry-recognized credentials** or **industry-based certifications**, these differ from examinations developed by software or equipment companies that measure whether students have acquired a narrow range of skills tied to specific software programs or technologies. Unlike postsecondary credentials and certificates, which resemble degrees and are awarded based on seat time, industry certifications are generally earned based on assessments of competency¹¹¹ and are more portable, flexible and responsive to changing industry standards.¹¹² Industry credentials also differ from work readiness certifications, like ACT's National Career Readiness Certificate,¹¹³ that signal general employability skills.

SREB's Criteria for Review of Industry Certification Examinations

Essential Criteria:

- Examination is standardized
- Examination is independently graded
- Examination is knowledge-based
- Examination is available nationally
- Examination provides a recognized credential
- Results are available immediately
- Cut scores exist
- Examination represents employer relevance
- Correlations are available

Necessary Criteria:

- Preparation and classroom contact hours equal or exceed one Carnegie Unit.
- Blueprint information and sample questions represent a 12th-grade level of work.

Desirable Criteria:

- Follows appropriate psychometric and test development procedures
- High quality is continually maintained
- Includes accommodations
- Protects candidate's identity

Source: SREB, 2009.

¹⁰⁹ The Employability Skills Framework was developed by the Office of Career, Technical and Adult Education at the U.S. Department of Education: <http://cte.ed.gov/employabilityskills>. See also *P21 Framework Definitions*. Partnership for 21st Century Skills, 2009.

¹¹⁰ Stone, 2013. See also Kenneth Bartlett. *The Signaling Power of Occupational Certification in the Automobile Service and Information Technology Industries*. NRCCTE, 2004.

¹¹¹ Carnevale, Rose and Hanson, 2012. See also Muller and Beatty, 2008.

¹¹² Carnevale, Jayasundera and Hanson, 2012.

¹¹³ This certificate is based on ACT's WorkKeys assessments. See <https://www.act.org/certificate/about.html>.

In its 2015 session, New Mexico's legislature affirmed industry examinations as a measure of academic and technical readiness by passing **House Bill 178** (HB 178),¹¹⁴ which grants authority to districts to award additional weight (i.e., a value of 1.0) to the GPA for students who successfully complete an industry-recognized credential.

All states face challenges in identifying appropriate industry credentials. First, many career pathways culminate in advanced credentials that exceed the time, resources and scope of the typical high school curriculum, unless more time is found for the instruction and work experience needed to earn them. In lieu of advanced certifications, many states are adopting lower-level certifications without evidence that their content prepares students for advanced education and training or aligns with industry standards, employer preferences and jobs. Such certifications may not meet SREB's criteria for the review of industry examinations.¹¹⁵

Second, due to the proprietary nature of many examinations, policymakers and educators lack reliable data on the content, rigor, reliability and relevance of many third-party industry certification examinations.¹¹⁶ Further, the federal government does not require the numbers of examinations taken or certifications successfully earned to be reported.¹¹⁷ Complete College America,¹¹⁸ an initiative focused on increasing postsecondary attainment, includes only postsecondary certificates and degrees in its analyses.

Overall, most states receive little student outcome data from industry examinations, and most cannot link student outcomes to labor market participation. **States need such data to align pathways with workforce needs, improve curricula and assess readiness.**

New Mexico should work closely with other states and exam developers to increase access to certification data. The **Workforce Data Quality Campaign** (WDQC) is leading efforts to develop data-sharing agreements with industry bodies.¹¹⁹ Originally convened by the North Carolina Community College System and the California Community College Division of Workforce and Economic Development, the WDQC is a consortium of 21 states whose goal is to access exam data, establish joint data-sharing agreements and better align their pathways with available certifications and industry needs. The WDQC is urging the federal government to create a national credential directory.¹²⁰

New Mexico should also establish a partnership with **PED, HED** and the **Department of Workforce Solutions** to create a **stackable credential system** that ensures that students earn certifications of value in the labor market. Such systems allow students to earn entry-level certifications in high school and progress to more advanced certifications, licenses and degrees at the postsecondary level.¹²¹ Stackable credential systems may include:

- **modular sequences of industry examinations;**¹²²

¹¹⁴ See <http://www.nmlegis.gov/lcs/legislation.aspx?chamber=H&legtype=B&legno=178&year=15>.

¹¹⁵ *Measuring Technical and Academic Achievement: Employer/Certification Examinations' Role in High School Assessment*. SREB, 2009.

¹¹⁶ SREB, 2009. See also Robert D. Muller and Alexandra Beatty. *Work Readiness Certification and Industry Credentials: What Do State High School Policy Makers Need to Know?* Achieve, 2008.

¹¹⁷ Brian Bosworth. *Certificates Count: An Analysis of Sub-baccalaureate Certificates*. Complete College America, 2010.

¹¹⁸ See <http://completecollege.org/>.

¹¹⁹ Michelle Massie. *Credential Data Pioneers: Forging New Partnerships to Measure Certifications and Licenses*. Workforce Data Quality Campaign, 2014. See <http://www.workforcedqc.org/resources-events/resources/credential-data-pioneers>.

¹²⁰ *Data Counts: How Federal Policy Can Support Actionable Data on Education and Workforce Development*. WDQC, 2014.

¹²¹ Evelyn Ganzglass. *Scaling "Stackable Credentials": Implications for Implementation and Policy*. Center for Postsecondary and Economic Success at CLASP, 2014. See also James T. Austin, Gail O. Mellow, Mitch Rosin and Marlene B. Seltzer. *Portable, Stackable Credentials: A New Education Model for Industry-Specific Career Pathways*. McGraw-Hill Research Foundation, 2012.

¹²² Full Automotive Service Excellence certification requires candidates to complete a series of exams plus two years of work experience. Students may take some exams in high school and complete the series at the postsecondary level.

- validated **end-of-course** or **end-of-program assessments** that demonstrate students' academic, technical and workplace skills;¹²³
- validated **employer examinations**;
- **career pathway dual enrollment courses** that carry college credit;
- **credit for prior learning and work experiences**; and
- **associate degree programs** made up of shorter, stackable programs.

Kentucky annually reviews, updates and publishes a matrix of approved industry credentials and Kentucky Occupational Skill Standards Assessments (KOSSA) that meet state guidelines for federal Perkins accountability and the career-readiness component of the state's accountability system. Acceptable credentials must be:

- recognized, endorsed, or required by industry;
- written and verified by national or state industries;
- aligned with state and/or national standards; and
- an end-of-program assessment related to the student's identified career pathway achieved through a sequence of courses.¹²⁴

Credential completions are reported through Kentucky's Technical Education Database System and calculated as part of each high school's College/Career Readiness Rate.¹²⁵

In **Florida**, the Florida Department of Education (FDOE) and the Florida Department of Economic Opportunity work in partnership with CareerSource Florida, an industry-led workforce investment board, to vet and approve certifications for high school and postsecondary students. Drawing on the state's Economic Security Report,¹²⁶ these partners assess the academic and technical rigor of industry certifications and approve an annual list used by schools to determine which certifications they will offer within their career pathways. The FDOE maintains a list of **Gold Standard Industry Certification Articulation Agreements** — nationally recognized industry certifications that can form part of associate degree programs — for which high school students may also earn college credits. Each Gold Standard certificate guarantees a minimum of three hours of college credit toward a degree program, although colleges may award more by local agreement.¹²⁷

Florida incentivizes student attainment of industry-recognized certifications in a number of ways, including by awarding **merit diplomas** to students who acquire an approved industry certification and including certifications in **school grading formulas**. Under the state's accountability model, school grades include student participation in and completion of accelerated courses, including industry certifications; schools receive extra points toward their school grades for gold standard, college credit-bearing certifications. The state also awards **bonus FTE (full-time equivalent) funding** to high schools based on the rigor and employment value of certifications.

¹²³ Some of these assessments may be treated as certifications or carry college credit. They do not include teacher-created assessments.

¹²⁴ *KOSSA and Industry Certifications 2014-2015*. Kentucky Department of Education, 2015.

¹²⁵ See <http://education.ky.gov/CTE/kossa/Pages/ValidKOSSAList.aspx>.

¹²⁶ Mark Schneider. *Higher Education Pays: Measuring the Economic Security of Florida's Postsecondary Graduates*. College Measures, 2013.

¹²⁷ See <https://www.fldoe.org/workforce/dwdframe/pdf/GoldStandard-ArticulationAgreements-IndustryCertAAS.pdf>.

Goal 4 – Findings

CTE Course Analysis Data

Limited self-reported industry-recognized credential (IRC) completion data were available for analysis. Obtaining reliable data on industry certification examinations is a problem for many states, districts and schools, not just New Mexico.

Although IRC data were scarce, SREB’s course data analyses showed that industry credentials do not appear to be a major component of high schools’ CTE programs. Nor are schools, teachers or students incentivized to offer, pursue or earn them. At this time, the state does not pay for high school students to take industry exams. The lack of funding for IRCs may at least partly explain the low numbers of students reporting that they completed them.

Overall, researchers found that some high schools are offering career pathways that ostensibly feature third-party curricula that may include opportunities for students to earn certifications. For example, the ProStart culinary curriculum is designed to include ProStart or ServSafe certifications. Researchers also found many instances in which high schools are offering specific **certification-preparatory courses** — like *1504: Nursing - Certified Nurse Assistant (CNA)* — through which students can conceivably acquire the knowledge and skills needed to pass certification exams, either in high school or after meeting age and/or work requirements.

However, SREB received little data with which it could confirm that schools were offering instruction leading to these certifications or that students were earning them. Evidence of all industry credentials reported earned by New Mexico high school students is included on individual school reports. (See Technical Appendix A.)

Table 21 displays selected industry certification data for 2012-13 received from PED for high school students and postsecondary students at two-year and four-year institutions. One of the members of the original study team that drafted SREB’s **Criteria for the Review of Industry Certification Examinations**¹²⁸ reduced this list to those industry examinations that could be considered of high quality on their own or when bundled in a series with other examinations.¹²⁹

As the table shows, out of 2,064 high-quality certifications earned across the state, just 394 were earned by high school students. Such data confirm that industry certifications are not currently a critical component of career pathways. Recommendations made in this section of the report address how New Mexico can (1) make high-quality industry credentials a critical element of its career pathways and (2) use funding and accountability strategies to incentivize and reward schools, teachers and students for earning these credentials.

¹²⁸ SREB, 2009.

¹²⁹ This review process was not intended to be exhaustive or prescriptive. SREB recommends that PED, HED, DWS, industry partners and other key stakeholders engage in an extended and careful review of potential industry certification examinations using a detailed set of review criteria. See *Recommendations*, below.

Table 21: High-Quality Industry Certifications* Earned in 2012-13 by New Mexico Postsecondary and High School Students

Industry Certification	Total Earned	By 2-Year Students	By 4-Year Students	By HS Students
Air Traffic Control	5	0	5	0
Automotive Service Technician	97	2	17	78
Aviation Maintenance Technology	5	0	5	0
AWS Advanced Welder	12	12	0	0
AWS Entry-Level Welder	14	12	0	2
AWS SENSE Entry-Level Welder	2	0	0	2
BLS for Healthcare Providers	379	379	0	0
Certified Cisco Network Associate	3	3	0	0
Certified Medical Assistant	33	33	0	0
Certified Nursing Aide	195	20	157	18
Child Development Association Certification	34	0	22	12
Cisco Networking Academy – Networking for Home & Small Business	81	0	81	0
Cisco Networking Academy – Working at a Small to Medium Business or ISP	72	0	72	0
Cisco Networking Academy – Intro Routing & Switching in the Enterprise	31	0	31	0
CompTIA A+ Certification	5	5	0	0
CompTIA Network and Certification	2	2	0	0
CompTIA Security and Certification	2	2	0	0
Computer Maintenance Technician	13	0	13	0
Criminal Justice	11	0	11	0
EKG Technician Certification	5	0	5	0
Emergency Medical Basic	2	0	2	0
Emergency Medical Intermediate	2	0	2	0
Emergency Medical Technician	65	0	65	0
Engineering Technology	39	0	39	0
EPA Sect 608	41	41	0	0
EPA Sect 608 Clean Air Act Certification Core	8	0	8	0
EPA Sect 608 Clean Air Act Certification Type 2	2	0	2	0
EPA Sect 608 Clean Air Act Certification Type 3	4	0	4	0
EPA Sect 608 Clean Air Act Type One Certification	5	0	5	0
EPA Sect 608 Clean Air Universal Certification	5	0	5	0
Fire Fighter 1 and 2	60	0	60	0
Fire Protection Technology	5	0	5	0
Hazardous Materials Awareness & Operations	60	0	60	0
HOST Credentials from the National Restaurant Association Manage First Program	208	0	208	0
IC Certification	7	7	0	0
IPC j-00a & IPC Soldering Certifications	23	0	23	0
NCCER Carpentry	53	0	0	53
NCCER Core Curricula	24	0	24	0
NCCER Electrical	5	0	0	5
NCCER Green Environment	19	0	19	0
NCCER HVAC	130	0	0	130
NCCER Intro to Power Tools	6	0	0	6
NCCER Masonry	2	0	0	2
NCCER Painting	8	0	8	0
NCCER Painting Level 2	8	0	8	0

Industry Certification	Total Earned	By 2-Year Students	By 4-Year Students	By HS Students
NCCER Plumbing	2	0	0	2
NCCER Welding	28	0	0	28
Nursing	16	0	16	0
Occupational Therapy	14	0	14	0
Pharmacy Technician	6	0	6	0
Phlebotomy Technician	19	0	19	0
PLTW End of Course	41	0	0	41
ProStart Certification	13	0	0	13
Radiographic Technology	13	0	13	0
Refrigeration Technician	16	0	16	0
Respiratory Therapy	5	0	5	0
ServSafe Certification	16	0	14	2
Sonography Certification	7	0	7	0
Vehicle Extraction	60	0	60	0
Veterinary Assistant Technician	8	0	8	0
Welding Technician	8	0	8	0
TOTAL	2,064	518	1,152	394

Note. * SREB received data from PED on industry credentials earned in 2012-13 by students in Perkins-funded CTE programs. Researchers drew upon SREB's *Criteria for the Review of Industry Certification Examinations*¹³⁰ to select those exams that could be considered of high quality on their own or when bundled in a series with other exams.

Table 22 breaks out the 394 high-quality industry certifications earned by New Mexico high school students by WIOA region. **The highest numbers of certifications reported earned statewide align with some of the most prevalent three- or four-course career pathways in the state** (e.g., Construction, Automotive, Welding, Culinary – see Tables 2 and 3). These include National Center for Construction Education and Research (NCCER) Heating, Ventilation and Air Conditioning (HVAC; 130 certifications); Automotive Service Technician (78 certifications); NCCER Carpentry (55 certifications); NCCER Welding (28 certifications); and ProStart (13 certifications). Certifications aligned with less prevalent three- or four-course pathways (e.g., pre-engineering, health science – see Tables 2 and 3) include Project Lead the Way end-of-course examinations (41 certifications) and Certified Nursing Aide (CNA; 18 certifications).

Overall, the most frequently reported earned certifications are in more traditional, well-established CTE areas. Note that no earned certifications were reported for the Central region. The highest numbers of earned certifications were reported in the Northern and Eastern regions.

Table 22: High-Quality Industry Certifications* Earned in 2012-13 by New Mexico High School Students, by Region and Statewide

Industry Certification	Northern	Central	Eastern	Southwestern	State
Air Traffic Control	-	-	-	-	0
Automotive Service Technician	-	-	65	13	78
Aviation Maintenance Technology	-	-	-	-	0
AWS Advanced Welder	-	-	-	-	0
AWS Entry-Level Welder	-	-	-	-	0
AWS SENSE Entry Level Welder	-	-	2	-	2
BLS for Healthcare Providers	-	-	-	-	0

¹³⁰ SREB, 2009.

Industry Certification	Northern	Central	Eastern	Southwestern	State
Certified Cisco Network Associate	-	-	-	-	0
Certified Medical Assistant	-	-	-	-	0
Certified Nursing Aide	3	-	15	-	18
Child Development Assoc. Certification	-	-	12	-	12
Cisco Networking Academy – Networking for Home & Small Business	-	-	-	-	0
Cisco Networking Academy – Working at a Small to Medium Business or ISP	-	-	-	-	0
Cisco Networking Academy – Intro Routing & Switching in the Enterprise	-	-	-	-	0
CompTIA A+ Certification	-	-	-	-	0
CompTIA Network and Certification	-	-	-	-	0
CompTIA Security and Certification	-	-	-	-	0
Computer Maintenance Technician	-	-	-	-	0
Criminal Justice	-	-	-	-	0
EKG Technician Certification	-	-	-	-	0
Emergency Medical Basic	-	-	-	-	0
Emergency Medical Intermediate	-	-	-	-	0
Emergency Medical Technician	-	-	-	-	0
Engineering Technology	-	-	-	-	0
EPA Sect 608	-	-	-	-	0
EPA Sect 608 Clean Air Act Core	-	-	-	-	0
EPA Sect 608 Clean Air Act Type 2	-	-	-	-	0
EPA Sect 608 Clean Air Act Type 3	-	-	-	-	0
EPA Sect 608 Clean Air Act Type 1	-	-	-	-	0
EPA Sect 608 Clean Air Universal Certification	-	-	-	-	0
Fire Fighter 1 and 2	-	-	-	-	0
Fire Protection Technology	-	-	-	-	0
Hazardous Materials Awareness & Ops	-	-	-	-	0
HOST Credentials from the National Restaurant Assoc. Manage First Program	-	-	-	-	0
IC Certification	-	-	-	-	0
IPCj-00a & IPC Soldering Certifications	-	-	-	-	0
NCCER Carpentry	-	-	55	0	55
NCCER Core Curricula	-	-	-	-	0
NCCER Electrical	-	-	5	-	5
NCCER Green Environment	-	-	-	-	0
NCCER HVAC	130	-	-	-	130
NCCER Intro to Power Tools	-	-	6	-	6
NCCER Masonry	-	-	2	-	2
NCCER Painting	-	-	-	-	0
NCCER Painting Level 2	-	-	-	-	0
NCCER Plumbing	-	-	2	-	2
NCCER Welding	28	-	-	-	28
Nursing	-	-	-	-	0
Occupational Therapy	-	-	-	-	0
Pharmacy Technician	-	-	-	-	0
Phlebotomy Technician	-	-	-	-	0
PLTW End of Course	-	-	-	41	41
ProStart Certification	-	-	7	6	13
Radiographic Technology	-	-	-	-	0

Industry Certification	Northern	Central	Eastern	Southwestern	State
Refrigeration Technician	-	-	-	-	0
Respiratory Therapy	-	-	-	-	0
ServSafe Certification	-	-	2	-	2
Sonography Certification	-	-	-	-	0
Vehicle Extraction	-	-	-	-	0
Veterinary Assistant Technician	-	-	-	-	0
Welding Technician	-	-	-	-	0
TOTAL	161	0	173	60	394

Note. * SREB received data from PED on industry credentials earned in 2012-13 by students in Perkins-funded CTE programs. Researchers drew upon SREB's *Criteria for the Review of Industry Certification Examinations*¹³¹ to select those exams that could be considered of high quality on their own or when bundled in a series with other exams.

Stakeholder Survey Data

Most employers value high-quality industry certification exams because they signal that students have the technical and workplace readiness skills needed to succeed in advanced training programs and the workplace. SREB's surveys asked respondents about their perceptions of how well high school and community college CTE programs are preparing students with technical and workplace skills, about how well programs are preparing students for careers and about industry certification exams specifically. Findings are summarized below.

New Mexico's employers have a vested interest in the technical and workplace readiness skills of New Mexico's CTE students. **However, surveyed business leaders expressed serious reservations regarding high school students' current levels of technical and workplace readiness.** Less than a third of business leaders (29 percent, $n = 133$) believed that high school CTE programs were preparing students with the right **technical skills**. Business leaders expressed similar doubts about **students' soft skills**, with a range of just 22 to 35 percent agreeing that high school CTE programs prepared students with critical thinking skills, communication skills, interpersonal skills, personal skills, information skills, resource management skills and systems thinking skills. Fifty-seven percent of business leaders ($n = 30$) who responded to an open-ended question about strengths or gaps in students' skills commented that **high school CTE students lacked critical soft skills**. These findings are of a piece with business leaders' concerns regarding students' academic readiness (see Goal 3).

Both business leaders and CTE teachers expressed doubts as to whether New Mexico's high school CTE programs are adequately preparing students for careers. At 14 percent, business leaders ($n = 133$) expressed the least confidence that students are being adequately prepared for careers. CTE teachers ($n = 239$) also expressed doubts: Just 18 percent believed that *all* of their CTE programs are adequately preparing students for careers.

Survey results clearly show that industry credentials are not recognized as a major component of high school CTE programs. Results show that many respondents either did not know whether New Mexico's high schools offer students opportunities to earn industry-recognized credentials or did not believe that many such opportunities are available:

- Thirty-two percent of **business leaders** ($n = 133$) were aware that high schools offered industry credentials.

¹³¹ SREB, 2009.

- Fifty percent of **community representatives** ($n = 127$) were aware that high schools offered credentials.
- Thirty-five percent of **parents** ($n = 271$) said that their child could earn an industry credential as a result of taking CTE classes.
- Fifteen percent of **counselors** ($n = 81$) said students could earn credentials in most or all of their school's CTE programs. Just 25 percent said such credentials appeared on students' transcripts.
- Twenty-nine percent of **CTE teachers** ($n = 234$) said that students often had opportunities to earn industry credentials. Just 45 percent said there was a process for reporting such credentials.
- Thirty-seven percent of **principals** ($n = 119$) said that students could earn credentials in most or all CTE programs at their school.
- Just 30 percent of **CTE students** ($n = 2,483$) said they had opportunities to earn an industry credential in high school.

As described in the Recommendations, New Mexico can help educate students, parents, schools and business leaders about the value of industry credentials — and help drive their adoption as an essential component of career pathways — by identifying a dedicated staff person at the state level whose role it is to support schools in offering credentials and to collect accurate credential completion data.

Respondents expressed similar uncertainty as to whether students could earn credentials if they continued in the same career pathway at a community college.

- Ten percent of **counselors** ($n = 81$) said students could earn a recognized industry credential if they continued in the same program area in college.
- Thirty-one percent of **students** ($n = 2,483$) said they could earn a credential if they continued in the same program area in college.
- Forty-four percent of **business leaders** ($n = 133$) said that local community colleges award industry credentials partially based on high school credits.
- Sixty-three percent of **postsecondary administrators** ($n = 19$) said that this was true.

These results suggest that New Mexico must make a strong effort to not only **invest in industry credentials in high school and postsecondary career pathway programs**, but also to **educate the public** — especially students, parents, teachers, counselors, postsecondary institutions and employers — about their value and function within career pathways leading to ongoing postsecondary attainment and career advancement. A dedicated staff member at the state level could support these efforts (see the Recommendations).

Business leaders' surprising responses to questions about industry certifications and hiring preference deserve greater study. Only 21 percent of business leaders ($n = 133$) said that they would give preferred hiring status to high school students who passed an industry exam, whereas 31 percent said they would give preferred hiring status to community college students who passed an industry exam. The difference may be because business leaders believe that community college students are typically older and have benefitted from more advanced training in preparation for the workplace. These low numbers may also suggest that business leaders have a poor perception of the quality of currently available industry exams. Still, a little more than half of business leaders (54 percent) reported that they verify employees' industry certifications.

Goal 4 – Recommendations

Draw upon the state’s existing support for the Common Career Technical Core (CCTC) as a foundation to formally define technical career readiness in state policy and incorporate it in the state’s accountability system.

- **Convene panels of expert postsecondary and industry partners** to contribute to the development of indicators of *technical career readiness*.
- Draw upon the expertise of these panels to **develop technical readiness standards for each career pathway** that capture the knowledge and skills high school students need to master to enter postsecondary education and training programs and secure high-skill, high-wage jobs in high-demand fields.
- Create procedures to ensure that technical readiness standards are **continuously reviewed and revised** in alignment with changing industry needs and emerging areas of workforce demand.

Designate a state agency to work with PED, HED and employers to identify, evaluate and approve industry certification examinations, technical skills assessments, dual credit courses and end-of-course assessments that are part of a system of stackable credentials.

- At the high school level, set standards for “**Gold Standard**” **industry exams and other assessments**. Require these assessments to (a) reflect appropriate depth and breadth of academic and technical content, (b) offer an advantage in the workplace and are linked to in-demand jobs, (c) carry variable amounts of transferrable college credit based on their rigor and the time required to obtain them, and (d) lead to more advanced credentials.
- Per HB 178, award additional weight toward the GPA for the successful completion of **approved industry certifications**.
- Where advanced industry certification examinations do not exist, allow students to demonstrate technical readiness through **end-of-course assessments and/or CTE dual credit courses** approved by HED and state postsecondary institutions. Credit must only be considered for advanced high school or dual credit courses that challenge students to apply academic, technical, technological, cognitive and 21st-century skills to the solution of complex, real-world workplace problems.
- If high school-level industry examinations do not exist, adopt advanced examinations and **set acceptable passing scores for partial certification**, with the expectation that graduates will earn the full certification at the postsecondary level.
- Ensure that students and parents **do not have to pay for examinations** used by the state as technical skills assessments, accountability measures or graduation requirements.
- Identify and fund a **full-time, dedicated staff member** at PED who will support schools in implementing high-quality industry credentials as an essential component of career pathways. Charge this staff member with conducting educational outreach efforts regarding the value of industry credentials, and collecting credential completion data.

- **Incentivize schools, teachers and students to earn advanced industry credentials** by making them a component of the state’s accountability system and rewarding schools with bonus points for each high school student who earns one. Award diploma endorsements to students who earn advanced industry credentials. Consider awarding bonus funds or FTEs to schools and/or teachers for each student who earns an advanced credential.

Draw on the expertise of secondary, postsecondary and industry partners to identify or develop juried assessments and rubrics that measure students’ attainment of workplace skills through their performance on project-based or work-based learning assignments and senior capstone projects.

- Invite schools to **voluntarily adopt, test and validate** these assessments and rubrics.
- **Incentivize employer participation** in assessing and showcasing student work.

Join with other states to advocate for a national database of industry certification examinations that includes how many industry certifications students attempt and earn, as well as the exams’ depth and breadth of academic and technical content and connection to workforce needs.

- Work with other states to **promote data-sharing agreements** and **protect student data**.

Goal 5 – Offer career pathways in settings that accelerate postsecondary attainment and career advancement.

Goal 5 – Literature Review

To achieve high school graduation rates of 90 percent or higher and put more students on accelerated routes to postsecondary attainment and good jobs, New Mexico needs to create career pathways in settings that blur the lines between secondary and postsecondary education and the workplace. SREB urges New Mexico to embrace policies that **help more students earn advanced industry credentials and postsecondary certificates and degrees — starting in high school.**

By fostering close partnerships between schools, districts and industry partners, PED and HED can develop career pathways in **diverse settings** that meet the needs of the state's **diverse urban and rural schools** as well as the demands of its **diverse economic sectors**. **New Mexico** is already offering programs in some of these settings, as described below.

Such settings may include:

- **early college high schools**, in which students can earn a diploma while pursuing a postsecondary certificate, credential or associate degree;
- **early advanced credential programs**, modeled after early college high schools;
- **career academies** located within comprehensive high schools;
- **online, blended or competency-based programs**; and
- **career pathways offered in partnership with districts, home high schools, and community colleges or universities.**

PED and HED can jointly promote policies that help schools, districts, and postsecondary and industry partners **develop career pathways and align curricula, instruction, assessments and technology** across home high schools and partnering colleges and universities. Blending secondary, postsecondary and workplace learning may require schools to adopt longer school years or days, block schedules or seven-period days that offer the extended time students need to complete project-based assignments that integrate academic and technical knowledge and earn advanced credentials and significant credits toward the completion of an associate degree. **Research shows that students benefit when they can take academic and CTE classes as a cohort and when academic and CTE teachers have time to integrate their curricula and assignments.**¹³²

Early College High Schools and Early Advanced Credential Programs

Two promising settings for innovative career pathway programs are early college high schools and early advanced credential programs — and both are already in existence in New Mexico. However, SREB urges the state to consider significantly expanding its support for its **Early College High School (ECHS)**¹³³ and **Workforce Readiness Programs**.¹³⁴ Both initiatives emphasize college-ready academics, structured four-course CTE sequences aligned with job opportunities in key industry sectors, industry and postsecondary partnerships, AP and dual

¹³² Monica R. Almond and Tiffany D. Miller. *Linked Learning: Using Learning Time Creatively to Prepare Students for College and Career*. Center for American Progress, 2014.

¹³³ A Request for Applications for ECHS programs can be downloaded from: <http://bit.ly/1ESmqss>.

¹³⁴ A Request for Applications for these programs can be downloaded from: <http://bit.ly/1cekhyf>.

credit-earning opportunities, and work-based learning experiences. Workforce Readiness Programs introduce students to a wide range of career opportunities and allow them to graduate with a diploma and an industry-recognized certificate in a high-skill, high-wage, and high-demand field. High-quality work-based learning experiences — especially apprenticeships — offered by postsecondary and industry partners are a hallmark of these programs. Similarly, the state's ECHSs allow students to graduate with a diploma and an industry certificate, associate degree or up to two years' worth of credit toward a bachelor's degree — all tuition-free.

Often located on community college and university campuses, **early college high schools** transform the high school experience by creating a truly seamless transition between secondary and postsecondary studies. Throughout high school, students take increasing numbers of college courses and graduate with both a high school diploma and an associate degree or tuition-free college credits that can be applied toward a bachelor's degree. Designed to help increase college preparedness and college access for first-time college goers, low-income and minority students and others identified as underrepresented in postsecondary education, early college high schools offer college-level classes taught by college faculty or certified high school teachers and allow students to experience campus life. The Early College High School Initiative (ECHSI), launched in 2002 with support from the Bill & Melinda Gates Foundation, Carnegie Corporation, Ford, W.K. Kellogg and others, counts more than 240 schools serving 75,000+ students in 28 states across the country.¹³⁵

A recent longitudinal evaluation of ECHSI used a randomized design to assess the impact of participation on three cohorts of students attending 10 early colleges in five states.¹³⁶ Eight of the early colleges were located on college campuses, seven had a community college partner, two had a four-year college partner and one had one of each; eight of the early colleges were structured as four-year high schools, and two offered five-year programs. Researchers found that early college students were more likely to graduate from high school and have higher English/language arts achievement than students in traditional high schools. Followed for two, three and four years post-graduation, the three cohorts were more likely to enroll in college and earn a degree and less likely to need remediation. **Early college students were also more likely to enroll in community colleges and equally likely to enroll in four-year colleges.** Although the impact of participation on high school graduation and college enrollment was similar across gender, racial/ethnic minority status, socioeconomic status and first-time college attendance, **participation particularly helped low-income and minority students earn degrees.**

North Carolina has the largest number of early college

Getting a Jump Start on Careers — Arrowhead Park Early College High School

Five years ago, educators in the Las Cruces Public School District opened Arrowhead Park Early College High School in Las Cruces, New Mexico, to provide students with opportunities to engage in an accelerated high school experience linked to postsecondary studies. Fifty-four percent of Arrowhead Park's students are first-generation college goers.

Arrowhead Park's curricula feature high school courses, AP courses and the opportunity to earn an associate degree. Students can also specialize in pre-engineering or take courses in the school's medical academy.

Students finish most of their high school requirements by the end of tenth grade but continue to participate in at least two high school courses each year until graduation. High school courses and weekly seminars allow students to stay connected to the high school while taking postsecondary courses. Weekly seminars provide information on scholarships, ACT preparation and career opportunities. Arrowhead Park's first graduating class, the class of 2014, consisted of 108 students who earned 109 degrees or certificates. This year, 101 graduates applied for 119 degrees and 95 industry certifications.

¹³⁵ See <http://www.earlycolleges.org/overview.html>.

¹³⁶ *Early College, Early Success: Early College High School Initiative Impact Study*. AIR and SRI International, 2013. For a review of this study, see: What Works Clearinghouse, *WWC Review of the Report: "Early College, Early Success: Early College High School Initiative Impact Study."* Institute of Education Sciences, 2014.

high schools in the nation, having expanded its network from just 13 schools in 2005 to 76 in 2014. More than 70 of these schools are located on community college campuses. Some of these early colleges organize their curricula around key state industry sectors, like the health sciences, information technology and STEM. All curricula emphasize rigorous and relevant interdisciplinary instruction, preparation for the workforce and college and career exploration. Participating students can earn a high school diploma and an associate degree in five years. The state is now expanding and scaling up its early college high school approach in comprehensive high schools in rural, low-income areas of the state that lack access to nearby postsecondary institutions, in an effort to offer more students a college-ready curriculum and opportunities to earn college credit and graduate ready for college and careers.¹³⁷

An ongoing evaluation of over 2,000 students enrolled in North Carolina's early college high schools found that by the end of ninth grade, more early college students were on-track for college, with over 96 percent having completed Algebra I and English I, and more students reporting higher levels of academic engagement and positive high school experiences.¹³⁸ Early college 10th- and 11th-graders held a 22- and 20-percentage point advantage, respectively, over non-early college students on overall completion of college-preparatory courses required for admission to the University of North Carolina system.¹³⁹ Study findings also showed that early college students were outperforming their peers on high school graduation, especially among minorities, first-generation college-goers, low-income students and under-performing students. **Early college students were also more likely to enroll in postsecondary education and earn an associate degree within six years of beginning ninth grade.**¹⁴⁰

SREB urges New Mexico to increase its support for early college high schools and ensure that existing ECHS sites emphasize career pathways that culminate in advanced industry credentials aligned with key state and regional industries.

SREB also urges New Mexico to increase support for and expand student access to early advanced credential programs like its Workforce Readiness Programs, which provide the extended learning time students need to graduate with a high school diploma plus an advanced industry credential, postsecondary credential or an associate degree. Additional support will be needed to help existing and new early college high schools design and implement early advanced credential programs. Support should be systemic and extend beyond the state's current one-year funding.

Beyond its existing workforce readiness programs, the state can also implement early advanced credential programs in other settings, including partnerships between comprehensive high schools and community colleges and state universities. New school structures or schedules, like 13th-year programs and extended school years or days, can also help more students earn advanced credentials in these programs. **New Mexico should consider incentivizing high schools, districts and postsecondary institutions to synchronize their schedules and align their career pathway programs so that academic and CTE teachers can integrate academic and technical curricula and instruction, plan integrated assignments and engage in shared professional development.**

¹³⁷ See <http://ncnewschools.org/earlycollege/>.

¹³⁸ Julie Edmunds. *A Better 9th Grade: Early Results from an Experimental Study of the Early College High School Model*. SERVE Center, the University of North Carolina at Greensboro, 2010.

¹³⁹ *North Carolina New Schools: Supported by Evidence, Proven by Performance and Backed by Research*. North Carolina New Schools, 2013.

¹⁴⁰ *Ibid.*

Career Academies

Structured as small learning communities within a larger school, **career academies** integrate college-ready academics with challenging sequences of CTE courses, dual credit-earning opportunities and increasingly intensive work-based learning experiences that allow students to apply what they learn in the classroom in real workplace settings. Informed by postsecondary and industry partners and organized around broad career themes like engineering technology, biomedical and health science, IT, or business studies, for example, career academies give a focus to learning and create a familial, supportive environment in which students take all of their classes as a cohort with teachers who work in interdisciplinary teams to integrate curricula and design project-based assignments. Career academy curricula also integrate structured learning supports, college and career counseling, and career development and exploration activities that help students identify their interests and plan for the future.

A robust research base supports career academies as both a high school reform model and a strategy for engaging and preparing students for college and careers. Stern et al. summarized findings from a number of well-designed longitudinal studies, noting that, at the high school level, compared to non-academy students, career academy students had higher attendance, lower attrition rates, better grades and higher rates of high school completion.¹⁴¹ At the college level, more academy students entered college and completed degrees and fewer needed remediation. A study of California Partnership Academies found that career academy students had better attendance and higher rates of graduation and college-preparatory course-taking than the state average.¹⁴²

MDRC's longitudinal study of career academies used a random assignment design to follow students in nine high school career academies through high school and into college and the workplace, with the last follow-up study occurring eight years after students graduated. Researchers found that career academies benefited a wide range of students and particularly aided at-risk students, who had better attendance, were less likely to drop out, earned more credits toward graduation and were more likely to apply to college. Among students at less risk, career academy students were more likely to have both academic and CTE concentrations and were more likely to complete their CTE course sequences.¹⁴³ The last follow-up study found that career academy students earned 11 percent more than non-academy students and were more likely to be living independently; improved labor market outcomes were particularly powerful for young men, whose earnings increased by 17 percent over eight years.¹⁴⁴ The researchers concluded that career academies improve students' labor market outcomes and help them transition to college and careers, and can be implemented in high schools without detracting from a college-preparatory focus.

¹⁴¹ David Stern, Christopher Wu, Charles Dayton and Andrew Maul. "Learning by Doing: Career Academies." Ed. David Neumark, *Improving School-to-Work Transitions*. Russell Sage Foundation, 2007.

¹⁴² Charles Dayton, Candace Hamilton Hester, and David Stern. *Profile of the California Partnership Academies, 2009-2010*. Career Academy Support Network, University of California, Berkeley, 2011.

¹⁴³ James J. Kemple and Jason C. Snipes. *Career Academies: Impacts on Students' Engagement and Performance in High School*. MDRC, 2000.

¹⁴⁴ James J. Kemple and Judith Willner. *Career Academies: Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*. MDRC, 2008.

Online and Competency-Based Programs

Learner-focused pedagogies like **online and blended instruction** allow students to participate in high-quality career pathways outside of the traditional classroom and the traditional school day. Digital technologies allow instruction to be individualized and give students greater control over the pace, time and place of learning.¹⁴⁵ Online and blended instructional strategies may help expand access to high-quality CTE for students attending schools that lack the funds or the postsecondary and industry partners needed to develop career pathways. They may also benefit career pathway students who need intensive supplemental instruction in reading and math.

Competency-based assessments allow students to learn at their own pace and earn credits by demonstrating mastery of a set of competencies through a recognized state test, technical skills assessment or industry certification exam, instead of completing course work defined by standard seat time (i.e., Carnegie units). Competency-based assessments may give students a faster and more cost-effective way to progress through a career pathway and acquire credentials and degrees.

New Mexico already has a system through which it can deliver innovative online career pathway programs. Available to all schools throughout the state, **Ideal New Mexico, PED's learning management system (LMS)**, offers a platform for online and blended learning. At present, most courses delivered through Ideal-NM are in the core subject areas, and only a small selection of CTE-related courses is available. This platform could easily be used to deliver wholly online career pathway programs in subject areas that don't necessarily require a traditional classroom or laboratory environment — like information technology or business, for example.

PED and HED can explore ways schools and districts could work with postsecondary and industry partners to develop hybrid online programs in other career pathway areas that would allow students to take some of their course work online, some in high school or college classrooms and some in college or mobile laboratory or shop environments. Students must also have opportunities to develop their skills in well-developed internships and other work-based learning experiences with public and private employers.

District, School and Community College Partnerships

Most community colleges serve high percentages of students who lack foundational literacy and math skills: Sixty percent or more of all community college students require some remediation.¹⁴⁶ Many of these students are moved into non-credit bearing developmental education courses with no connection to their occupational goals and careers; many leave college without a credential.¹⁴⁷

To help more students complete postsecondary programs and earn credentials and degrees, PED and HED need to work together to increase the number of high school students who graduate ready for postsecondary programs. To do this, PED

¹⁴⁵ See, for example, the work of the International Association for K-12 Online Learning (iNACOL) at <http://www.inacol.org/>.

¹⁴⁶ Thomas Bailey. "Challenge and Opportunity: Rethinking the Role and Function of Developmental Education in Community College." *New Directions for Community Colleges: Policies and Practices to Improve Student Preparation and Success*. Ed. Andrea Conklin Bueschel and Andrea Venezia. Jossey-Bass, 2009. See also *No Time to Waste: Policy Recommendations for Increasing College Completion*. SREB, 2010.

¹⁴⁷ *Beyond the Rhetoric: Improving College Readiness through Coherent State Policy*. National Center for Public Policy and Higher Education and SREB, 2010.

and HED should collaborate to develop sophomore- or junior-year readiness assessments and senior-year transitional courses that help more high school students prepare for postsecondary study.

As described in Goal 1 of this report, New Mexico is already employing AP potential reports to identify students in need of intensive college-readiness support. **All students, not just students planning to pursue four-year college degrees, need to be assessed and provided with instructional supports that match their career and college goals.**

Although PED and HED are required to align high school end-of-course tests with the placement tests used by the state's postsecondary institutions, "no formal efforts exist" to guide this process. Further:

Most high schools do not track how students do in college and do not have interventions specifically designed to address students likely to need postsecondary remediation. In contrast, many other states explicitly require the use of high school assessments to identify students at-risk for college remediation and provide targeted interventions to reduce that likelihood.¹⁴⁸

Arkansas, Kentucky, Mississippi, North Carolina and West Virginia, for example, require the use of such assessments to target students who need extra help meeting readiness benchmarks with transitional literacy and math courses and other individualized supports.

New Mexico's high schools and community colleges can also partner to adopt strategies that help more students enter and complete community college programs, earn credentials and degrees and enter the workforce. Around the country, some high schools and community colleges are using strategies like new assessment and placement measures, restructured developmental education programs and individualized student support systems. Many of these strategies, described at length in the sections that follow, are already in limited use in the state.

Multiple Measures of Readiness

Many high schools and community colleges use **multiple measures of readiness** to help more high school students prepare for postsecondary study and test out of costly and time-consuming developmental education. Such measures include the **GPA**, the best predictor of readiness, in addition to standardized test scores and placement exams. As Goal 3 outlines, PED and HED need to agree upon a unified set of **college- and career-readiness standards, benchmarks and assessments** that will eliminate conflicts between district readiness standards and college eligibility requirements and credit transfer policies. Career pathway programs designed around these shared standards, benchmarks and assessments should allow students to easily and automatically transfer the dual credits they earn in high school to their postsecondary institution of choice.

HED reports that some **New Mexico** postsecondary institutions are implementing multiple measures of readiness. The state's open enrollment institutions typically use cut scores on placement tests to determine placement in developmental education.

¹⁴⁸ Legislative Finance Committee, 2014, pg. 8.

Career Pathway-Specific Math Pathways

Some community colleges tailor math to students' career pathways. The **North Carolina Community College System** drew on research on the math skills needed in various occupations¹⁴⁹ to restructure its math programs around four pathways: *Vocational* (mathematical measurement and literacy) for selected diplomas or Associate in Applied Science (AAS) programs; *Applied Technologies* (algebra, trigonometry) for AAS engineering technologies programs; *Calculus* (pre-calculus, algebra, calculus or statistics) for associate in science degree STEM programs; and *Quantitative Literacy* (quantitative literacy/statistics) for associate degree programs in the liberal arts and some AAS degrees.

Specialized courses that tailor math to students' pathways also hold promise. The **Carnegie Foundation for the Advancement of Teaching** created two community college math pathways in statistics and quantitative reasoning. In two years of field-tests, over half of students enrolled in these pathways earned math credit within a year.¹⁵⁰

In **New Mexico**, the state's redesigned high school math requirements — four years of math, including Algebra II or higher — are not leading to reduced rates of remediation in math in college. In 2013, 77 percent of students who took Algebra II or higher still required developmental math in their first year of college.¹⁵¹ As described at length in Goal 3, research shows that most non-STEM postsecondary programs and occupations only require proficiency in Algebra I, geometry, statistics and the kinds of math required in many careers,¹⁵² like “arithmetic, ratio, proportion, expressions and simple equations.”¹⁵³ **New Mexico should reconsider how it teaches these essential concepts and skills and ensure that teachers receive intensive professional development on how to develop students' math reasoning, understanding and application skills and how to create complex, real-world math assignments.**

Integrated Instruction: Applied and Contextualized Approaches

Some high schools and community colleges use **applied**¹⁵⁴ or **contextualized**¹⁵⁵ approaches to instruction. Applied approaches begin with the academic curriculum and draw on pedagogies like problem-based learning and work-based learning to situate academic learning in real-world contexts. Contextualized approaches enhance the naturally occurring academic content within the technical curriculum through authentic applications of technical knowledge and skills to the solution of real-world problems.

Corequisite Instructional Approaches

The **Integrated Basic Education and Skills Training** (I-BEST) model, developed by the Washington State Board of Community colleges, uses a team-teaching approach to contextualize literacy and math and improve achievement for low-skilled adults.¹⁵⁶ The **Kentucky**

¹⁴⁹ See the New Math Pathways project at the Charles A. Dana Center at the University of Texas at Austin: <http://www.utdanacenter.org/higher-education/new-mathways-project/>. The NCCCS also drew on study findings from the Community College Research Center; see, for example, Clive R. Belfield and Peter M. Crosta. *Predicting Success in College: The Importance of Placement Tests and High School Transcripts*. CCRC, Teachers College, Columbia University, 2012.

¹⁵⁰ See <http://www.carnegiefoundation.org/developmental-math>.

¹⁵¹ Legislative Finance Committee, 2014.

¹⁵² Stone and DiMattina, 2013. NCEE, 2013.

¹⁵³ NCEE, 2013, pg. 2.

¹⁵⁴ Cindy E. Hmelo-Silver. “Problem-Based Learning: What and How Do Students Learn?” *Educational Psychology Review*, 16.3 (2004): 235-266.

¹⁵⁵ *Capitalizing on Context: Curriculum Integration in Career and Technical Education*. NRCCTE, 2010.

¹⁵⁶ See http://www.sbctc.ctc.edu/college/e_integratedbasiceducationandskillstraining.aspx.

Community & Technical College System is implementing **Accelerating Opportunity**, a variation of the I-BEST model. Seventy-one percent of the system's 95,000 students need remedial literacy or math instruction. Since 2012, 1,061 adult students have enrolled in 30 Accelerating Opportunity programs at 11 community colleges; 68 percent earned a credential, compared to just 9 percent of non-participating first-time community college students. Participating students were also more likely to enroll in a subsequent term and earn another credential after completing the program. After one semester, 30 out of 47 participating students at one college tested out of 61 remedial classes, saving \$26,352.¹⁵⁷

Some **New Mexico community colleges** are using I-BEST.¹⁵⁸

Other high schools and community colleges employ **corequisite instruction** or **coenrollment**¹⁵⁹ approaches through which students take regular academic classes in high school or credit-bearing general education classes in college but receive extra literacy or math support.

In **New Mexico**, some institutions are modularizing their developmental classes and offering corequisite pairings of developmental and college-level course work — for example, during the same semester, students take college-level math with a complementary developmental math course and receive credits for both courses.¹⁶⁰ This approach differs from models like I-BEST that contextualize developmental instruction within students' occupational studies. The latter approach may be more inherently motivating for many students.

Structurally Guided Pathways

Some districts and community colleges support credential attainment through **structurally guided pathways** that students can follow from high school to graduation to postsecondary credential and degree programs and into the workplace. Structured pathways reduce unfocused course-taking, lower the cost of postsecondary education and help students complete their programs quickly. Essential features are coherent pathways that align with well-defined educational and career outcomes; structured guidance that helps students enroll in postsecondary programs, overcome educational deficits and identify a field of study; and ongoing support that measures progress and keeps students on track.¹⁶¹

New Mexico can make postsecondary career pathways more affordable by encouraging its community colleges and employers to develop **learn-and-earn programs** in the critical industry sectors identified in the Jobs Council report. Many students face significant financial barriers due to the length of their programs. Many work part-time because they lack eligibility for federal Pell aid or state need-based aid.

Although many public postsecondary institutions around **New Mexico** are employing diverse strategies to reduce the need for remediation and help more students complete their programs, current efforts “lack coordination and are instead implemented in a makeshift, piecemeal

¹⁵⁷ Jay Box. “Integrating Academic Skill Attainment Within Career & Technical Programs.” Presentation made to the Southern Regional Education Board's Commission on Career and Technical Education, December 2013.

¹⁵⁸ Legislative Finance Committee, 2014.

¹⁵⁹ Mary Fulton, Matt Gianneschi, Cheryl Blanco and Paolo DeMaria. *Developmental Strategies for College Readiness and Success: What State Policymakers Need to Know*. ECS and SREB, 2014.

¹⁶⁰ Legislative Finance Committee, 2014, pg. 34.

¹⁶¹ *Community Colleges in the South: Strengthening Readiness and Pathways*. SREB, 2014. See also Davis Jenkins and Sung-Woo Cho. *Get With the Program...and Finish It: Building Guided Pathways to Accelerate Student Completion*. CCRC, Teachers College, Columbia University, New York, 2014.

fashion. Further improvement will require comprehensive organization.”¹⁶² The Legislative Finance Committee’s College Readiness report made a number of key recommendations to the state’s legislature, including the following:

HED should:

- *Provide postsecondary performance feedback to high schools annually on the department’s website.*
- *Direct institutions to align placement scores statewide.*
- *Monitor and evaluate institutions’ alternatives to developmental education and provide technical support for postsecondary institutions to improve implementation.*
- *Revise the A-F school grading system to include college readiness as measured by remediation rates and gateway course completion.*

HED and PED should:

- *Require high schools to use the SBA or its equivalent to intervene with targeted courses for high school students likely to need college remediation.*
- *Align high school graduation requirements with college admissions criteria.*
- *Promulgate rules limiting dual credit to courses of study demonstrating improved student performance.*

The public postsecondary institutions should:

- *Limit the number of credit hours required by degree program to a reasonable standard.*
- *Establish semester-by-semester road maps for all programs.*
- *Develop measures as part of the Accountability in Government Act to report results of developmental education outcomes.*
- *Expand implementation of alternatives to developmental education.*

*High schools should use standards based assessments and other data to better advise college-bound students, particularly regarding senior year course selection and purposeful dual credit enrollment.*¹⁶³

Goal 5 – Findings

Other Data Sources

SREB’s analyses of educational pipeline data show that **most New Mexico students who enter ninth grade will likely not earn an advanced postsecondary credential or degree.** (See Table 23.) Of 100 students entering ninth grade, 30 will not graduate on time. Of the 70 who do graduate on time, 52 will immediately enroll in some form of postsecondary education. Of these, less than half will obtain a bachelor’s degree in six years, and just seven will acquire an associate degree in three years. **As these analyses show, by their mid-twenties, between 50 and 60 percent of New Mexico’s young adults will not hold a postsecondary certificate, credential or degree, or an industry credential of value**

¹⁶² Legislative Finance Committee, 2014, pg. 8.

¹⁶³ Legislative Finance Committee, 2014, pg. 9.

in the workplace. Young adults without a high school diploma or postsecondary credential are far more likely to face unemployment or employment in low-skill, low-wage jobs. (See Table 24.)

Table 23: Educational Pipeline Analysis of 100 New Mexico Ninth-Graders

Of 100 New Mexico Students Entering Ninth Grade (<i>n</i> = 100)*	
Graduated high school on time	70
Did not graduate high school on time	30
Of those who graduated on time (<i>n</i> = 70)*	
Continued on to further study immediately after graduating	52
Did not continue on to further study immediately after graduating	18
Of those who continued on to further study immediately after graduation (<i>n</i> = 52)**	
Received a bachelor's degree in six years	21
Received an associate degree in three years	7
Failed to get a degree on time (150 percent of expected time)	24

Sources: * 2010 data. [Student Pipeline - Transition and Completion Rates from 9th Grade to College](#). National Center for Higher Education Management Systems, 2014. ** 2012 data. [SREB Fact Book on Higher Education](#). SREB, 2014. "[Table 46: 150 Percent of Normal Time Graduation Rates in Public Universities and Colleges by Racial/Ethnic Groups](#)."

Table 24: New Mexico Unemployment Rates, All Ages and Youth Aged 20 to 24

Population	Age Range	Unemployment Rate
All	All Ages	7.2%
All	20- to 24-Year Olds	10.9
White	20- to 24-Year Olds	8.9
Hispanic or Latino	20- to 24-Year Olds	10.8
Black	20- to 24-Year Olds	8.2

Source: Bureau of Labor Statistics, Current Population Survey, 2013 data.

Data like these suggest that PED and HED must make a concerted effort to help more students acquire advanced industry and postsecondary credentials and degrees much sooner — **starting in high school**, which may be the last chance many students, especially at-risk students, have to acquire a credential or degree that helps them secure good jobs.

Further, PED and HED must redouble their efforts to help more students **immediately transition from high school to a full range of postsecondary programs** — including community college certificate and degree programs, work-based training programs, apprenticeships and other training leading to advanced credentials — in addition to four-year college degrees. **HED** must take steps to ensure that **postsecondary students receive the support they need** to successfully earn credentials and degrees.

CTE Course Analysis Data

As described at length in Goal 1, SREB's analyses of CTE course enrollment data showed that **few high schools are offering rigorous three- or four-course career pathways** that include dual credit-earning and work-based learning opportunities and lead to postsecondary study and advanced credentials. Many high schools, both large and small, are offering mostly introductory-level CTE courses that do not allow students to engage in the deeper learning needed to earn industry and postsecondary credentials before graduation. Twenty-five years of SREB research in thousands of HSTW and TCTW schools has shown that many introductory CTE courses feature unchallenging instruction and low-level assignments that do not add value to students' academic readiness for postsecondary study and careers. Tables 6 through 13 and

Figures 5 through 8 show how rigorous assignments and an integrated approach to instruction add value to students' college and career readiness.

New Mexico also has more than 60 small high schools that serve student populations of 250 students or less. Many of these schools are located in rural areas and have limited access to postsecondary and industry partners. Such schools may not have the resources to offer more than one or two CTE programs. **Diverse, creative solutions are needed to help such schools expand students' access to high-quality career pathways.**

Stakeholder Survey Data

Surveyed external stakeholders — business leaders, community representatives and parents — expressed strong support for the development of more CTE programs that prepare students for further study and good jobs. Table 25 summarizes responses from stakeholders who were asked whether the state and/or district should develop more programs.

Table 25: Surveyed Stakeholders' Support for New CTE Programs

Respondents	Should the State Develop More CTE Programs?	Should the District Develop More CTE Programs?
	Yes	Yes
Business Leaders (<i>n</i> = 133)	73%	77%
Community Representatives (<i>n</i> = 127)	86	82
Parents* (<i>n</i> = 271)	93	93

Note. * Parents were asked whether the "state or district" should develop more CTE programs.

Internal and external stakeholders expressed varying degrees of support for the development of high-quality CTE programs in diverse settings where resources did not allow every high school to offer such pathways. As Table 26 shows, all respondents asked this question were uniformly supportive of early access to postsecondary programs and/or dual credit-earning opportunities.

Table 26: Surveyed Stakeholders' Support for Diverse CTE Program Settings

CTE Program Settings	Postsec. Admin. (<i>n</i> = 19)	Principals (<i>n</i> = 71)*	Teachers (<i>n</i> = 233)
	Yes	Yes	Yes
Regional technical centers	68%	62%	67%
Regional career centers or career academies on postsecondary campuses	74	55	45
Regional early college high schools	74	44	50
New forms of work-based learning sponsored by education and industry	84	65	62
Early access to postsecondary programs and/or dual credit-earning opportunities	84	79	69

Note. * The number of principals who responded to these related items varied. An average is provided.

Generally speaking, **internal high school stakeholders (principals and CTE teachers) expressed the least support for options that could potentially take students out of their home high school for all or part of the school day, week or year** — like regional technical centers, career centers or academies on postsecondary campuses, or regional early college high schools.

Perhaps not surprisingly, **postsecondary administrators expressed strong support for all options that involved locating CTE programs wholly or in part on their campuses.** These respondents expressed slightly less support for regional technical centers — which could potentially compete with them for student enrollments.

Findings like these suggest that any efforts to establish career pathway programs in settings that blur the lines between secondary and postsecondary education **need to take into account the impact such programs may have on student enrollments and school or college funding formulas.** To address stakeholders' concerns, New Mexico needs to consider creative, flexible scheduling and funding strategies that permit students to participate in high school activities and graduate with their peers, while still being able to take advantage of the resources and instruction available at postsecondary institutions or in employer-sponsored work-based learning programs that their high schools may lack.

Goal 5 – Recommendations

Incentivize school districts to offer career pathways in diverse settings that allow students to earn advanced industry and postsecondary credentials while still participating in activities at their home high schools. Consider such settings as:

- comprehensive high schools
- early college high schools
- early advanced credential programs (e.g., like the state's Workforce Readiness Programs)
- career academies
- online or hybrid programs
- partnerships between high schools and regional postsecondary institutions
- highly structured, employer-sponsored work-based learning programs offered in an extended-year format

In partnership with PED, HED and DWS, incentivize districts, community colleges and four-year universities to create early advanced credential programs modeled after early college high schools that allow students to graduate with a high school diploma plus an advanced industry certification, postsecondary credential or significant credits that may be applied toward an associate's degree. SREB suggests that New Mexico redouble its support for its existing ECHS and Workforce Readiness Programs. See Goal 4 for recommendations specifically related to identifying and approving gold-standard industry credentials for such programs.

- Ensure that all students who **demonstrate readiness on sophomore- or junior-year readiness assessments** (see Goal 3) are eligible to enroll in an early advanced credential program at a regional postsecondary institution or in a structured, employer-sponsored work-based learning program.

- Ensure that all students in early advanced credential programs acquire the **foundational literacy and math skills** needed to earn advanced industry credentials that carry transferrable college credits (see Goal 3). Ensure that instruction is (1) aligned across home high schools and partnering postsecondary institutions, and (2) designed to help all students achieve college-readiness benchmarks on assessments like the ACT, the PSAT, the SAT, the PARCC or the ASVAB.

Encourage **flexible school schedules** that provide the intensive related instruction and work-based learning needed to earn advanced credentials. Consider:

- 13th-year programs at regional postsecondary institutions
 - extended school years or days
 - block schedules and seven-period days
 - junior- and senior-year studies at regional postsecondary institutions
 - hybrid programs comprised of online introductory and theoretical courses combined with hands-on, lab-based courses at regional postsecondary institutions, in mobile labs, or at a regional magnet high school
 - extended-year, employer-sponsored work-based learning programs
- **Market early advanced credential programs** to students, parents and schools across the state, highlighting the connections between credential and degree completion and employment outcomes.

Use a combination of incentives and performance-based funding models to encourage high schools, districts, community colleges and four-year universities offering two-year degrees to increase the percentage of students who complete career pathways and earn industry and postsecondary credentials, certificates and degrees.

- Develop funding models that **equitably fund participating secondary and postsecondary institutions** for the time students spend in their programs, and **equitably reward those institutions** for students' achievements (see Goal 10).

Increase the number of ways postsecondary students can qualify for credit-bearing course work and test out of developmental education. Establish multiple measures of postsecondary readiness, such as the GPA as well as benchmark scores on nationally normed assessments and college placement exams.

- Allow students who score below college-ready benchmarks to **co-enroll** in college credit-bearing academic and CTE courses and developmental instruction.
- **Redesign developmental math pathways** to reflect the math skills needed in STEM and non-STEM fields. Create multiple measures for student placement in these pathways. See the discussions regarding (1) the math skills required in different career pathways in Goal 3 and (2) community colleges' approaches to differentiating math instruction in this section.

Offer postsecondary students supplemental tutoring and skills labs. Use individualized supports such as early warning systems, success courses, learning communities and summer bridge programs.

Incentivize employers and community colleges or four-year universities offering two-year degree programs to invest in learn-and-earn programs that allow students to acquire credentials while earning a living wage. Ensure that such learn-and-earn programs serve as an extension of the progressively intensively work-based learning experiences students begin in high school. (See Goal 7 for more on work-based learning.)

Provide extra weight in the state accountability system and/or bonus funding to postsecondary institutions that partner with districts to create career pathway programs that increase the percentage of students who earn advanced industry credentials or degrees.

- Allocate extra weight in the accountability system for each high school student enrolled in such programs who **meets state college- and career-readiness standards**.
- Allocate extra weight in the accountability system for each high school student who **earns an advanced credential in a critical industry sector** upon graduating from high school or at the end of a 13th-year career pathway program.

Goal 6 – Create a guidance system of career information, exploration and advisement.

Goal 6 – Literature Review

As New Mexico strives to prepare more college- and career-ready students, it needs to promote a full range of pathways to postsecondary attainment and career advancement, pathways that include **community college certificate and degree programs, work-based training programs, apprenticeships and other training leading to advanced credentials — in addition to four-year college degrees.** Many high schools focus only on the four-year college and university option. Yet comparatively few young people — less than 34 percent of those aged 25 to 29¹⁶⁴ — hold a baccalaureate or higher, and too many are spending their early adult years undereducated and underemployed before enrolling in community colleges in their late 20s.¹⁶⁵

New Mexico needs to create a system of career guidance that transforms schools into **career-preparatory cultures** in which all students are ready for a full range of postsecondary options, including four-year institutions, community colleges, and work-based learn-and-earn programs. To change school cultures, New Mexico needs to educate students, parents and schools better about career pathways and clarify the relationship between education and labor market outcomes. American parents want this information: 89 percent of respondents to a 2014 PDK/Gallup poll agreed or strongly agreed that students need to learn more about possible career choices earlier.¹⁶⁶

The political capital needed to change school cultures already exists: **New Mexico's** House Memorial 14 commissioned PED, HED and other key stakeholders to create guidance systems of career information, exploration and advisement that help students see the value of career pathways spanning high school, postsecondary programs and the workplace.¹⁶⁷

However, New Mexico must ensure that its college and career counseling efforts make the connection between college and careers. The state's recent **College Counselor Initiative**, for example, seeks to create a cohort of high school counselors whose sole focus is increasing “college attendance through education about college admission and financial aid.”¹⁶⁸ The state should consider expanding this initiative to include **career information, exploration and advisement** that shows students how “college” —four-year college and universities as well as all other forms of advanced education and training after high school — leads to fulfilling careers.

Making a Big Deal out of Careers — Cuba High School's Annual Career Fair

Community and school leaders at Cuba High School (CHS) in Cuba, NM, formed a strong partnership to highlight careers and postsecondary options for students and families. For the past few years, CHS has hosted an annual career fair in the fall to showcase high school and postsecondary course work, apprenticeship programs and state career opportunities.

Students, community members and family members are invited to participate. The fair showcases both two- and four- year state institutions and offers presentations from state training partners such as the Iron Workers, Sheet Metal Workers and ABC Contracting Apprenticeships.

The fair is based on both student interests — gathered annually through interest inventories — and state employment trends. In 2014, over 400 participants took part.

¹⁶⁴ “Table 104.20: Percentage of persons 25 to 29 years old with selected levels of educational attainment, by race/ethnicity and sex: Selected years, 1920 through 2013.” NCES, 2014. See http://nces.ed.gov/programs/digest/d13/tables/dt13_104.20.asp.

¹⁶⁵ American Association of Community Colleges, 2014.

¹⁶⁶ Phi Delta Kappa International, 2014.

¹⁶⁷ See <http://www.nmlegis.gov/lcs/legislation.aspx?chamber=H&legtype=M&legno=14&year=15>.

¹⁶⁸ Request for Application: College Counselor Initiative 2014-2015. PED, 2014, pg. 2. See <http://ped.state.nm.us/ped/RFPDocs/CollegeCounselorRFA914.pdf>, pg.

Developmentally appropriate career guidance should begin with career awareness activities in elementary school. By the middle grades, students should begin testing a range of careers and educational options, identifying their aptitudes and interests, and setting tentative plans to reach their goals. At the middle grades level, career exploration activities should include field trips to businesses and colleges in the community, in which students gather information that they later analyze and present in writing or orally. The goal of such activities is for students to enhance their awareness of the opportunities that are available to them and to begin imagining what they can achieve.

At both the middle grades and high school levels, career exploration needs to be the focus of the entire school community. Research shows that a **distributed system of guidance** — one that engages teachers, counselors and other adults, including employers — helps students and parents plan for the future.¹⁶⁹

In **Ohio's** Career Connections initiative, career exploration and counseling activities should include annual revision of **individualized graduation plans**. These organize academic and technical course-taking around students' tentative career aspirations and plans for further education. When grounded in guided workplace experiences, students can make connections between their interests, their work and what they learn in school. Many states also offer websites where students can take interest inventories, investigate colleges and financial aid options, and search for career opportunities.

New Mexico law¹⁷⁰ mandates the implementation of **Next Step Plans** (NSPs), which students in grades eight through 12 use to identify their postsecondary interests, and annually update and revise their high school course of studies in preparation for graduation.¹⁷¹ State-issued guidance on the use of NSPs states that students will collaborate with guidance counselors or other personnel to “research personal career interests or goals, plan postsecondary education, explore financial aid opportunities and examine industry certification or other career options.”¹⁷² Schools are also required to inform students about:

Introducing Students to Careers at Carlsbad High School

Carlsbad High School (CHS) in Carlsbad, NM, hosts an annual career fair to introduce incoming students to CTE classes and organizations. All district eighth graders are transported to the high school to participate in campus tours guided by current CHS students. Visits are organized in structured rotations to ensure that students are exposed to all CTE options. During rotations, CTE students conduct demonstrations, present course options and highlight student organizations.

CHS has also created a new course, *Introduction to Skills*, that gives ninth graders an opportunity to complete brief units in each of the CTE program areas.

Curricular and course options, including honors and advanced placement courses, dual-credit courses, distance learning courses, career clusters, pre-apprenticeship programs or remediation programs that the college and workplace readiness assessments indicate to be appropriate.

Opportunities are available that lead to different post-high school options.

*Alternative opportunities are available if the student does not finish a planned curriculum.*¹⁷³

¹⁶⁹ James R. Stone III and Morgan Lewis. *College and Career Ready for the 21st Century: Making High School Matter*. Teachers College Press, 2012.

¹⁷⁰ State law: 22-13-1.1 NMSA 1978 and state rule: Subsection J of 6.29.1.9 NMAC.

¹⁷¹ *Guidance for Next Step Plans for Students in Grades 8-12*. May 7, 2012 Memorandum from Hanna Skandera to Superintendents, Principals, Charter School Administrators, Administrators for State-Supported Schools, REC Directors [and] Special Education Directors. PED, 2012.

¹⁷² PED, 2012, p. 12.

¹⁷³ *Ibid.*

Texas' Education Code requires counselors to work with each student on a four-year education plan. To supplement this activity, the Texas Workforce Commission provides high schools with labor market career information. Smartphone apps help students understand the connections between education, careers and earnings. The state also supports grants to improve counselors' abilities to offer career counseling.

Career exploration courses and career assessments are mandated in some schools' curricula. At **Fort Mill High School in Fort Mill, South Carolina**, ninth-graders take High School 101 (HS101), a required course that helps students identify their talents, interests and goals; acquire learning skills; and create personal plans of study to reach their goals.¹⁷⁴ Since adopting HS101, the school has seen pass rates on both components of the South Carolina High School Assessment Program exam increase, from 81 percent in 2000-01 to over 95 percent in 2012.¹⁷⁵

Other schools, like **Walhalla High School in Walhalla, South Carolina**, developed **teacher advisement systems** that create and sustain supportive relationships between teachers and students during all four years of high school. Teams of administrators, teachers and counselors evaluate student needs and plan grade-appropriate career exploratory lessons and activities.¹⁷⁶

New Mexico can leverage existing state resources to deliver career and college exploratory activities and counseling services. For example, PED is working with the **Everyone Graduates Center at Johns Hopkins University** to pilot an **Early Warning System (EWS)** that flags students at risk of dropping out or not graduating, and offers targeted, tiered interventions. Further, **the College Board** currently offers counselor training on how to expand AP participation. This initiative could potentially be expanded to include career pathway participation and career readiness. Under the state's partnership agreement with the College Board, the state pays for all 10th-grade students to take the PSAT/NMSQT. All 11th-grade students on free and reduced-price lunch are eligible for a fee waiver. Students on free and reduced-price lunch status can receive 2 SAT fee waivers, six free subject tests (two different administrations with three exams each), and four college application fee waivers.

Tracking Student Success

New Mexico should also seek to develop a state longitudinal data system that links educational, employment and workforce data. Educators and policymakers can use these data not only to develop and align career pathways, but also to develop websites that educate students and parents about how career pathways prepare students for success in further education and the workplace. Such data can also inform policymakers, education leaders and employers about program relevance, quality and institutional performance and show the return on investment of education in key industry sectors identified by the Jobs Council report.

Florida's Economic Security Report¹⁷⁷ merges student data — including institution, graduation year, degree or certification, and area of study — from the Florida Education and Training Placement Information Program, with unemployment insurance wage data, financial aid information and other data, allowing the state to analyze which institutions and programs are best contributing to its workforce needs. The Economic Security Report also powers

¹⁷⁴ Gene Bottoms and Ione Phillips. *Skills for a Lifetime: Teaching Students the Habits of Success*. SREB, 2010.

¹⁷⁵ Bottoms and Phillips, 2010. See also *2012 South Carolina Annual School Report Card Summary: Fort Mill High School*. South Carolina Department of Education, 2012. Beginning with the Class of 2015, South Carolina students are no longer required to meet high school exit examination requirements — see Act 155 ([H. 3919](#)).

¹⁷⁶ Bottoms and Phillips, 2010.

¹⁷⁷ Schneider, 2013.

beyondeducation.org, a website that lets students and parents explore career pathways, see the connections between education and earnings, calculate college costs and investigate the performance of postsecondary institutions.

New Mexico can leverage its existing **Education Data Dashboard**¹⁷⁸ and **College Board** career and college exploration tools in support of these kinds of efforts.

Goal 6 – Findings

CTE Course Analysis Data

While analyzing individual schools' CTE course data, SREB researchers sought to **flag instances of student enrollments in career exploratory and work-based learning courses**. The work-based learning courses they found are described in Goal 7.

Researchers found that a number of career exploration courses — possibly non-pathway specific — are offered under 1600: Technology Education. *1603: Career Exploration*, described as intended for grades six to eight, was offered in some high schools. Three courses — *1604: Employability Skills* (grades 9-12), *1605: Diversified Occupations* (grades nine to 12), and *1606: Work Experience* (grades 11 to 12) — are described as offering opportunities for students to match their skills and interests with potential careers. The latter two courses appear to emphasize actual employment. Researchers commented on these courses in school reports when they found them, but were unable to determine whether all CTE students or only Technology Education students were taking these courses.

STARS also includes pathway-specific career exploration courses, largely intended for middle grades students, like *0100: Agricultural Explorations* (grades seven to eight), *0200: Business/Office Career Exploration* (grades six to eight), *0401: Construction Career Exploration* (grades six to eight), and *1501: Health Care Occupations Career Exploration* (grades seven to 12). A handful of high schools offered courses like these. However, unlike pathway-specific work-based learning courses, such courses were not as widely available across CTE-related STARS areas, and researchers found few instances of high school students taking them. SREB research has found that many middle grades exploratory courses are largely used to recruit students into specific pathways — often traditional programs — instead of exposing them to a broad range of opportunities in modern, high-demand fields. Recommendations made later in this section address the types of exploratory courses and experiences that are appropriate for middle grades versus high school students.

Stakeholder Survey Data

Student, teacher and counselor survey responses are most helpful in understanding how New Mexico's high schools approach career exploration, guidance and advising activities. **Overall, survey results suggest that few students are participating in a range of activities designed to expose them to career and college options; bring them into close and regular contact with employers, postsecondary faculty and counselors, and other community members; and broaden their understanding of what is possible.**

As Table 27 shows, when asked about **their plans for the future**, the majority of New Mexico high school students who responded to SREB's survey ($N = 2,432$) indicated that they set and

¹⁷⁸ <http://ped.state.nm.us/ped/DDashIndex.html>.

pursued goals (75 percent), had a dream of who they wanted to be (72 percent) and had defined success for themselves (64 percent). Fifty-six percent had researched potential careers. Far fewer students indicated that they were aware of high-demand jobs (51 percent) or had received help from a teacher or counselor in identifying their aptitudes (43 percent) or identifying career goals (44 percent).

New Mexico students appear to be thinking about their future careers, but not all of them know how to obtain them. Although 90 percent of all students reported having a career goal, more than a quarter (27 percent) said they **did not know** what education and training are required achieve it.

Table 27: Percentage of Students Reporting Indicators of Counseling for Careers

Seven Indicators of a Counseling for Careers Approach to Career Guidance	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South- western (n = 990)	State (n = 2,483)
I set and pursue goals.	73%	70%	74%	78%	75%
I have defined what a successful life would look like for me.	63	60	65	66	64
I have a dream or passion for what I want to become.	72	71	72	73	72
I have spent time researching possible careers.	56	58	55	57	56
I know what jobs and careers will be in high demand.	51	51	50	50	51
A counselor or adult has helped me understand my strengths, skills, aptitudes and abilities.	43	40	43	46	43
A counselor or adult has helped me think about potential career goals.	46	40	43	46	44

Note. Intensive = 5-7 indicators, Moderate = 2-4 indicators, Low = 0-1 indicators.

Table 28 shows the association between intensive career exploratory experiences and readiness outcomes. **Less than half** (46 percent) of New Mexico CTE students who responded to SREB's survey reported experiencing indicators of a Counseling for Careers approach to career exploration at an intensive level (i.e., five to seven indicators). As shown in Table 28 and Figure 9, 2014 HSTW Student Survey results show that more intensive career exploratory experiences are associated with higher academic achievement. Schools that place a premium on creating career preparatory cultures in which all students are prepared for a full range of options after high school reap the benefits in enhanced student performance.

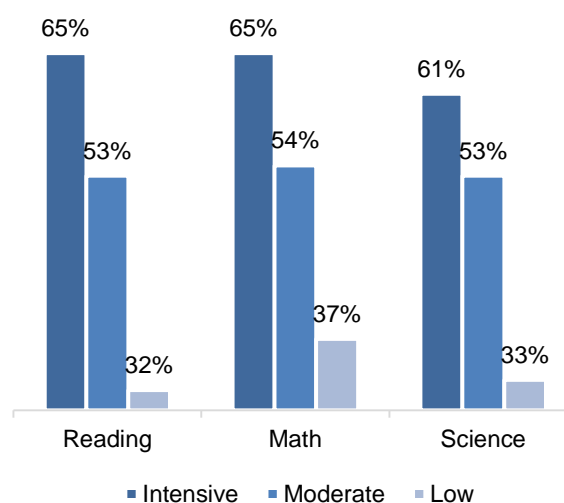
Table 28: Percentage of New Mexico and HSTW Students Reporting Multiple Indicators of Counseling for Careers and Percentage of HSTW Students Meeting Readiness Goals

Level of Exposure	# of Indicators	State* (N = 2,483)	North. (n = 537)	Cent. (n = 442)	East. (n = 504)	South-west. (n = 990)	% of HSTW Students Reporting** (N = 14,776)	% of HSTW Students Meeting Readiness Goals (n = 14,776)		
								Reading	Math	Science
Intensive	5-7	46%	47%	43%	46%	47%	49%	65%	65%	61%
Moderate	2-4	35	33	34	36	36	26	53	54	53
Low	0-1	19	20	22	18	17	25	32	37	33

Sources: * = New Mexico High School Student Surveys. ** = 2014 HSTW Student Surveys, CTE students only.

New Mexico student survey results also show that not many students are participating in the kinds of career exploratory activities and experiences that will help them learn how to identify and achieve their postsecondary goals. As Table 29 shows, low numbers of students reported experiencing a range of career information, exploration and advisement activities that took them out of the school context and introduced them to a broader range of postsecondary and career opportunities in their communities. Statewide, the lowest numbers of students reported participating in work-based learning experiences (18 percent; see Goal 7); attending a meeting with their parents at the school to talk about post-graduation plans (20 percent); and taking a career exploration class (23 percent).

Figure 9: Percentage of HSTW Students Meeting Readiness Goals by Counseling for Careers (n = 14,777)



Note. Intensive = 5-7 indicators; Moderate = 2-4 indicators; Low = 0-1 indicators. Source: 2014 HSTW Student Surveys, CTE students only.

Table 29: Percentage of Students Reporting Experiencing Indicators of Career Information, Exploration and Advisement

Seven Indicators of Career Information, Exploration and Advisement	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South-western (n = 990)	State (n = 2,483)
I took a career exploratory class.	19%	25%	24%	23%	23%
I participated in job shadowing, internship, co-op or other work-based learning experiences.	17	16	25	15	18
I attended a career fair.	27	31	22	26	26
I attended a college fair.	42	50	46	41	44
I attended a meeting at school with my parents (step-parents or guardians) to talk about plans for after I graduate.	17	20	15	23	20

Seven Indicators of Career Information, Exploration and Advisement	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South- western (n = 990)	State (n = 2,483)
I had the same teacher or counselor as my adviser for all four years of high school.	28	29	23	37	31
I observed established workers performing certain jobs.	30	32	45	29	33

Note. Intensive = 3-7 indicators; Moderate = 2 indicators; Low = 0-1 indicators.

As Table 30 shows, statewide, just 18 percent of New Mexico CTE students who responded to SREB's student survey reported experiencing an intensive level of exposure (i.e., three to seven out of seven indicators) to activities associated with a system of career information, exploration and advisement. **The vast majority of students (82 percent) experienced only moderate (41 percent) or low (41 percent) levels of exposure to career information, exploration and advisement activities.**

Table 30: Percentage of Students Reporting Multiple Indicators of Career Information, Exploration and Advisement

Level of Exposure	Number of Indicators	State (n = 2,483)	Northern (n = 537)	Central (n = 442)	Eastern (n = 504)	South- western (n = 990)
Intensive	3-7	18%	16%	19%	19%	18%
Moderate	2	41	42	43	45	39
Low	0-1	41	42	37	36	43

Further, New Mexico high school students had limited interactions with business, community and college representatives, regardless of whether those interactions happened at the high school or in the community. Only about half of surveyed students reported hearing a guest speaker talk about career options (51 percent) or college options (56 percent). As will be discussed in Goal 7, few students reported participating in work-based learning experiences that would take them off the high school campus and out into their communities.

External stakeholders confirm that New Mexico high school students have few opportunities to interact with them. Among surveyed **business leaders** (n = 133), 32 percent said they had mentored or tutored students, 26 percent had made a presentation to CTE students and just 15 percent had hosted a field trip. Fewer **community representatives** (n = 127) had engaged in such activities: 17 percent had mentored students, 28 percent had made a presentation and 14 percent had hosted a field trip.

Table 31: Outreach Efforts Reported by Postsecondary Administrators (n = 19)

Outreach Strategies, Activities and Tools	
Campus tours	95%
Shadowing opportunities	16
Participation in college fairs	100
Visits by college representatives	100
Distribution of printed marketing materials	100
Mailings of printed marketing materials	69
College website	100
Social media outreach	79
Advertising on TV, radio or newspapers	84
Other	21

By comparison, SREB's survey of postsecondary administrators revealed that colleges are using diverse means to try to reach students. Table 31 summarizes their responses. All administrators reported using college fairs, college representative visits, marketing materials and websites to expose students to their programs. The least popular response was college shadowing opportunities.

In general, counselors' survey responders say many high school counseling departments are understaffed or saddled with multiple responsibilities. Cross-cutting analyses of stakeholder survey responses also suggest that counseling department support for and knowledge of CTE programs may need to be upgraded.

Although 52 percent of **counselors** ($n = 81$) said **they were very familiar with their school's CTE offerings**, just 31 percent of **CTE teachers** ($n = 251$) believed that counselors were very familiar with CTE programs at the school. SREB's analyses of CTE course enrollment data showed that most CTE programs are traditional in focus (see Goal 1, Tables 2, 3 and 4). **As such, New Mexico's counselors may be familiar only with traditional CTE programs and career opportunities, not with emerging employment opportunities in the state's high-demand industries.**

Among **parents** ($n = 195$), a little more than half (53 percent) reported that they and their children **knew about high school CTE courses** before they entered high school. Slightly more (57 percent) reported that a **counselor had helped their child select CTE classes**. New Mexico's parents are interested in high-demand careers for their children: As Table 15 (see Goal 2) showed, surveyed parents showed the greatest interest in access to career pathways in Emerging Technologies, Energy & Natural Resources and Technology Support. SREB's course data analyses showed few or no pathways in these areas.

Although 90 percent of counselors ($n = 81$) reported participating in at least one professional development opportunity during the past school year, nearly two-thirds ($n = 79$) said that they **had not received professional development designed to help them advise students regarding CTE programs of study**.

Fifty-two percent of counselors ($n = 81$) reported that **career development and exploration activities occurred often or always** at their schools.

Sixty-eight percent of counselors ($n = 81$) reported that students **are encouraged to complete a CTE program of study**, but just 58 percent reported **often or always working with teachers and administrators** to increase the percentage of students who complete a CTE program of study.

As Table 32 shows, career guidance and advising tools and strategies reported by counselors varied. The most commonly reported strategies, reported by an average of about two-thirds of all counselors, were opportunities to learn about careers, career assessment tools and one-on-one advice about job resources.

Table 32: Career Guidance and Advising Services Reported by Counselors (n = 81)

Career Guidance and Advising Services Offered	
One-on-one guidance using job aids	40%
One-on-one advice about job and networking resources	64
Resume-writing skills	49
Career assessment tools	64
Exploratory assessment tools	48
Vocational evaluations	22
Guidance on seeing how classroom skills and knowledge relate to a variety of career options	49
Opportunities to learn about a wide range of career options	67

Principal and CTE teacher survey responses affirm that New Mexico high school students receive school-based career guidance and counseling services from multiple adults at their schools. Table 33 summarizes their responses.

Table 33: Adults from Whom Students Receive Career Guidance and Counseling

Adults at School	Principals (n = 119)	Teachers (n = 251)
Counselors	89%	88%
CTE Teachers	88	81
Academic teachers	90	71
Other adults in the school	84	43

CTE teachers' survey responses (n = 251) show that they are helping their students with multiple aspects of career and college planning. Many teachers (80 percent) reported helping students with developing a plan of study for high school and beyond; three-quarters helped students complete career interest surveys. Fewer teachers (between 35 percent and 55 percent) reported helping students with activities like registering for placement tests, completing college applications or applying for financial aid.

CTE teacher survey results show that most teachers are already engaging in some form of teacher advisement, suggesting that such systems could be more widely and systematically implemented schools. About two-thirds of CTE teachers engage in student advising during a scheduled class period, and over half (57 percent) report being part of a structured guidance-advisory program in their schools. Seventy-one percent have a core group of students that they advise. On average, more than three-quarters of these CTE teachers report meeting with students, communicating with students and parents about post-high school studies and working with students and parents on ways to improve achievement, at least once or multiple times each semester.

Goal 6 – Recommendations

Work with districts to develop grade-appropriate career exploration courses and activities in the middle grades and high school and adopt distributed, curriculum-based, community-based career guidance systems that make career and college counseling the shared responsibility of adults both in the school and in the community. Establish appropriate career awareness standards for the elementary grades in preparation for more intensive career exploration in the middle grades and high school.

- Offer counselors professional development on how to develop and support **teacher advisement systems** in which teachers design planned lessons and assignments that help students understand their career interests, plan their courses and identify a career focus for their postsecondary studies.
- Allow schools without counselors to **designate teachers to lead these efforts**, with adequate release time.
- Help all middle grades schools and high schools to structure the guidance and advising experience around **New Mexico's Next Step Plans**, which are already established in schools. Ensure that these plans:
 - include students' career pathways or concentrations¹⁷⁹ plus a college-ready academic core;
 - align with students' college and career goals;
 - are revised and reviewed at least annually by students and parents; and
 - record students' participation in a progressive set of experiences designed to help them explore career opportunities in a broad range of industries, visit two- and four-year postsecondary institutions and technical schools, and engage in ongoing work-based learning opportunities with regional employers. (See Goal 7.)
- **Assign a teacher-adviser to every student** and, where possible, ensure that students have the same teacher-adviser throughout all four years of high school. Structure school schedules to allow teachers to plan lessons and meet weekly with their student advisees.
- Develop a repository of **grade-appropriate career exploratory lessons and assignments** that provide teachers and counselors with tools and strategies to help students think about not only choosing a college but also selecting a career focus for their college studies.
- Ensure that guidance systems include **career exploratory experiences** that help students understand their interests and aptitudes and explore jobs and postsecondary options through activities like job shadowing, internships, career research and interviews with adults. (See Goal 7 for more on progressively intensive work-based learning.)
- Consider offering **initial grants to pacesetter high schools** in each region to develop and implement these guidance systems. Ensure that all schools implementing these systems receive grants and technical assistance.

Prioritize state funds and seek additional funding sources to create and maintain high school career and college advising centers featuring multimedia marketing materials and online resources that counselors, teachers and students can use to explore career pathways and plan for the future.

- Encourage regional community colleges and four-year universities offering two-year degrees to **staff high school centers** on designated days to provide support to students, parents and school personnel.
- Consider investing in **career readiness counselors** for all students.

¹⁷⁹ Ensure that students interested in more traditional academic studies are able to concentrate in math, science or the humanities.

Work with industry partners, community colleges and four-year universities offering two-year degrees to develop multimedia marketing materials and outreach campaigns that educate district and school leaders, teachers, counselors, students and parents about the value of career pathways.

- Charge state economic and workforce agencies with developing and distributing materials that **describe career opportunities in key industries** to students, parents and schools, as well as with conducting educational activities with high school teachers and counselors and community college advisers.
- Encourage regional community colleges and four-year universities offering two-year degrees to **develop and disseminate materials** that illustrate how career pathways at the postsecondary level can save students time and money.

Allocate funds to create career pathway websites featuring tools and materials that help New Mexico's policymakers, administrators, teachers, counselors, students and parents explore:

- **state and regional job opportunities and earnings** associated with career pathways at different levels of preparation and postsecondary attainment;
- **skills and competencies required by employers** in specific career pathways;
- **program completion rates** of New Mexico postsecondary institutions offering career pathways;
- employers across New Mexico who offer **learn-and-earn programs** in specific career pathways; and
- **costs incurred by students** (e.g., tuition and fees) pursuing specific career pathways at New Mexico's postsecondary institutions.

Use the educational and employment data housed in career pathway websites as a framework for aligning curriculum and instruction with specific occupational requirements.

- Partner with DWS to **use analytic tools that draw on real-time job data** to analyze workforce needs and identify the licenses, certificates, credentials and degrees requested by employers.

Goal 7 – Increase access to high-quality work-based learning experiences.

Goal 7 – Literature Review

Greater employer involvement in education — including increased investment in **work-based learning** — helps more students make good decisions about their career and college options. Through structured experiences like job shadowing, co-ops, paid and unpaid internships, school-based enterprises and service learning, work-based learning encourages students to apply the knowledge and skills they learn in the classroom to the solution of problems in real workplace settings, or, in some cases, school-based, youth-run enterprises that simulate a real workplace.¹⁸⁰ Work-based learning also offers students opportunities to experience different aspects of an industry, learn the personal, social, technical and workplace skills and competencies needed for success, and engage with caring adult mentors. Although research findings are mixed, work-based learning has been found to help students apply academic learning, boost their motivation, explore careers and identify connections between the classroom and the real world.¹⁸¹

Work-based learning offers a powerful means of socializing students into the world of work. This is particularly valuable for low-income students, who may lack the social capital to learn about many careers. American parents agree that students need these hands-on learning opportunities outside of the school: Two-thirds of parents agree that high school students should complete at least one volunteer experience or paid internship before graduation, according to a recent PDK/Gallup poll.¹⁸²

In **California's Linked Learning** high schools, work-based learning bridges classroom instruction and hands-on learning in the workplace. At Palmdale High School, groups of seniors spend three mornings a week at a Kaiser Permanente facility working with real patients, learning how to perform electrocardiograms and evaluating test results. A dedicated physician's assistant works with their teacher. Back in the medical science classroom, students explore the human cardiovascular system, the role that electricity plays in regulating the heart, and how disease affects it.

At the postsecondary level, work-based learning experiences like internships and apprenticeships teach students highly specialized technical skills. **Employer-sponsored learn-and-earn programs can help New Mexico limit the rising cost of postsecondary education while meeting workforce needs in the existing and emerging industries identified in the Jobs Council report.**

The **Advanced Manufacturing Technician program**, originally developed by **Toyota** in partnership with the **Kentucky Community & Technical College System**, prepares technicians with the academic, technical and workplace skills necessary to succeed in advanced manufacturing careers. The program offers work-based learning experiences in a manufacturing environment. Students learn about safety and manufacturing, and acquire problem-solving and communication skills. After high school, students finish an associate degree in five semesters

¹⁸⁰ Stephen F. Hamilton and Mary Agnes Hamilton. "When Is Learning Work-Based?" *Phi Delta Kappan* 78.9 (1997): 676.

¹⁸¹ Corinne Alfeld, Ivan Charner, Lisa Johnson and Eric Watts. *Work-Based Learning Opportunities for High School Students*. National Research Center for Career and Technical Education, 2013.

¹⁸² Phi Delta Kappa International, 2014.

while earning up to \$40,000 each year.¹⁸³ They work three days a week for Toyota and spend two days engaged in intensive related studies. Those who complete the program are hired at starting salaries of at least \$60,000 a year and can continue their studies at the bachelor's level or higher.

Work-based learning is a smart investment for employers, their current employees and their future workforce. It also offers financial benefits. Some states provide tax credits to encourage participation. **Alabama's** House Bill 384 extends state income tax credits of 50 percent to employers who donate to dual enrollment scholarships. Employers can earmark 80 percent of their donations to support training in specific careers. Up to 10 million dollars will help 9,500 students participate in dual enrollment each year.¹⁸⁴

In **West Virginia's** Simulated Workplace Initiative, secondary, postsecondary, industry and workforce development agency partners are helping transform high schools into business environments that blend academic, technical and workplace skills. These programs challenge students to complete projects that offer value to their schools and communities. On the road to earning industry credentials and college credits, students learn how to excel in a business environment. Students are expected to master academic and technical content, complete their assignments, arrive punctually, adhere to company protocols, demonstrate professional ethics, work in teams and provide good customer service. Industry partners assist schools in evaluating program and student success.¹⁸⁵

Protecting Students and Employers Engaged in Work-Based Learning

In **Colorado**, students engaged in unpaid internships or cooperative education programs are insured through their educational institution's workers' compensation and liability insurance. Alternatively, the educational institution can negotiate with the employer to provide a "reasonable level of compensation... for the employer's expense of providing workers' compensation and liability insurance while [the] student is participating in on-the-job training."¹⁸⁶ (C.R.S. 8-40-302; 2013).

Maryland's Workers' Compensation system covers students participating in unpaid work-based learning experiences. State law limits employers' liability if a student is injured in an unpaid work-based learning experience.

Kentucky formed an agreement with a temporary employment agency that hires and assumes liability for 16- and 17-year-old participants in paid internships. Businesses pay the employment agency, which in turn pays the students.

Goal 7 – Findings

CTE Course Analysis Data

As noted in Goal 1, SREB's analyses of CTE course enrollment data showed that very few students are taking work-based learning courses or engaging in ongoing, progressively intensive work-based learning experiences. Where present, researchers

¹⁸³ Debra Gibson Isaacs. "Producing More Skilled Workers: Kentucky Public and Private Sectors Teaming Up to Train Skilled Workforce Big Enough for Advanced Manufacturing Needs." *The Lane Report*, May 6, 2014.

¹⁸⁴ Alabama House Bill 384.

¹⁸⁵ See <http://wvde.state.wv.us/simulated-workplace/>.

¹⁸⁶ C.R.S. 8-40-302 (2013). See <http://www.lpdirect.net/casb/crs/8-40-302.html>.

most frequently noted that students were taking work-based learning courses in the areas of agriculture and business. However, the STARS catalog includes work-based learning courses in nearly all CTE-related program areas, with the exception of 1400: Health Education, 1900: Mass Communication and 2100: Military Science. Work-based learning courses in STARS are variably described as work-site experiences, cooperative education, OJT (on-the-job training), internships or mentorships. Some STARS areas even feature more than one potential work-based learning course option – but again, few students are taking these courses.

Work-based learning courses available under 0800: Elective Activities were offered only rarely and to very low student enrollments. Researchers flagged and commented on these courses on individual school reports (see Technical Appendix A). Elective courses include a range of student aide courses (e.g., teacher's aide, office aide); two Executive Internship courses; three Jobs for America's Graduates courses; and three progressively intensive Academic Career Experience courses.

Other work-based learning courses offered under 1600: Technology Education – like career exploration, employability skills, 21st-century skills,¹⁸⁷ diversified occupations and work experience courses – did not appear to be widely available across schools. Researchers found these courses to be somewhat more popular than work-based learning courses offered under Elective Activities. However, descriptions of these courses in the STARS manual do not make clear whether they are specific to the field of technology education or whether they may be taken by students interested in different career fields. Researchers commented on these courses in individual school reports where they were found.

Stakeholder Survey Data

Surveyed stakeholder groups agreed that although work-based learning experiences are critical for New Mexico's CTE students, opportunities to participate in them are scarce and need to be more widespread. Specifically:

- Nearly three-quarters of surveyed **parents** (72 percent, $n = 271$) said they wished that more on-the-job-training was available to their children.
- Less than half of surveyed **counselors** ($n = 80$) indicated that their schools offered job shadowing (49 percent) or unpaid internships (46 percent). Nearly three-quarters (73 percent, $n = 15$) said it was a challenge to place students in work-based learning. Some counselors reported that their schools could not offer work-based learning because of their rural location. **District or regional coordination would help facilitate work-based learning at small and rural schools, as noted in the Recommendations.**
- Nineteen percent of **principals** ($n = 119$) said that none of their CTE programs offered work-based learning. And less than a third (29 percent) said that most or all of their CTE programs offered work-based learning.
- Less than a quarter of surveyed **CTE teachers** (24 percent, $n = 234$) reported that their students often participated in job shadowing, co-ops or internships. Forty-five percent said that their students sometimes participated in these activities.

¹⁸⁷ One of several Ford Partnership for Advanced Studies courses.

Survey results show that New Mexico’s employers need to be better educated about the return on investment of work-based learning experiences for high school students, more involved in offering these types of experiences to students, and incentivized to offer students such experiences.

Just 20 percent of **business leaders** ($n = 133$) who responded to SREB’s survey said that their companies offered work-based experiences to high school students. However, the experiences those employers were offering appeared to be of high quality. Of those business leaders who offered work-based learning:

- Eighty-one percent assigned students to a **mentor**.
- Seventy-seven percent said students **rotated through different jobs**.
- Eighty-five percent had students progressively move to **more complex tasks**.
- Ninety-two percent gave students the opportunity to learn about **different aspects of their industry**.
- Eighty-eight percent said students acquired **general workplace readiness skills**.
- Eighty-five percent indicated that they would give **hiring preference** to students who had participated in work-based learning.

Encouragingly, 64 percent of business leaders ($n = 105$) reported that they would allow high school student interns to participate in their company’s ongoing training activities, and 51 percent said they would allow CTE teachers and community college faculty to participate in their ongoing training.

Student survey responses showed that most were not participating in work-based learning. More than half of all student respondents (58 percent, $n = 2,483$) reported that they did not have a part-time job during the school year. As Table 34 shows, of those who did have a job, **just 33 percent reported that it was part of a school-organized work or training program.** For students who did take part in work-based learning, co-op programs were the most frequently reported, closely followed by internships and apprenticeships.

Table 34: Surveyed CTE Students’ Participation in Work-Based Learning

Is this job part of a formal work or training program organized through your school?	State ($n = 999$)	Northern ($n = 200$)	Central ($n = 179$)	Eastern ($n = 280$)	South-western ($n = 340$)
Yes, it is a cooperative learning program.	36%	31%	34%	36%	40%
Yes, it is an apprenticeship.	25	27	31	15	28
Yes, it is an internship.	29	32	18	43	23
Yes, it is part of Jobs for America's Graduates.	10	10	16	7	9

As Table 35 shows, among surveyed students who reported participating in work-based learning ($n = 999$), 85 percent of students said they had someone teach them how to do work; 81 percent said they were able to observe established workers performing certain jobs; and 67 percent said they received new employee training. However, much lower numbers of students reported being

frequently encouraged by their employers to develop certain skills, like customer service skills (53 percent), teamwork skills (53 percent), communication skills (50 percent), or good work habits (49 percent). Low numbers of students reported being encouraged by their employers to do well in their academic studies (40 percent) or to use math in job activities (40 percent).

Table 35: Percentage of Students Reporting Experiencing Indicators of Work-Based Learning

Ten Indicators of Work-Based Learning	Northern (n = 200)	Central (n = 179)	Eastern (n = 280)	South-western (n = 340)	State (n = 999)
Students received new employee training.	66%	67%	71%	66%	67%
Students observed established workers performing certain jobs.	81	80	80	83	81
Students had someone teach them how to do the work.	79	84	88	86	85
Students received school credit for their work experience.	34	36	39	29	34
Employer encouraged students to develop good work habits weekly.	47	46	51	49	49
Employer encouraged students in their academic studies at school weekly.	39	45	39	38	40
Employer encouraged students to develop good customer relations skills.	54	53	57	49	53
Employer encouraged students to develop good teamwork skills.	52	51	59	51	53
Employer encouraged students to use communication skills (reading, writing and speaking) in job-related activities.	48	48	55	47	50
Employer encouraged students to use mathematics in job-related activities.	34	37	42	44	40

Note. Intensive = 9-10 indicators; Moderate = 5-8 indicators; Low = 0-4 indicators.

Table 36 breaks out the number of students reporting experiencing *intensive* (9 to 10 indicators), *moderate* (5 to 8 indicators) and *low* (0 to 4 indicators) exposure to these 10 indicators of work-based learning experiences. Less than 20 percent of students statewide were exposed to an intensive number of these indicators. The vast majority (81 percent) experienced only moderate (39 percent) or low (42 percent) exposure to indicators of high-quality work-based learning experiences. Recollect that surveyed business leaders questioned New Mexico students' academic, technical and workplace skills and readiness for careers in their industries (see Goal 1 and Goal 4) — yet as Tables 35 and 36 show, students participating in work-based learning are not receiving the training and encouragement they need for workplace success.

A high-quality, structured program of ongoing, progressively intensive work-based learning must include these and other indicators of quality work site learning and establish performance metrics for assessing program quality and student outcomes.

Table 36: Percentage of New Mexico Students Reporting Multiple Indicators of Work-Based Learning

Level of Exposure	Number of Indicators	State (n = 999)	Northern (n = 200)	Central (n = 179)	Eastern (n = 280)	South-western (n = 340)
Intensive	9-10	19%	17%	18%	21%	19%
Moderate	5-8	39	37	40	41	37
Low	0-4	42	46	42	38	44

Goal 7 – Recommendations

Incentivize the state’s industry partners to expand ongoing, structured, progressively intensive work-based learning experiences that engage students in authentic applications of academic, technical and workplace skills.

- Extend **state or local tax credits** to employers to cover a portion of student trainee salaries and to cover a portion of the time employers spend training, mentoring or reviewing student assignments. Consider gradually reducing tax credits on a sliding scale over time as student trainees offer greater value to their employers.
- Ask employers to commit to **hiring some proportion of students** who complete their training.
- Establish **standards and performance metrics** for assessing the quality of students’ work-based learning experiences and hold schools and employers accountable for student outcomes.

Develop policies with insurers, workforce commissions and other agencies to protect students and their employers in work-based learning experiences.

Assign responsibility for coordinating work-based learning at the school, district or regional level while leveraging the resources of workforce development agencies, nonprofit organizations or chambers of commerce. Coordination at the district or regional level benefits both large, urban districts and small, rural schools that lack access to a broad range of employers and other community partners.

- Provide schools, districts, postsecondary institutions and employers with **adequate resources** to ensure broad participation in work-based learning.

Help smaller high schools or rural high schools that lack access to a broad base of regional employers to develop school-based enterprises.

Consider consolidating all non-career pathway-specific work-based learning, career exploration (see Goal 6), internship, employability skills and diversified occupations courses under a single heading in STARS (e.g., 0800: Electives) and making such courses available to all students, not just CTE students.

- Ensure that students enrolling in career exploratory and work-based learning courses like these receive **appropriate CTE credits** as well as credits toward graduation, as applicable.

Goal 8 – Attract, prepare and retain high-quality career pathway teachers.

Goal 8 – Literature Review

CTE teachers do much more than just teach technical skills: They prepare students for a modern workplace in which workers must understand complex technical materials, conduct research, apply math, use technology and function as team players who can anticipate and solve problems.

New Mexico needs to provide all career pathway teachers and their principals with professional development that supports students' academic and technical readiness. In addition, new teachers from industry need fast-track induction programs that prepare them to teach rigorous career pathway courses.

With fewer universities offering CTE teacher preparation programs¹⁸⁸ and the need for teachers increasing due to higher demand for high school CTE programs, many states, like New Mexico, have employed alternative certification models to put teachers with valuable industry experience in CTE classrooms.¹⁸⁹ SREB has found that about 75 percent of all new CTE teachers enter the profession through this route rather than through traditional teacher preparation programs.¹⁹⁰ **In New Mexico, SREB's CTE teacher surveys showed that about 40 percent of all surveyed teachers came from university teacher preparation programs.**

Requirements for alternative certification vary greatly among and within districts and states, with some routes taking as many as five years to complete.¹⁹¹ Few states require new teachers to participate in an intensive induction program or receive support during their first year of teaching. Most new CTE teachers enter the classroom with little training and no experience designing real-world assignments, managing diverse learners, preparing exams, or embedding literacy and math in their instruction. Without adequate support, new CTE teachers are more likely to leave the profession within the first few years of teaching.¹⁹²

In SREB's surveys of thousands of teachers at HSTW and TCTW sites nationwide, a high percentage of new CTE teachers report a need for professional development on creating real-world, project-based assignments, engaging students in literacy and math, and helping students use software and technology. HSTW and TCTW teacher survey results also show that at least half of veteran CTE teachers need strong preparation and professional development related to designing real-world assignments.

Both new and veteran academic and CTE teachers and school principals need ongoing and intensive professional development to raise the quality of instruction.

Many states offer teacher induction programs that prepare new teachers with the pedagogical and classroom management skills they need to plan, deliver and assess instruction. New Mexico

¹⁸⁸ Steve DeWitt. "Addressing Teacher Retention and Quality." *Techniques*, 85:1, 13. See also National Association of State Directors of Career Technical Education Consortium. *A Look Inside: A Synopsis of CTE Trends – Focus: Teacher and Faculty Shortages*. NASDCTEC, 2010.

¹⁸⁹ NRCCTE. *Improving Secondary Career and Technical Education through Professional Development: Alternative Certification and Use of Technical Assessment Data*. NRCCTE, 2011.

¹⁹⁰ Gene Bottoms and Kathleen McNally. *Actions States Can Take to Place a Highly Qualified CTE Teacher in Every Classroom*. SREB, 2005.

¹⁹¹ Christopher J. Zirkle, Lindsey Martin and N. L. McCaslin. *Study of State Certification/Licensure Requirements for Secondary Career and Technical Education Teachers*. NRCCTE, 2007.

¹⁹² Richard M. Joerger. "Comparison of the Impact of Teaching Events upon the Experience of Entry-Level Agricultural Education Teachers." *Journal of Career and Technical Education*. 20:1 (2003): 51-68.

should adopt, adapt or develop its own approach to preparing new CTE teachers. For example, **Teach for America**¹⁹³ offers a model of teacher preparation that, although not originally designed to support CTE teachers, could potentially be adapted to suit the state's needs. Teach for America features intensive summer training, coaching and ongoing professional development.

As another example, the U.S. Department of Education-funded **National Research Center for Career and Technical Education** created, field-tested and validated a fast-track induction program for alternatively certified CTE teachers — **Teaching to Lead** — that builds the capacity of CTE teachers to design intellectually demanding, standards-focused instruction and use strategies like project-based learning, work-based learning and cooperative learning. Teachers participate in intensive professional development during the first year and a half of employment, receive expert coaching and participate in a community of practice.

Systems like **Teach for America** and **Teaching to Lead** are long-term and intensive, and include ongoing development, coaching and support, because research shows that one-time workshops are not enough to change practices and improve student outcomes.¹⁹⁴ Results from the original research study on the Teaching to Lead model, for example, showed increased retention and self-efficacy in instruction, classroom management and student engagement.

Mississippi adopted an early version of the Teaching to Lead model as part of its efforts, beginning in 2008, to redesign and rewrite its CTE curricula to align with national academic and technical standards and industry certifications. CTE curricula are now updated every four to five years, or every two years in the fast-changing field of IT. The state also updated its teacher licensure requirements to include higher minimum educational requirements (from a diploma or GED to an associate degree), national certifications, technology literacy and knowledge of online pedagogies. At the time, the state's teacher induction process for new alternatively certified CTE teachers included a one-week best practices workshop, three to six teacher development modules and the completion of a professional development plan within a three-year period. Jean Massey, associate state superintendent for the Mississippi Department of Education, reported that despite these measures, the state “quickly discovered that the curriculum was not changing test scores, because we were not changing the teachers' practice.” After the state adopted the model, teacher attrition dropped from nearly 30 percent of all new teachers in 2008 to no teachers in 2012.¹⁹⁵

In addition to participating in robust induction programs and professional development, CTE teachers also need to re-engage with their career fields through **industry externships**. Summer externships at work sites offer teachers a chance to test and reformulate their assignments based on current industry standards. Such experiences can also help teachers learn about new career opportunities for their students.

In **New Mexico**, some CTE teachers are alternatively certified. Some hold teaching licenses under reciprocity agreements with other states. New Mexico's CTE teachers may qualify for a secondary vocational-technical license¹⁹⁶ by holding either:

- a bachelor's degree including 32 credit hours of vocational-technical training related to the occupational area;

¹⁹³ See <https://www.teachforamerica.org/>.

¹⁹⁴ Kwang Suk Yoon, Teresa Duncan, Silvia Wen-Yu Lee, Beth Scarloss and Kathy L. Shapley. *Reviewing the Evidence on How Teacher Professional Development Affects Student Achievement*. Regional Educational Laboratory Southwest, 2007.

¹⁹⁵ Jean Massey. *Mississippi's Lessons from Two Models to Improve Effectiveness and Attrition in New Alternate Route Educators*. Presentation made to the Southern Regional Education Board's Commission on Career and Technical Education, December 2013.

¹⁹⁶ <http://www.ped.state.nm.us/Licensure/2010/dl10/chklstSecondaryVocational-Technical7-12.pdf>

- an associate degree plus two years' work experience related to the occupational area;
- a certificate plus three years of work experience related to the occupational area; or
- a high school diploma/GED plus five years of work experience related to the occupational area.

In addition to these education and work experience requirements, all CTE teachers must, within three years of employment:

- complete a minimum of 15 semester hours in a Secondary Vocational-Technical Education program **and** a supervised classroom internship/student teaching experience; or
- complete a Professional Development Plan (PDP) developed, in lieu of completion of the 15 semester hours in secondary vocational-technical education and supervised student teaching, by the employing authority and approved by PED.¹⁹⁷

Under these requirements, CTE teachers may either complete a classroom internship/student teaching experience or work with their principals to create a three-year PDP that does not have to include university course work. **According to one state official, the quality of these PDPs is highly variable, and many alternatively certified CTE teachers have limited or no experience with instructional design or pedagogy.**

New Mexico may wish to make fast-track teacher induction program participation a required component of the PDP. However, all CTE teachers, not just those choosing the PDP option, need to be prepared to the same high level if they are to help more students achieve the state's benchmarks of college and career readiness. **All teachers should have the opportunity to benefit from fast-track teacher induction programs.**

Goal 8 – Findings

Stakeholder Survey Data

Teacher survey data offered a rich store of feedback on New Mexico's CTE programs and the qualifications and needs of its CTE teachers. **Overall, the state's CTE teachers appear well qualified.** Among survey respondents ($N = 252$), 52 held a master's degree, 43 percent entered teaching after completing a college program (instead of entering from business and industry backgrounds), and 50 percent had more than 15 years of teaching experiences.

However, finding and keeping qualified CTE teachers may be an area of concern for the state. Few principals — just 36 percent ($n = 116$) — reported that they were often or always able to **hire qualified CTE teachers**. In open-ended comments, several principals said that it was especially difficult to attract good teachers given current salary structures. Slightly more principals — 45 percent — said that they were often or always able to **retain good CTE teachers**.

Overall, stakeholder survey data show that New Mexico's CTE teachers are not participating in targeted, intensive professional development on a widespread basis. Fifty-five percent of principals reported that CTE teachers often or always received professional development to improve teaching and learning. Yet CTE teachers' survey responses showed that many are not currently participating in targeted professional development.

¹⁹⁷ *Ibid.*

Depending on the eight different professional development topic areas¹⁹⁸ about which they were asked, between 30 percent and 60 percent of responding CTE teachers ($n = 189$) said **they did not need professional development**. Further, an average of 37 percent of respondents reported **earning no professional development hours at all** on any of these eight topics in the last three years. An average of just 11 percent ($n = 210$) **reported having more than 40 hours of professional development** on any of these topics in the last three years. Evidence shows that 40 or more hours of professional development are needed to change teaching practices.¹⁹⁹

However, many teachers did express the need for targeted professional development in:

- applying **scientific methods** to CTE (47 percent)
- **embedding literacy** in CTE instruction (34 percent)
- **embedding math** in CTE instruction (44 percent)
- using **authentic problems and projects** in CTE (40 percent)
- using **performance-based assessments** (64 percent)

Instructional collaboration between CTE teachers and academic teachers does not appear to be widespread. However, survey respondents differed in their perceptions of the availability of planning time for interdisciplinary collaboration. Half of all responding principals ($n = 128$) reported that CTE teachers and academic teachers often or always had planning time available for interdisciplinary collaboration. But 35 percent of teachers ($n = 239$) reported that they never had such meetings or had met either once or not at all in the past year. Only 37 percent of teachers said that they had had such meetings monthly or weekly.

Goal 8 – Recommendations

Recruit nationally to hire high-quality CTE teachers in critical industry sectors identified in the Jobs Council report.

- Rural schools may need to **share CTE teachers** in high-demand workforce areas.

Adopt standards and policies that require CTE teachers to meet the academic standards expected of all teachers, show mastery of technical content, hold a state license as well as a bachelor's degree if required by the state, demonstrate effective teaching practices, and engage in ongoing professional development.

- In some career pathway fields, accept teachers with **associate degrees** or the equivalent.
- Require secondary and postsecondary CTE teachers to **hold the industry credentials** they are preparing students to acquire. Provide training for teachers who do not currently hold these credentials.

Evaluate the state's existing university-based preparation programs and determine whether its two teacher preparation options (15-hour university program plus classroom internship vs. the PDP) equally prepare teachers with

¹⁹⁸ Professional development topic areas included (1) applying scientific methods to CTE; (2) designing course syllabi; (3) embedding literacy in CTE instruction; (4) embedding math in CTE instruction; (5) planning joint assignments with academic teachers; (6) understanding math concepts in the CTE field; (7) using authentic problems and projects in CTE; and (8) using performance-based assessments.

¹⁹⁹ Yoon, Duncan, Lee, Scarloss and Shapley, 2007.

the pedagogical and classroom management skills they need to deliver rigorous career pathway programs.

- If this evaluation shows that the two preparation options are not equal, HED and PED should seek to develop **a unified teacher preparation system** that requires all CTE teachers to participate in research-based induction programs, ongoing, intensive professional development and regular industry externship experiences. New Mexico can draw upon existing resources, like the **Core PD system**, to design and deliver intensive professional development programs for CTE teachers.

Encourage all new teachers from industry to participate in research-based fast-track induction programs that span at least the first year of teaching and include paid employment in the summer before they enter the classroom.

- Ensure that fast-track induction programs are **collaboratively designed and delivered** by PED and HED in partnership with master teachers and industry partners.

Work with PED-approved programs, industry partners and external providers to deliver research-based professional development that teaches academic and CTE teachers how to design real-world, project-based instruction, assignments and assessments that integrate literacy, math and science with technical content.

- Help all teachers, not just CTE teachers, **integrate diverse pedagogies** like project-based learning, work-based learning and online teaching in their instruction.
- **Provide development to school principals** in how to support teachers in creating project-based assignments.
- To support state capacity-building efforts, consider using **district or regional CTE trainers** to support the professional development of career pathway teachers. Such training experts could come from Regional Education Cooperatives (RECs) or be district staff designees.

Provide training to school administrators in how to design professional development plans with teachers.

Partner with employers to help teachers periodically refresh their skills through required industry externships and work experiences.

- Include externships as an element of teachers' **three-year PDP plans**.

Goal 9 – Use career pathways to restructure high schools with low graduation rates.

Goal 9 – Literature Review

Although New Mexico's high schools are steadily improving their graduation rates, many students are still not graduating on time: At present, New Mexico's **four-year graduation rate is just 68.5 percent**.²⁰⁰ And in 2013, 83 New Mexico high schools had graduation rates under 70 percent.²⁰¹

Drawing on the best available research evidence as well as lessons learned from current and previous reform efforts undertaken by the state's **Priority Schools Bureau**, New Mexico can use high-quality career pathways as part of a systemic approach to helping students in low-performing schools master grade-level standards while earning postsecondary credits and engaging in challenging work-based learning opportunities.

Whole-school reforms that organize high school curricula around high-quality career studies work. Research has shown that CTE programs help a wide range of students, but may have particular benefits for at-risk students, including low-income and minority students, and first-generation college-goers and young men, who are at greater risk of dropping out of school and the labor market. Drawing on data from the *Education Longitudinal Study of 2002*, NRCCTE researchers analyzed high school transcript data for the class of 2004 and found that earning three or more CTE credits, whether students specialized in an occupational area or not, was a strong predictor of staying in high school, especially for boys. **Concentrating in CTE was second only to the ninth-grade GPA in predicting high school survival.**²⁰²

However, although high-quality CTE benefits *all* students, including high-performing students, students in low-performing schools often have the least access to high-quality career pathways that lead to further education and good jobs.

New Mexico can transform its low-performing high schools by adopting a comprehensive framework of strategies derived from the signature features of two nationally recognized, research-based school reform models:

California's Linked Learning whole-school reform model: Linked Learning²⁰³ restructures high schools, especially challenged high schools, around career pathways that promote college and career readiness. Although the model is not strictly a CTE initiative, it blends college-preparatory academics with career pathway-themed technical instruction; experiential learning; and individualized student supports that include counseling services — college, career and personal — as well as intensive supplemental instruction in the reading, writing and math skills needed to succeed in career pathways. Linked Learning schools also offer bridge programs that improve students' academic readiness through intensive work-based learning and project-based learning strategies.

²⁰⁰ Source: PED Four-Year Graduation Rate, Cohort of 2014. See <http://ped.state.nm.us/Graduation/2015/Webfiles%20Cohort%20of%202014%204%20Yr%20Rates.xlsx>.

²⁰¹ This figure includes charter schools and alternative schools.

²⁰² Oscar A. Aliaga, Pradeep Kotamraju, James R. Stone III, and Emily Dickinson. *Engaging Students in High School: A Survival Analysis of the Impact of Career and Technical Education*. American Educational Research Association Annual Meeting, Philadelphia Convention Center, Philadelphia, PA. 5 April 2014. Conference paper. See also Caralee Adams. "Career Technical Education Linked to Boys' High School Survival." *Education Week*, 4 March 2013.

²⁰³ See <http://linkedlearning.org/about/>.

The High Schools That Work school improvement model: HSTW has partnered with state and district education agencies to raise achievement and graduation rates in more than 1,200 high schools in 31 states. HSTW engages state, district and school leaders in partnerships with teachers, students, parents and the community to improve school practices and student outcomes. The program's effort-based model is founded on the belief that most students can master rigorous academic and technical studies if school leaders and teachers create an environment that motivates them to succeed.

Schools using strategies like those advanced by Linked Learning and HSTW significantly increase student achievement and raise graduation rates.

New Mexico may wish to accelerate the pace of reform by converting some low-performing high schools into **wall-to-wall career academies** or creating **magnet academies** within schools. Such academies could be governed by school councils that include parents, industry representatives, and faculty from local postsecondary institutions with related programs.

Georgia's Gwinnett County Public Schools, one of the nation's largest districts and a two-time winner of the Broad Prize for Urban Education, reorganized five comprehensive high schools into wall-to-wall career-themed academies of choice. Each academy offers career pathway course sequences that align with a college-ready academic core.

Goal 9 – Findings

Stakeholder Survey Data

Ninety-one percent of principals who responded to SREB's survey ($n = 128$) said that they often or always took administrative actions to help at-risk students succeed in school. **As Table 37 shows, principals, counselors and teachers all strongly believe that CTE helps more students graduate from high school, transition to college and get good jobs.**

Table 37: CTE's Impact on Graduation, College Placement and Job Placement Rates

Respondents	CTE Programs at Your School Positively Affected:		
	Graduation Rates	College Placement Rates	Job Placement Rates
	Somewhat or Significantly	Somewhat or Significantly	Somewhat or Significantly
Counselors ($n = 81$)	75%	73%	68%
Principals ($n = 119$)	80	75	73
Teachers ($n = 234$)	78	76	77

Eighty percent of surveyed community representatives ($n = 45$) identified weaknesses in New Mexico's existing CTE system, including the need for **more outreach about the benefits of CTE to at-risk populations and the state's Hispanic community.**

Other Data Sources

Table 38 provides data on low-performing comprehensive high schools (excluding alternative and charter schools) around the state, broken out by enrollment size. SREB identified how many of these schools have graduation rates under 70 percent, based on 2012-13 adjusted cohort graduation rates (ACGR). SREB also identified how many are located within a 50-mile radius of a state community college or four-year institution offering two-year degree programs. Low-performing high schools located within a reasonable distance of community college or university

can partner with those institutions to create career pathway programs — such as early college high schools or early advanced credential programs — that can help increase student achievement, improve graduation rates and speed more students toward postsecondary credential attainment. **An equal number of schools with graduation rates under 70 percent serve both very large (1,000 or more) or very small (250 or less) student bodies; however, the smallest schools have the lowest average ACGR: 50 percent.**

Table 38: Low-Performing Comprehensive High Schools, by Size and Location Near State Postsecondary Institutions

High School Enrollment	Comprehensive High Schools* with a Graduation Rate Under 70%**		
	N	2012-13 Average Adjusted Cohort Graduation Rate	Percent Located within 50 Miles of a State Postsecondary Institution
1,000+	15	66%	93%
751–1,000	3	60	100
501–750	3	66	100
251–500	7	62	86
< 250	15	50	67

Notes. * Figures include only comprehensive high schools ($n = 135$), not alternative or charter schools. ** Based on 2012-13 Adjusted Cohort Graduation Rate (ACGR) data.

Goal 9 – Recommendations

For low-performing high schools serving 500 or more students, draw upon research evidence and lessons learned from reform efforts undertaken by the state's Priority Schools Bureau and other research-based school reform approaches to restructure high school curricula around rigorous career pathways featuring:

- at least **four sequential CTE courses** aligned with postsecondary programs and New Mexico workforce opportunities; (See Goals 1 and 2.)
- a **college-ready academic core** taught with a greater emphasis on project-based assignments that integrate academic, technical and workplace skills; (See Goals 1 and 3.)
- **supports to raise students to grade-level literacy and math standards**, including tutoring, supplemental instruction and transitional courses; (See Goals 1 and 3.)
- ongoing **work-based learning experiences**; (See Goal 7.)
- **continuous counseling and advisement** that help all students identify a career goal, connect with adult mentors, and plan for careers and further study; (See Goal 6.)
- opportunities to **earn college credits**; (See Goal 1.)
- a schedule that allows students to **take classes as a cohort** and gives interdisciplinary teacher teams time to **plan integrated project-based assignments**; (See Goal 1.)

- opportunities for students to participate in **co-curricular career and technical student organizations**, which help them develop technical, leadership and soft skills; and
- readiness-enhancing **extended-day, after-school and summer bridge activities**.

For low-performing schools serving fewer than 500 students, especially those located in rural areas, adopt creative strategies to provide greater access to career pathways. Such strategies may include:

- Offering **hybrid four-course career pathways** in which students take (a) two foundational, PED- and HED-approved courses online through the IDEAL-NM system and (b) two advanced courses taken at a regional community college or four-year university offering two-year degree programs. Students could potentially alternate full days at the college and full days at their home high school. Staff smaller high schools with “renaissance” teachers who can serve as facilitators of online courses, or share teacher-facilitators across schools.
- Developing **at least two distinct four-course career pathway sequences per school**, drawing upon each school’s existing areas of strength. For example, schools with robust agriculture programs could develop four-course pathways in agriculture mechanics, plant science, and/or animal science. Many schools also offer diverse business and computer science courses that could be developed into thematically coherent four-course sequences.

Use federal, state and local funds to help low-performing high schools adopt theme-based career academies featuring rigorous, relevant career pathways as one restructuring option.

- Require low-performing schools adopting career academies to **extend their school years or days** so students may receive intensive instruction, engage in work-based learning, and earn advanced credentials or degrees.
- Offer ongoing, **intensive professional development and technical assistance** to teachers, counselors and school principals on how to implement rigorous career pathways and improve literacy and math achievement. Include feeder middle grades schools in all reform strategies and professional development activities.

Engage and support district and school leaders, industry and postsecondary partners, community members and parents in taking ownership of career pathways as an essential element of reforming low-performing schools.

- **Foster sustainability** by holding school boards and communities accountable for reform.
- Monitor the **fidelity of reform implementation** through external audits and faculty, student and parent surveys.

Provide incentive credits within the state’s accountability system and/or bonus funds to low-performing high schools that make significant improvements in:

- increasing students’ **literacy and math** skills;
- raising **college- and career-readiness** rates;
- training teachers to **embed literacy and math** across school curricula;
- providing greater access **to high-quality online and dual credit courses**;
- helping more students participate in **work-based learning**; (See Goal 7.)
- helping more students **earn dual credits** for two or more academic or CTE courses;
and
- helping more students **earn advanced industry and postsecondary credentials** before graduation.

Goal 10 – Correct structural issues in the state’s course catalog, data collection and reporting systems that present barriers to New Mexico’s accountability goals.

Goal 10 – Literature Review

New Mexico has demonstrated a strong commitment to the **Common Core State Standards** (CCSS) as well as the **Common Career Technical Core** (CCTC).

Goals 3 and 4 outlined ways PED and HED can work with industry partners and other key stakeholders to explicitly define academic and technical **college and career readiness** in state policy and establish standards, benchmarks and assessments of academic, technical and workplace readiness.

Goal 10 urges New Mexico to refine its accountability system to advance the readiness goals it wishes to achieve and correct structural issues in its course catalog, data collection and reporting systems that may impede its accountability efforts.

New Mexico’s accountability systems should incentivize and reward high schools and community colleges that develop structured, rigorous career pathways spanning high school and postsecondary studies — grades nine to 14 (associate degrees), 16 (bachelor’s degrees) and beyond — and assess and recognize the outcomes of those pathways.

A robust accountability system should include indicators and assessments that capture diverse outcomes signaling student readiness for the full spectrum of industry and postsecondary certificate, credential and degree programs *as well as* entry-level jobs in the high-demand industry sectors identified in the Jobs Council Report.

Although high schools will have to work harder to prepare students for postsecondary education, New Mexico’s postsecondary institutions will bear the responsibility of ensuring that students complete their programs and earn credentials.

At present, most state secondary and postsecondary institutions are not governed by the same kinds of accountability or funding systems. Some states allocate postsecondary funding based on student enrollments; more recently, a few states have adopted performance-based funding models to award some percentage of an institution’s funding, based on selected outcomes.

New Mexico’s two- and four-year public institutions currently receive 5 percent of their instruction and general formula funds through **performance-based funding**.²⁰⁴ The state has also adopted **credential completion in state workforce priority areas** as one of the measures in its funding formula, and in the 2015 fiscal year will reward community colleges for completed dual credit courses.²⁰⁵

Beyond these current initiatives, New Mexico may also wish to consider establishing **special competitive funds to promote certificate and credential completion in high-demand industries**. Working in collaboration with school districts and high schools, the

²⁰⁴ *Performance-Based Funding for Higher Education*. National Conference of State Legislatures, 2015. See <http://www.ncsl.org/research/education/performance-funding.aspx>.

²⁰⁵ *Ibid*.

state's community colleges and four-year institutions offering two-year degrees could compete for funds to design career pathways spanning secondary and postsecondary education that result in more students earning advanced industry certifications and postsecondary certificates, credentials and degrees.

New Mexico needs to ensure that its reporting and accountability systems are capable of capturing multiple measures of college and career readiness and rewarding schools, districts and postsecondary institutions that help more students achieve academic, technical and workforce readiness.

Several states offer examples of such multi-measure accountability systems that set high standards for college and career readiness.

Under **Kentucky's** accountability system, high schools receive one point for each student who meets college- or career-readiness benchmarks and **a bonus half-point for each student who meets both college- and career-readiness benchmarks**. When the state first established this model in 2009, just 34 percent of graduates were both college- and career-ready; by 2014, that number rose to 62 percent.²⁰⁶ A sidebar in Goal 3 describes Kentucky's balanced approach to accountability.

In **Maryland**, in order to earn a state diploma, all students are required to complete a minimum of 21 credits, including an academic core of four credits of English, a minimum of three math credits (including one in algebra/data analysis, one in geometry and one additional course), three science credits and three social studies credits. With the addition of two years of foreign language or advanced technology and three electives, students are considered "college ready," defined as meeting **credit requirements for entry into the state university system**. CTE students can meet their elective requirement by completing a **four-credit state-approved program of study**. Maryland CTE students also need to be college-ready; at present, around 57 percent meet college-readiness requirements. The state's goal is to reduce the number of CTE students requiring remediation and increase the number of students meeting state university entrance requirements.

Florida's accountability system²⁰⁷ uses a performance index to assign A to F letter grades to schools. High schools receive 50 percent of their grade based on student achievement and learning gains outcomes from state assessments in reading, writing, math and science, and 50 percent of their grade based on (a) student participation in and successful completion of **accelerated courses** — like AP, International Baccalaureate, the Cambridge Advanced International Certificate of Education (AICE), dual credit courses or industry certifications; (b) the percentage of students graduating with a standard diploma in four or five years, as well as the percentage of at-risk students graduating in four or five years; and (c) the percentage of students demonstrating college readiness in reading and math, as measured by standardized test scores. High schools may receive bonus points if at least 50 percent of students retaking reading and math tests for graduation score high enough to meet requirements. Notably, both high school and middle grades school grading formulas award points for **earned industry certifications**; at the high school level, certifications that have a statewide articulation agreement in place to generate more than one college course contribute extra points to the school grade. Further, as of 2013, schools failing to achieve a 50 percent pass rate on an industry

²⁰⁶ Terry Holliday. *Kentucky's College and Career Readiness*. Presentation made to SREB's Commission on Career and Technical Education, December 10, 2013. The rate for 2014 was cited by Dale Winkler, Associate Commissioner, Kentucky Department of Education, during a panel presentation made at the SREB/HSTW State Leaders' Forum, November 14, 2014.

²⁰⁷ *Florida Statute 1008.34*. K-20 Education Code, Assessment and Accountability: School grading system; school report cards; district grade.

certification exam are required to amend their strategic plans to include strategies for improvement.

New Mexico can build on the capacity and strengths of its existing **school grading system**²⁰⁸ to create a multi-measure accountability system that accurately captures career pathway-specific indicators and rewards districts and schools for helping more students earn industry and postsecondary credentials and degrees in priority workforce areas.

Correcting **certain structural problems**, described in the *Findings*, below, will help the state better develop, implement and assess the effectiveness of its career pathway programs.

If New Mexico's goal is to build **strong, state-approved career pathways / programs of study**, PED must ensure that the CTE courses with which it builds those pathways meet its standards for academic and technical rigor and align with postsecondary credential and degree programs and workforce opportunities. SREB urges PED to **conduct a thorough curricular audit** of the CTE courses contained in the state's STARS catalog with an eye to (1) regularizing, revising and streamlining course titles, content, and enrollment reporting mechanisms and (2) eliminating those courses that do not fit state-approved pathways or prepare students for college and careers. As described in Goal 2, **Tennessee** offers a particularly powerful example of how one state approached this process.

Goal 10 – Findings

CTE Course Analysis Data

In preparation for completing its detailed analyses of CTE course enrollment patterns across the state, SREB researchers chose a small, non-random sample of 12 large and small high schools located across the state and compared their publicly available student handbooks or course catalogs with CTE course enrollment data received from PED. **This activity revealed that some high schools are not using STARS course numbers, titles or descriptions in their course catalogs.** In fact, some schools appear to be offering courses using school-specific course titles and course descriptions that differ — sometimes greatly — from those outlined in STARS. However, these same schools reported course enrollment data to PED using STARS course numbers and titles.

Researchers questioned whether, given these inconsistencies, state course enrollment data can truly be used to determine whether students are fulfilling state graduation requirements or completing CTE concentrations.

During the full analysis process, researchers discovered that a **number of career pathway courses are offered as both CTE courses and “academic” courses.** For example, an Emergency Medical Technician course offered under 1500: Health Care Sciences (CTE) is also offered as a 1700: Life and Physical Sciences course (*1792: Emergency Medical Technician – Applied Science*). Only the Life and Physical Sciences version of the course is described as meeting state science standards. It does not appear that such “academic” courses count toward CTE completer requirements or that CTE courses count for academic credit toward graduation.

Given the distinction regarding state science standards, researchers questioned whether the CTE version of the course offers a less rigorous curriculum than its

²⁰⁸ See <http://webapp2.ped.state.nm.us/SchoolData/SchoolGrading.aspx>.

academic counterpart. Similar examples exist across other STARS categories, like *Business Law*, offered under both 2700: Social Sciences and History and 0200: Business. There were similar examples of such duplicative courses across STARS areas.

In 2012, SREB published recommendations for awarding academic credit for CTE courses that New Mexico may wish to consider and adopt.²⁰⁹ Six core recommendations and many supporting recommendations and examples of state policy emerged from forum discussions with policymakers and state leaders from 18 states. The six core recommendations are to:

- Establish policy to allow the awarding of a select number of academic courses through CTE course work.
- Institute a process for the development and state approval of CTE courses eligible for academic credit and for meeting requirements for postsecondary admission.
- Define requirements for teaching a CTE course with embedded academic standards, and provide ways for teachers to fulfill those requirements.
- Validate students' academic learning in approved CTE courses eligible for academic credit.
- Establish a review process to assess the effectiveness of CTE courses approved for academic credit, by determining if student outcomes are comparable to, if not better than, student outcomes in the related academic course.
- Provide state guidance for local districts that decide to award academic credit for CTE courses.²¹⁰

A number of courses and programmatic areas within STARS' 19 CTE-related programmatic areas appear misplaced. Just one example is a PLTW Civil Engineering course catalogued under 2500: Public, Protective and Social Services instead of with other PLTW courses under 1600: Technology Education.

As described in Goal 1's findings, researchers uncovered a number of problems with the dual credit reporting process. Judging by their STARS course codes, many dual credit courses may merely duplicate high school offerings instead of extending and enriching them, and most appear to be introductory. However, inconsistencies in schools' reporting of dual credit courses revealed that **the dual credit courses students are taking may not be the same as those described in the STARS catalog.** All schools reported dual credit courses using STARS course numbers, but some schools reported community college course numbers and titles along with those STARS course numbers. Researchers compared these college course numbers and titles with the STARS courses they were meant to reflect. Although some were the same or similar, some were wildly different. Some dual credit courses were reported to the state using a STARS course number but with the title field marked "NULL," making it impossible to determine whether the dual credit course title matched its STARS number or not.

Across programmatic areas, the **STARS catalog contains many courses that are not described or only loosely described.** Such courses generally carry numbers like XX95 or XX99, with subtitles like "Related Subjects" or "Other." Nearly all schools offer courses like these, but without clear course titles or definitions, researchers found it impossible to tell what curricular content was being delivered — or at what level of rigor and intensity.

²⁰⁹ Gene Bottoms, Marna Young and James Berto. *Recognizing Academic Achievement in Career/Technical Education: Conditions for Awarding Academic Credit for Career/Technical Courses*. SREB, 2012. See http://publications.sreb.org/2012/12V16_RecognizingAcademicCredit.pdf.

²¹⁰ For a pull-out summary of these recommendations and supporting recommendations, refer to pages 16-20 of *Recognizing Academic Achievement in Career/Technical Education*.

Researchers also found that across programmatic areas, **many courses are described as appropriate for students in all grade levels** (e.g., grades nine to 12, grades six to 12) or do not specify any prerequisites or appropriate grade levels at all. This frequently made it difficult to determine whether it was possible for students to assemble a progressively intensive sequence of courses into a complete three- or four-course pathway. 2400: Precision Metalwork offers a good example of this phenomenon. Although courses in this area are described as recommended for students in grades nine to 12, course titles make it clear that these courses are actually progressive and hierarchical (e.g., Welding 1, Welding 2, Welding 3, etc.). It is assumed that a student should not take Welding 3 before Welding 1, but the absence of recommended grade levels or prerequisites do not make this clear.

SREB received extremely limited self-reported industry-recognized credential completion data from PED. At this time, New Mexico does not pay for students to take industry certification examinations. The state also lacks a reliable mechanism for collecting credential completion data from schools and community colleges. As discussed in Goal 4, this is not a problem unique to New Mexico. However, although industry-recognized credential data were lacking, **course data analyses suggest that credentials are not a major component of schools' CTE programs.** Many New Mexico high schools do offer programs (e.g., the ProStart culinary curriculum) or specific courses (e.g., 1504: Nursing - CNA) through which students can conceivably acquire the knowledge and skills needed to sit for certification examinations, either during high school or after meeting age or work experience requirements. However, in most cases, SREB could not confirm whether schools were offering these certifications or students were earning them.

SREB's limited comparison of individual high school course catalogs or student handbooks with PED course enrollment data and the STARS catalog showed that **New Mexico students and parents currently lack access to state-level planning guides that lay out potential career pathway course sequences linking high school studies to postsecondary programs.** Career pathways and potential career pathway course sequences are not clearly defined or laid out in STARS. However, some schools do appear to be making exemplary efforts to illustrate potential career pathway course sequences organized by Career Clusters.²¹¹

Goal 10 – Recommendations

Consider refining the state's accountability system to include a multi-measure, college- and career-ready performance index. Use this index to assess, track and report progress made by districts, high schools, community colleges, and employers delivering state-approved career pathways in critical industry sectors. Ensure that this system equally values academic college readiness and academic and technical career readiness. Recognize high schools that make significant progress toward:

- **raising high school graduation rates** to 90 percent or higher in all high schools within a decade or less, OR making significant progress toward raising high school graduation rates to 80 percent or higher in high schools with graduation rates of 70 percent or less, within five years;
- increasing each year the percentage of high school students who **complete a state-approved career pathway** consisting of a college-ready academic core and at least

²¹¹ Some of the Career Cluster/Career Pathway guides SREB researchers examined resembled the model established by the College and Career Transitions Initiative (CCTI). For examples, see <http://www.league.org/league/projects/ccti/cccluster.cfm>.

four sequential CTE courses leading to further education and training and workforce opportunities;

- increasing each year the percentage of high school graduates who **immediately enter some form of postsecondary education**, including employer-sponsored work-based training programs;
- increasing each year the percentage of high school students who **meet technical and workplace readiness standards** by:
 - completing capstone courses, senior portfolios, career and technical student organization competitions, or work-based learning experiences;
 - attaining state-approved advanced industry credentials;
 - earning dual credits for career pathway courses; and
 - passing approved end-of-course assessments for career pathway courses that generate extra weight toward the GPA or carry college credit.

As an alternative to a performance index-based accountability system, consider allocating extra weight in the state's accountability system for each high school student who meets both academic college-readiness standards and technical career-readiness standards.

- Ensure that this accountability system **places equal weight** on academic college readiness and academic and technical career readiness.
- Include **different ways for students to demonstrate technical readiness**, including through the completion of:
 - capstone courses, senior portfolios, career and technical student organization competitions, or work-based learning experiences;
 - state-approved advanced industry credentials;
 - dual credits for career pathway courses; and
 - approved end-of-course assessments for career pathway courses that generate extra weight toward the GPA or carry college credit.
- Allocate extra weight in this system for each high school student who **completes a state-approved career pathway sequence in a critical industry sector**.
- Allocate extra weight in this system for each high school student who **completes an advanced industry credential in a critical industry sector**. Expand access to **early advanced credential programs** and other accelerated programs that give high school students the time they need to earn these credentials (see Goal 5).

Incentivize high schools, districts and postsecondary institutions that increase the percentage of young adults who complete advanced industry credentials, postsecondary certificates and degrees in critical industry sectors. Incentivize and reward high schools, postsecondary institutions and instructors for:

- expanding each year the number of secondary and postsecondary students who participate in employer-sponsored **work-based experiences and learn-and-earn programs**; and
- significantly increasing over the next decade the percentage of young adults who secure **high-skill, high-wage jobs** in New Mexico's critical industries.

Establish a uniform statewide course numbering, titling and reporting system that accurately captures the CTE and dual courses students complete and ensures the seamless transfer of high school and college credits across secondary and postsecondary institutions.

- All CTE courses should be **clearly titled and defined** within STARS in ways that fully describe their content, prerequisites and suggested place within a career pathway.
- PED and HED should partner to create a **uniform course numbering, titling and reporting system** for dual credit courses that ensures that these courses are accurately reported to the state across high schools and across postsecondary institutions.
- Efforts should be made at the state level to **align courses with the 16 National Career Clusters** and Career Pathways within those Clusters, in addition to any unique state-developed and approved career pathways.
- **Require all schools to adhere to the state's CTE and dual credit course numbering, titling and content systems, without exceptions.**

Create state-approved career pathway planning guides, organized by Career Cluster, that help students and parents select courses and plan for postsecondary study and careers. Harness the state's existing Next Step Plans as part of this effort.

End the practice of offering different versions of the same essential course. This practice may stigmatize CTE courses as less rigorous than academic courses.

- Ensure that **CTE courses approved as meeting state academic requirements for graduation** have the same level of rigor as academic courses. Similarly, ensure that **selected approved academic courses** count toward the completion of a career pathway.
- Eliminate **duplicative** courses in the STARS catalog.

PED, HED, DWS and other agencies should partner to ensure that advanced industry credentials are a fundamental component of students' career pathways. As described in Goal 4, IRCs should be linked to postsecondary programs, industry standards and available jobs.

- As part of the state's accountability system, PED, HED and DWS should partner to create a **reliable reporting mechanism for industry-recognized credentials.**

SECTION 2 – SWOT ANALYSES

New Mexico SWOT Analyses

To achieve the vision of preparing all youth and adult students in New Mexico to be productive participants in the economy of the future, SREB conducted a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis for each New Mexico Workforce Innovation and Opportunity Act (WIOA) region — Central, Eastern, Northern and Southwestern.

These analyses were based on the results of reviews of (1) current secondary and postsecondary CTE course and program offerings, (2) New Mexico workforce data and needed skills, (3) U.S. Census data and (4) New Mexico stakeholder survey results. The Strengths of each region are represented by positive secondary school and college demographic information, positive school outcomes, and school successes. The Weaknesses of each region are represented by negative secondary school and college demographic information, negative school outcomes, and school challenges. The Opportunities of each region are the external factors that are likely to have an effect on achieving the desired objectives, such as a variety of work opportunities for students or strong business involvement in the schools. The Threats of each region are external factors that could have a negative effect on achieving CTE success, like high unemployment in the region or few regional businesses. At the end of each analysis, a regional conclusion is provided.

This section begins with the SWOT analysis for the (1) Northern WIOA region followed by the workforce chart for that region, the regional map with secondary and postsecondary educational specifics, and a list of businesses in the region.* (2) Central WIOA, with the SWOT analysis, workforce chart, map and listings, is next. (3) Eastern WIOA follows and the (4) Southwestern WIOA is the final region described.

The information provided in each SWOT analysis is based on the themes of the New Mexico needs assessment. This includes the push for quality and rigorous assignments, both in core content courses and CTE courses; the need for focused pathways of study in New Mexico; the necessity to close the achievement gap in literacy and math for New Mexico students; the need to upgrade the CTE programs to a four-course sequence with certification options and the opportunity to earn dual credit; and the need to implement comprehensive workplace opportunities for students.

*A list of New Mexico businesses is found at the end of each regional SWOT section. InfoUSA, a national marketing firm, provided SREB with a list of New Mexico businesses for a fee. No fees are charged to businesses to be part of the InfoUSA business list. InfoUSA updates its business list four times a year by contacting businesses about changes in the business contact person, address, email address, phone number, and other contact information. If a New Mexico business is not listed, it is because it did not respond to InfoUSA's request for information.

Northern — 47 High Schools

Introduction— The Northern WIOA is comprised of nine counties that include Los Alamos and Santa Fe; it has a population of 511,813. The American Indian population is 20 percent and the non-English speaking population is 43 percent, both high for the state. The high school diploma percentage is high for the state at 84 percent; the national percentage is 85.3 percent. The number of individuals who hold an undergraduate degree is high for the state, at 23.5 percent. The median yearly income, at \$44,287, is also high for the state as is the percentage of inhabitants below the poverty level, at 22 percent (2010 U.S. Census).

Internal Strengths

Demographics

There is high percentage of inhabitants with high school diplomas in the Northern region.

The number of undergraduate degrees is almost at 25 percent, a high number for the state.

There are 11 community colleges in nine counties. Only six comprehensive high schools are **more** than 50 miles from a community college. This makes opportunities for high school and community college CTE collaboration feasible.

Internal Weaknesses

Demographics

The high school graduation rate is 73 percent; the national average is 79 percent.

The high school dropout rate is 6.5 percent; the national average is 3.3 percent.

The free and reduced-price lunch rate is very high at 76 percent; the national average is 48.1 percent.

Half the high schools in this region enroll 250 students or fewer. This is a very high number of small high schools. Traditionally, small high

schools cannot provide as many CTE program options.

Only seven high schools enroll 1,000 or more students. Large high schools are traditionally able to offer more CTE programs.

Quality and Rigorous Assignments

On the CTE student survey, only 41 percent of students ($n = 537$) reported that they had an intensive level of exposure (5-10 indicators) to rigorous assignments.

Based on the CTE student survey, less than 50 percent of students ($n = 537$) reported experiencing rigorous CTE assignments. Specifically, this included such indicators as predicting outcomes based on observations, developing a logical argument for a solution to a problem and applying technical knowledge and skills to new situations.

Based on CTE student survey results ($n = 537$) in the quality assignments section, less than 50 percent of students said they saw a connection between what they did in class and potential further studies and careers, and only 48 percent stated that they often developed and analyzed tables, charts and graphs in their school work.

Based on student survey results ($n = 537$), only 42 percent of students reported at the intensive level (8-11 indicators) for quality assignments.

Literacy

Of students surveyed ($n = 537$), only 35 percent reported an intensive level of literacy experiences (7-9 indicators).

Less than 42 percent of CTE students ($n = 537$) in this region said that they made inferences from information to develop a solution for a problem. Less than 46 percent of students completed an extended project.

Math

Only 44 percent of students surveyed ($n = 537$) had an intensive level of indicators for a balanced approach to math. The intensive level is 6-9 indicators.

Less than 53 percent of CTE students ($n = 537$) in this region said they were grouped with students with similar math skills. Less than 55 percent of students stated they used math to solve complex problems related to their CTE course.

Career Counseling

Only 43 percent of CTE students ($n = 537$) report that a counselor or adult has helped them understand their strengths, skills, aptitudes and abilities.

Student Achievement

New Mexico's Standards Based Assessment in 2013-14 for 10th-graders showed that 62.2 percent of students ($n = 23,054$) scored below Proficient in reading, 69.6 percent ($n = 23,038$) scored below Proficient in math, and 55.3 percent ($n = 284$) scored below Proficient in science.

Of the students who took the 2014 ACT ($n = 12,945$) in New Mexico, just 18 percent met ACT's college readiness benchmarks in English, reading, math and science.

Career and Technical Education

Regarding career pathway alignment, only 58 percent of CTE students' parents surveyed

($n = 271$) across the state said CTE pathways of study continued at the community college level.

Regarding career readiness/counseling, only 53 percent of parents ($n = 271$) surveyed across the state said their eighth-grade child was told about CTE high school courses.

Only 40 percent of CTE students ($n = 537$) reported that a counselor or an adult helped them in understanding their strengths, skills, aptitudes and abilities. Only 40 percent of CTE students said a counselor or adult helped them think about potential career goals.

In the Northern WIOA region, only 43 percent of surveyed CTE students ($n = 537$) reported they received an intensive level for counseling for careers (5-7 indicators).

CTE programs not producing enough graduates was a concern among stakeholder groups. Twenty percent of business people ($n = 133$) said that CTE programs produced enough graduates to meet local workforce needs; 16 percent of postsecondary administrators ($n = 19$) said this was the case; 35 percent of principals ($n = 128$) said not enough CTE graduates were being produced.

There were not enough students earning industry credentials. Thirty percent of students ($n = 2,483$) said they were able to earn industry credentials; 16 percent of principals ($n = 128$) said that students could earn credentials in any CTE program; 29 percent of teachers ($n = 252$) said students could earn credentials.

There is a concern about the overall rigor of CTE instruction. Fifty percent of CTE students (2,483) said teachers set high standards for them and were willing to help them meet the standards; 80.3 percent ($n = 252$) of CTE teachers said this was the case.

Some stakeholder groups believe CTE students are not being adequately prepared for careers.

For instance, 14 percent of business ($n = 133$) representatives said CTE programs adequately prepared students for careers.

Forty-seven percent of postsecondary administrators ($n = 19$) said this was true. Sixty-five percent of high school principals ($n = 128$) said CTE programs adequately prepared students.

Sixty-two percent of community members ($n = 127$) said there were gaps in students' soft skills such as work ethic, communication skills, professionalism, problem solving, teamwork and leadership.

Principals were not always able to hire and retain qualified CTE teachers. Nine percent of principals ($n = 128$) said they were always able to hire qualified CTE teachers. Ten percent of principals said they were always able to retain qualified CTE teachers.

Programs of Study

Out of 403 possible programs of study in 44 Northern region high schools using a three-course progressive sequence, 92 programs made the cut as programs of study, or 22.8 percent. Using a four-course sequence, 59 programs, or 14.6 percent, were considered programs of study. These are very low numbers and negatively impact CTE program effectiveness. (A program of study has secondary and postsecondary elements, a non-duplicative progression of courses and the opportunity to earn dual credit, and it leads to a postsecondary degree, certificate or industry-recognized credential.)

External Opportunities

Demographics

There are 269 businesses located in nine counties. There are certainly opportunities for students to take advantage of work-placed learning.

This is a relatively well-populated region of the state. Higher population numbers usually afford students more work opportunities.

Work-Based Learning

Surveyed businesses were open to students, CTE teachers and community college instructors participating in their ongoing training. Sixty-four percent of businesses surveyed ($n = 133$) would allow student interns to participate in training; 51 percent of businesses would allow CTE teachers and community college faculty to participate in training.

External Threats

Demographics

The unemployment rate is 7.7 percent; the national average is 5.5 percent.

Work-Based Learning

There are currently not enough work-based learning opportunities for students. Twenty percent of business representatives ($n = 133$) said their companies offered work-based experiences to high schools students. Seventy-three percent of counselors ($n = 81$) said it was a challenge to place students in work-based learning environments.

Workforce Preparation

Workforce preparation gaps do exist (New Mexico Jobs Council Report, 2013).

Agriculture: There are 233 more job openings annually than qualified concentrators.

Back Office (data processing, call centers):

There are 1,334 more job openings than annually qualified concentrators.

Digital Media: There are 15 more job openings annually than qualified concentrators.

Information Technology: There are 1,341 more jobs annually than qualified concentrators.

Extractives/Energy (2014 New Mexico Employment Projections): There are 107 more jobs annually than qualified concentrators.

(New Mexico Jobs Council Report, 2013): There are 933 more jobs annually than qualified concentrators.

Tourism (2014 New Mexico Employment Projections): There are 65 more jobs annually

than qualified concentrators. (New Mexico Jobs Council Report, 2013): There are 1,763 more jobs annually than qualified concentrators. Remember that **Agriculture** and **Tourism** will have lower average hourly wages than **Back Office, Digital Media, Information Technology** and **Extractives/Energy**.

New Mexico economic sectors where there are more concentrators than job opportunities annually include **Education Services, Health and Social Services** and **Manufacturing**. (New Mexico Employment Projections, 2014; Jobs Council Report, 2013).

Northern WIOA Conclusions: With a population of half million people and the inclusion of Los Alamos, Santa Fe and 11 community colleges, there is a wealth of opportunities for students. In addition, the number of adults in the region with high school diplomas and undergraduate degrees is high. Of concern are the relatively low high school graduation rate and corresponding high dropout rate, and the high free and reduced-price lunch rate.

Few CTE pathways between high school and community colleges, a lack of work-based experiences for students, little CTE program awareness on the part of parents and students, and the lack of industrial credentialing opportunities for students are all of concern. Workforce gaps (more jobs than concentrators) include **Agriculture, Back Office, Digital Media, Information Technology, Extractives/Energy** and **Tourism**.

Table 39: New Mexico Northern WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Northern Region ³	2013 State Total Post-secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Northern Region ¹	Annual Job Openings, (2012-2022) Northern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Agriculture	Agriculture, Food, & Natural Resources ⁶	\$13.23	No Data Available	No Data Available	3,000	300	41	26	No Data Available	-233
										-
Back Office	Business Management & Administration	\$17.13	2,281	228	25,000	2,500	28	1,138	938	-1,334
									+	-
Digital Media	Arts, Audio/Video Technology & Communication ⁶	\$20.90	586	59	9,100	910	616	279	836	-15
									+	-
Education Services	Education & Training	\$16.25	3,157	316	2,500	250	0	677	361	427
									+	+
Emerging Technologies ⁴	Science, Technology, Engineering & Mathematics	No Data Available	No Data Available	No Data Available	1,000	100	83	458	No Data Available	441
										+
Exported Services ⁴	Finance; Marketing Sales & Services; Arts, Audio/Video Technology & Communication ⁶ ; Architecture & Construction; Science, Technology, Engineering & Mathematics	\$20.65	3,172	317	15,000	1,500	1,049	1,340	1,488	889
									+	+
Government	Government & Public Administration; Law, Public Safety & Security	\$21.45	341	34	8,100	810	85	674	725	-51
									+	+
Health and Social Services	Health Science; Human Services	\$18.63	8,483	848	23,000	2,300	102	3,103	2,357	905

Table 39: New Mexico Northern WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Northern Region ³	2013 State Total Post-secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Northern Region ¹	Annual Job Openings, (2012-2022) Northern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
									+	+
Information Technology	Information Technology	\$33.08	61	6	16,000	1,600	33	226	253	-1,341
									+	-
Manufacturing	Manufacturing; Architecture & Construction; Transportation, Distribution & Logistics	\$28.08	373	37	15,000	1,500	316	1,375	1,654	191
									+	+
Oil, Gas, Mining Extractives/ Energy	Agriculture, Food, & Natural Resources	\$35.60	1,739	174	10,000	1,000	41	26	-107	-933
									-	-
Solo/ Independent Work ⁴		No Data Available	28	3	12,000	1,200	No Data Available	No Data Available	No Data Available	No Data Available
Tourism	Hospitality & Tourism	\$7.80	5,215	522	22,400	2,240	283	174	-65	-1,783
									-	-
Totals:			25,436	2,544	162,100	16,210	2,677	9,496	8,440	-2,837

¹This projection is based on current employment data and industry trends. It assumes that there will be no change to the current trends over the next 10 years.

²This projection is based on a consensus among industry experts. It indicates the number of jobs that could be created if action is taken to increase economic development.

³Students may have concentrations in more than one area. Concentrator numbers include these multiple concentrations, so they may not accurately reflect the actual number of students in each of these pathways. There may be fewer students than shown in these columns.

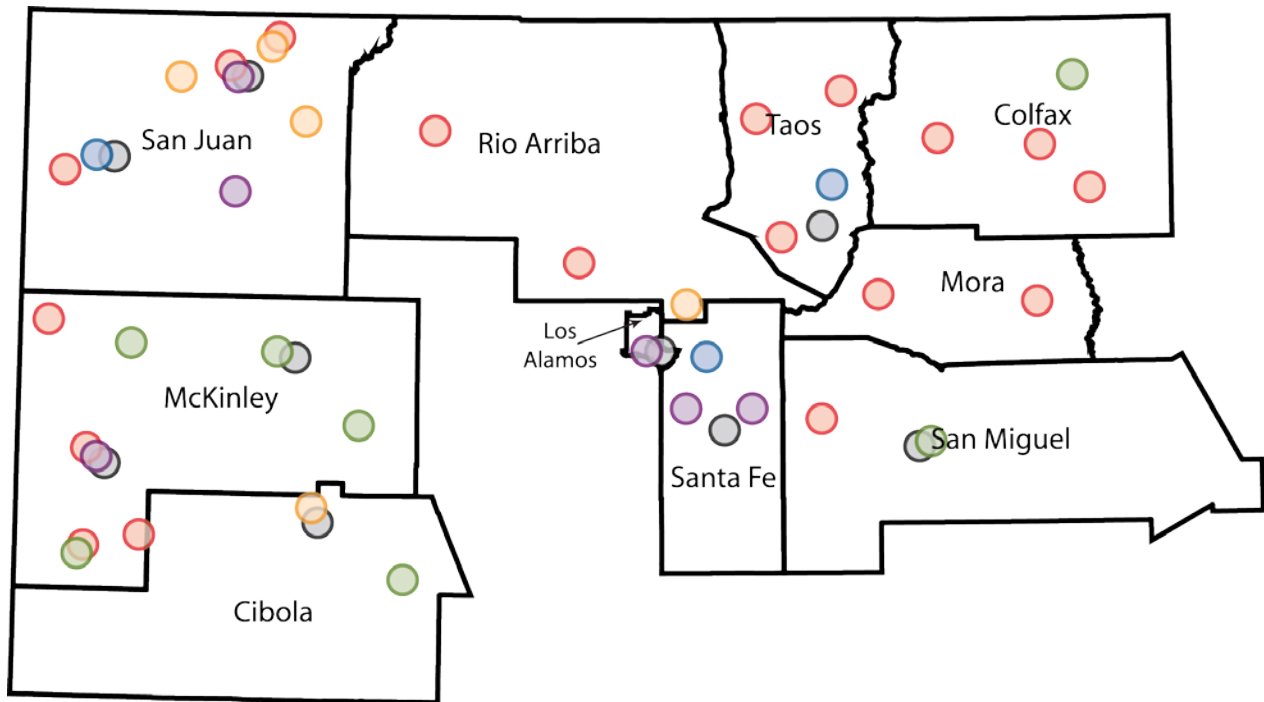
⁴Emerging Technologies is a small subset of Professional, Scientific and Technical Services, an industry within Exported Services. Because there are no details regarding the breakdown of this industry area, it cannot be determined how many of these jobs fit into Emerging Technology. Therefore, all of the Professional, Scientific and Technical Services data are listed under Exported Services

⁵Solo/Independent Work is most likely underreported. Many jobs in the Solo/ Independent category are captured in the other twelve economic sector categories. The data for these categories do not distinguish between individuals who are self-employed and those who are employed by an organization.

⁶The Agriculture, Food & Natural Resources cluster and the Arts, Audio/Video Technology & Communication cluster are each listed under two different sectors. This is because pathways in each of these clusters fit under different sectors. For example, in Agriculture, Food & Natural Resources, pathways in food processing, animal systems and plant systems fit under Agriculture, while pathways in natural resources fit under Oil, Gas, and Mining Extractives/Energy.

Note: Employment figures shown from the Department of Workforce Solutions and figures for secondary completers are for the Northern region. Employment figures shown from the Jobs Council report and figures for postsecondary completers are statewide.

Figure 10: Northern WIOA Map of High Schools and Postsecondary Schools



Number of Schools or Community Colleges in the Region

High Schools	47
Charter Schools	11
Community Colleges	11

Regional Results

2012 High School Graduation Rate	73%
2011-12 High School Dropout Rate	6.5%
2011-12 High School Free/Reduced-Price Lunch Rate	76%
2013 Annual Unemployment Rate	7.7%

Rates are typically an average of averages from the school or district level.

Charter Schools

Academy for Tech & Class	McCurdy Charter	Middle College High
Monte del Sol Charter	Moreno Valley High	New Mexico Virtual Academy
NM School for the Arts	Taos Academy	Tierra Encantada Charter
Vista Grande High	The Masters Program	

High Schools

	<i>n</i>	Within 50 miles of a CC?	2013 4-Yr Graduation Rates	2012 4-Yr Graduation Rates	2012-2013 Dropout Rate	2011-2012 Dropout Rate	2011-12 Free/Reduced-Price Lunch
Academy at Larragoite	116		27%	-	3.8%	4%	-
Aztec High	920	Yes	72	65	16.1	15	39
Bloomfield High	791	Yes	77	68	6.0	6	59
Capital High	1158	Yes	64	51	28.2	49	71
Career Prep (Alt)	105		28	20	9.1	31	98
Central High	764	Yes	75	66	3.4	4	100
Charlie Y. Brown (Alt)	66		28	27	4.7	9	65
Chrysalis (Alt)	24		92	57	2.3	8	90
Cimarron High	61		78	94	0.0	2	52
Crownpoint High	324	Yes	83	57	4.6	2	83
Dulce High	182		77	35	8.8	10	98
Espanola Valley High	981	Yes	58	64	2.4	2	51
Farmington High	1336	Yes	65	71	1.8	1	47
Gallup Central (Alt)	200		39	18	21.4	21	99
Gallup High	1003	Yes	72	75	5.2	5	61
Grants High	857	Yes	62	69	4.1	3	66
Laguna Acoma High	279	Yes	83	79	29.4	30.1	67
Los Alamos High	1111	Yes	84	87	5.7	6.3	0
Maxwell High	31		63	89	32.8	8.0	85
Mesa Vista High	133	Yes	72	78	0.0	3.9	61
Miyamura High	1112	Yes	68	49	9.2	2.8	67
Mora High	135	Yes	90	82	8.4	5.8	98
Navajo High	124	Yes	69	70	9.2	3.7	98
Newcomb High	237	Yes	62	65	5.0	8.1	99
Pecos High	185		75	74	1.7	3.7	91
Penasco High	140	Yes	76	84	4.0	4.3	79
Piedra Vista High	1325	Yes	79	71	0.9	1.4	39
Pojoaque High	627	Yes	76	69	3.4	0.0	45
Questa High	131	Yes	87	89	2.3	1.4	98
Ramah High	97	Yes	93	82	4.4	3.8	79
Raton High	328		75	63	1.6	5.1	55
Robertson High	470	Yes	83	68	4.9	3.2	58
Rocinante High	157	Yes	36	39	2.9	5.2	56
Santa Fe High	1566	Yes	63	63	4.5	0.8	49
Shiprock High	618	Yes	65	60	6.8	9.8	100
Springer High	62		96	99	14.6	16.1	96
Taos Cyber Magnet (Alt)	23		98	34	5.2	8.0	84
Taos High	688	Yes	76	73	2.5	6.6	100
Thoreau High	351	Yes	78	72	0.0	0.0	99
Tohatchi High	313	Yes	74	77	10.3	12.9	85
Tse'Yi'Gai High	103	Yes	71	59	0.0	4.8	97
Twin Buttes High	44	Yes	85	55	3.2	6.5	91
Vista Nueva High	51	Yes	46	23	0.0	0.0	51
W Las Vegas High	451	Yes	73	82	2.8	4.7	99
Wagon Mound High	27	Yes	75	84	16.0	11.4	92
W Las Vegas Family Partnership (Alt)	56		64	35	8.0	21.5	95
Zuni High	335	Yes	70	87	2.6	4.7	94

Community Colleges: Postsecondary Course Offerings

Dine College

Business Management (A.A.S.)	Liberal Arts (A.A.)	Science: Environmental Sciences Option (A.S.)
Computer Information Systems (A.A.)	Navajo Language (A.A.)	
Diné Studies (A.A.)	Office Administration (A.A.S.)	Science: General Science Option (A.S.)
Early Childhood Education (A.A.)	Public Health (A.S.)	Social & Behavioral Sciences (A.A.)
Elementary Education (A.A.)	Public Health: Environmental Public Health Option (A.S.)	Social Work (A.A.)
Fine Arts (A.A.)		
Business Management (A.A.S.)	Science: Biology Option (A.S.)	

Navajo Tech

Accounting	Energy Systems	Law Advocate
Administrative Office Specialist	Environmental and Natural Science	Mathematics
B.I.M.	General Education	Public Administration
Commercial Baking	Geographic Information Technology	Registered Nursing
Culinary Arts	Information Technology	Veterinary Technology
Early Childhood Multicultural Education		

New Mexico State University – Grants

Applied Science Automotive Degree	Assoc. Degree in Early Childhood Education	Assoc. of Science Degree
Assoc. Degree in Applied Business		Assoc. of Science General Engineering
Assoc. Degree in Criminal Justice	Assoc. Degree in Education	Associate of Arts Degree
Assoc. Degree in Criminal Justice/Corrections	Assoc. Degree in Pre-Business	Automotive Technology
	Assoc. Degree in Social Services	Corrections Officer Training Academy
	Assoc. of Applied Science, EMS	Creative Media Technology Assoc Degree

San Juan College

Automotive Service Educational Program	General Science	Natural Gas Compression
Biology	Geology	Nursing
Building Trades	Health Information Technology	Occupational Safety
Business Administration	Horticulture	Occupational Therapy Assistant
Chemistry	Human Services	Outdoor Leadership and Recreation
College Automotive Program	Industrial Maintenance Mechanic Program	Physical Therapist Assistant Program
Computer Science		Psychology
Cosmetology	Industrial Process Operator Program	Respiratory Therapy
Dental Hygiene	Instrumentation and Controls Technology	Surgical Technology
Diesel Technology	Legal Assistant	Teacher Education
Digital Media Arts and Design	Liberal Arts	Technical Theatre
Drafting	Machine Shop Technology	Toyota Technician Training Education Network
Early Childhood Education	Mathematics	
Engineering	Medical Laboratory Technician	Veterinary Technology
Fire Science	Native Studies	Welding
Fundamentals of Petroleum Production Operations		

University of New Mexico-Gallup

AA - Art Studio	AA - Pre Professional (2 Concentrations Secondary and Elementary)	AAS - General Studies
AA - Business Administration		AAS - Legal Assistant
AA - Criminal Justice Corrections	AA – Psychology	AAS - Tribal Court Advocate
AA - Criminal Justice Law Enforcement	AAS - Auto Technology	AS - Health Information Technology - HIT
AA - ECME	AAS - Collision Repair Technology	AS - Medical Laboratory Technician
AA - Human Services	AAS - Construction Technology, General	AS – Nursing
AA - Liberal Arts	AAS - Design and Digital Media	AS – Science

Santa Fe Community College

Architectural Design (AA)	Drafting and Engineering Technologies (AAS)	Interior Design (AAS)
Accounting (AA)		Legal Studies
Adobe Construction (Concentration in Building Science AAS Degree)	Early Childhood Education (AA)	Media Arts (AA), (AAS)
	Early Childhood Education (AAS)	Medical Assisting (AAS)
American Sign Language Interpreting (AA)	Exercise Science (AAS)	Nursing (AAS)
	Fashion Design (AAA)	Paralegal Studies (AAS)
Biological Science (AS)	Film (AAS)	Paramedicine (AAS)
Building Science and Construction Technologies (AAS)	Fine Arts (AA)	Photography (AA), (AAA)
	Gallery Management (AAA)	Physical Science (AS)
Business Administration (AA)	General Engineering (AS)	Professional Crafts (AA)
Business Administration (AAS)	General Studies (AA)	Psychology (AA)

Community Colleges: Postsecondary Course Offerings		
Computer and Information Technologies (AAS)	General Studies (AAS)	Respiratory Therapy (AAS)
Computer Science (AS)	General Studies (AAS)	Spanish Language (AA)
Criminal Justice	General Studies (AS)	Sustainable Technologies (AAS)
Culinary Arts (AAS)	Greenhouse Management (AAS)	Teacher Education (AA)
Dental Health (AAS)	Human Services (AA)	Welding Technologies(AAS)
University of New Mexico-Los Alamos		
Accounting	Environmental Technology	Liberal Arts
Applied Technologies	Fire Science	Pre-Engineering
Business	General Studies	Robotics
Computer Science	Health Science	Science
Emergency Medical Services (EMS)	Information Technology	Studio Art
University of New Mexico-Taos		
Arts and Crafts	Education	Nurse Assistant Program
Business Management	Emergency Medical Services	Physical Conditioning
Computer Technology	Fine Arts	RN Nursing Program
Construction Technology	Fine Woodworking	Science and Mathematics
Culinary Arts	Foreign Languages	Small Business Development Center
Dental Assistant Programs	Health Extension and Education	Social and Behavioral Sciences
Early Childhood and Multicultural Education	Holistic Health and Healing Arts	Writing and Speaking
	Humanities	
Northern New Mexico College		
Allied Health (AAS)	Fiber Arts (AAS)	Plumbing Technology (AAS)
Art (AA)	Film and Digital Media Arts (AA)	Police Science (AAS)
Auto Body Repair (AAS)	Flamenco Music (AA)	Pre-Engineering (AEng)
Automotive Technology (AAS)	General Studies (AA)	Pre-Forestry (AAS)
Barbering (AAS)	Human Services in the Social Sciences (AA)	Pueblo Indian Studies (AA)
Biology (AS)		Radiation Protection (AAS)
Business Administration (AA)	Information Engineering Technology (AEng)	Radiology (AAS)
Chemical Technician (AAS)	Jazz Studies (AA)	Renewable Energy (AAS)
Computer Aided Drafting (AAS)	Laboratory Biotechnology (AAS)	Science (AS)
Construction Trades Management (AAS)	Library Technology (AAS)	Software Engineering (AEng)
Construction Trades Technology (AAS)	Massage Therapy (AAS)	Southwest Folk Art (AA)
Cosmetology (AAS)	Music (AM)	Spanish Colonial Furniture Making (AAS)
Criminal Justice (AA)	Natural Resources–Range Ecology Management (AAS)	Substance Abuse Counselor (AA)
Dance (AA)		Substance Abuse Counselor (AAS)
Early Childhood Education (AA)	Nursing (AAS)	Technical Theatre (AA)
Electrical Technology (AAS)	Nursing (AS)	Theatre (AA)
Elementary Education (AA)	Office Administration (AAS)	Welding Technology (AAS)
Environmental Science (AAS)		Wildland Fire Science (AAS)
Institute of American Indian Affairs		
Cinematic Arts & Technology		
Creative Writing		
Luna Community College		
Accounting	Electronics Engineering Technology	Media Art and Film Technology
Business Administration	Fire Science	Nursing
Computer Science	General Business	Pre Engineering
Criminal Justice	General Science	Teacher Education
Drafting Technology	General Studies	Vocational/Technical Studies
Early Childhood Multicultural Education	Liberal Arts	

Businesses by Employee Size

Employ 10-19 people

315 Restaurant & Wine Bar	Del Norte Credit Union	Power Innovations LLC
4 Rivers Equipment	El Meson	Prima Title LLC
A J Tires & Automotive Ctr	El Parasol	Prull & Assoc Inc
A-1 Auto Salvage	Elite Energy Svc	Pumps & Svc
Abe's Motel & Fly Shop Inc	Enviroworks	Quadco Inc
Ace Services	Eske's Brew Pub	Quality Oil Field Svc
Alan Maestas PC Litigation Fir	Fairfield Inn	Quiznos
Ameri West Construction	Four Corners Harley-Davidson	Reynolds Insurance
Americas Best Value Inn	Goodrich Roofing Of Santa Fe	Robin Gray Design
Andiamo	Grant Experts Inc	Rodey Dickason Sloan Akin
Arland & Assoc LLC	Gruda Veterinary Hospital	Rodi Systems
Armstrong Coury Insurance	Guardian Abstract & Title Co	Sabroso
Automated Recovery Sysys Of NM	Hampton Inn-Taos	Sands Motel
Bailey Insulation	Heritage Trust Co Of Nm	Santa Fe Sports & Images
Bailey's Welding Svc Inc	High Country Lounge & Rstrnt	Santa Fe Stone Works
Basin Disposal Inc	Hopper Specialty West Inc	Sarcon Construction Corp
Bayless Drilling Co	Hot Rocks Java Café	Sleep Inn
Big Fish Marketing	Hub International Ins Svc-Sw	Southwest Building Blocks Inc
Black Mesa Golf Club	Indian Hills Inn	Southwest Planning & Marketing
Blue Jet Inc	J C Well Svc	Stewart Title Co
Bonaguidi Construction	Jiffy Lube	Sunrise Indian Jewelry
Cadillac Builders LTD	Juniper Ridge Builders	Super 8
Capital Recovery	KBAC	Taos Pharmacy
Casa Benavides	KFC	Taos Veterinary Clinic PC
Chow's	LA Puerta Originals	Techna Glass
Church's Chicken	M M Mud Co	Tefteller Inc
Cisneros Design Inc	Margaret Anne Rogers & Assoc	Tierra Corrosion Control
Ckwrites	Mascarenas Trucking & Constr	UBS Financial Svc
Compadre Custom Construction	Mataya Construction Co Inc	Up-Front Construction
Costa Vida	Mcdowell Construction Co	Uptime Institute
Cottam's Ski Shops	Motel 6	Wellsite Solutions Inc
Courtyard	Mr G's Pro Tow	Woods Design Builders
Coyote Drilling Inc	Nightlight Electric	World Star Development Inc
Credit Connections	Orr Architects	Xerox
Crystal Clear Paint & Body Shp	Phoenix Services	Zia Credit Union
Cyberwolf Inc	PNM Resources	

Employ 20-49 people

Air Drilling Assoc	First New Mexico Title Co	Plaza Café
All Seasons Inc	Focal Point LLC	Quality Home Care Inc
Alpha Restoration & Constr Svc	High Desert Healthcare & Mssg	Resource Production Co
Anderson Field Svc	High Tech Rental Tools	Rocky Mountain EMS
Animal Clinic Of Los Alamos PC	Hunter Building Materials Inc	Roof Doctor
Animas Credit Union	Inn Of The Five Graces	Rothstein Donatelli Hughes
Atomi Corp	Jinja	Rubio's Fresh Mexican Grill
Aval On Restaurant	Joe's Diner & Pizza	San Francisco Street Bar
Avi Risk Management Ins Brkrs	K & C Transport LLC	Santa Fe Concrete
Aztec Excavation Co	Kachina Lodge Hotel & Meeting	Silver Ridge Development Inc
B G Mudd & Co	KELCO Inc	Sipapu Lodge
Bloomfield Machine & Welding	Kelley Oilfield Svc Inc	Sonic Drive-In
Bull Ring	KFC	Southwest Metal Products Inc
CBF Service	KTAO	Steaksmith At El Gancho
Community Bank	LA Boca	Supersmith Inc
D J Simmons Inc	Merrion Oil & Gas Corp	T C & I Construction Inc
Da Vita Inc	Mo-Te Drilling Inc	Taft Construction
Dairy Queen	Oil & Gas Equip Corp	Taos County Road Dept
Don Fernando De Taos Hotel	Oil & Gas Equipment Corp	Teton Energy Consulting LLC
El Rey Inn	Orthopedic Associates	US Indian Health Svc
Empire Builders Supply Co Inc	Osteria D'Assisi	Uselman Construction Co
Energy Pump & Supply Inc	Overright Trucking Inc	Wells Fargo Bank
Eye Associates	Paul & Sons	WSI Machine & Supply
Family Practice Assoc Of Taos	Peoples Bank	

Employ 50-99 people

Businesses by Employee Size		
Anasazi Traders Of Gallup		Michael's Kitchen
BHP Billiton Petroleum		Outback Steakhouse
Cafe Pasqual's		Plaza De Retiro
Cameron Process & Compression		Pranzo Italian Grill
Courtyard-Santa Fe		Premier Ndt Svc LLC
Energen Resources		Rancho De Chimayo
Espanola Valley Nursing-Rehab		Santa Fe Bar & Grill
First American Traders		Sierra Oil Field Svc Inc
Guardian Angel Home Hospice	Hiway Grill	Tortilla Flats
Halo Services Inc	Intermountain Construction Inc	United States Outfitters Inc
Harry's Roadhouse	Kit Carson Electric Co-Op Inc	Wells Fargo Bank
	L & R Oilfield Svc	Zia Credit Union
	Maria's	
	Medical Associates-Northern Nm	
Employ 100-249 people		
Aurora Comprehensive Cmnty	Elkhorn Construction	Polk Oil Co
Century Bank		Process Equipment & Svc Co
	Exterran Inc	Red River Ski Area Inc
Citizens Bank	First National Bank-Santa Fe	Taos Living Ctr
Del Norte Credit Union	Ideal Home Care	United States Dept Of Energy
Dugan Production	Inn & Spa At Loretto	Western Refinery
El Monte Sagrado Living Resort	Pink Adobe	Western Refining Wholesale
Employ 250-499 people		
Basin Coordinated Health Care	URS Flint	
Employ 500-999 people		
Hilton-Buffalo Thunder		
Employ 1000-4999 people		
BHP Billiton Petroleum		
Employ 5000-9999 people		
None		
Employ number unknown		
Alta Vista Regional Hospital	First National Bank-New Mexico	Qforma Inc
Colfax General Long-Term Care	International Bank	Santa Fe Natural Tobacco Co
Community 1st Bank Las Vegas	Landmark Grill In The Plaza	Territorial Title Of Las Vegas
Dawn Trucking Co	Pancho's Road Side Café	Victory Enterprises Inc
El Fidel Hotel	Presbyterian Espanola Hospital	Zebs
El Fidel Restaurant		

Central WIOA — 37 High Schools

Introduction — Comprised of four counties that include the city of Albuquerque, the Central WIOA is the smallest region in New Mexico. It is the most urban, and the one that is the most densely populated (902,797). Eighty-five percent of residents hold a high school diploma, which is also the average for the United States. Twenty-three percent of inhabitants have an undergraduate degree; the national average is 38 percent. The level of poverty is 21.1 percent. The percentage of non-English speaking individuals is 30 percent; this is the lowest of the four WIOA regions. The median yearly income level is \$45,121 in the Central Region, the highest median yearly income level in the state (2010 U.S. Census).

Internal Strengths

Demographics

There are a number of comprehensive high schools (37) and charter schools (36) in this region, with a variety of opportunities for students.

Approximately 50 percent of high schools in the region enroll 1,000 students or more. Larger high schools have the capacity to offer more CTE programs to students.

There are three community colleges in this region. Only three comprehensive high schools are **more** than 50 miles from a community college. This allows for easier program communication and participation between high schools and community colleges.

Eighty-five percent of Central inhabitants have a high school diploma.

Internal Weaknesses

Demographics

There is a 71 percent high school graduation rate for the Central region; the national graduation rate is 79 percent.

Twenty-three percent of adults hold an undergraduate degree; this is below the national average.

The dropout rate is 4.1 percent for the Central region; the national dropout rate is 3.3 percent.

The free and reduced-price lunch rate for the region is 62 percent; the national free and reduced-price lunch rate is 48.1 percent.

Quality and Rigorous Assignments

On the CTE student survey, only 51 percent of students ($n = 442$) reported that they had an intensive level of exposure (5-10 indicators) to rigorous assignments.

Based on the student survey, less than 50 percent of students ($n = 442$) reported experiencing rigorous CTE assignments. Specifically, this included such indicators as predicting outcomes based on observations, developing a logical argument for a solution to a problem and applying technical knowledge and skills to new situations.

Based on CTE student survey results ($n = 442$) in the quality assignments section, less than 50 percent of students said they saw a connection between what they did in class and potential further studies and careers, and less than 50 percent stated they developed and analyzed tables, charts and graphs in their school work.

Based on student survey results ($n = 442$), only 42 percent of students reported at the intensive level (8-11 indicators) for quality assignments.

Literacy

Of students surveyed ($n = 442$), only 35 percent reported an intensive level of literacy experiences (7-9 indicators).

Less than 42 percent of CTE students ($n = 442$) in this region said they made inferences from information to develop a solution for a problem. Less than 46 percent of students completed an extended project.

Math

Only 44 percent of students surveyed ($n = 442$), had an intensive level of indicators for a balanced approach to math. The intensive level is 6-9 indicators.

Less than 53 percent of CTE students ($n = 442$) in this region said they were grouped with students with similar math skills. Less than 55 percent of students stated they used math to solve complex problems related to their CTE course.

Career Counseling

Only 40 percent of CTE students ($n = 442$) report that a counselor or adult has helped them understand their strengths, skills, aptitudes and abilities.

Student Achievement

New Mexico's Standards Based Assessment in 2013-14 for 10th-graders showed that 62.2 percent of students ($n = 23,054$) scored below Proficient in reading, 69.6 percent ($n = 23,038$) scored below proficient in math and 55.3 percent ($n = 284$) scored below Proficient in science.

Of the students who took the 2014 ACT in New Mexico ($n = 12,945$), just 18 percent met ACT's college readiness benchmarks in English, reading, math and science.

Career and Technical Education

Regarding career pathway alignment, only 58 percent of CTE students' parents surveyed ($n =$

271) across the state said CTE pathways of study continued at the community college level.

Regarding career readiness/counseling, only 53 percent of parents ($n = 271$) across the state said their eighth-grade child was told about CTE high school courses.

Forty-three percent of student CTE students ($n = 442$) reported they received an intensive level of counseling for careers (5-7 indicators).

CTE programs not producing enough graduates was a concern among survey stakeholder groups. Twenty percent of business people ($n = 133$) said that CTE programs produced enough graduates to meet local workforce needs; 35 percent of principals ($n = 128$) said this was so. Sixteen percent of postsecondary administrators ($n = 19$) said there were enough CTE graduates.

There are not enough students earning industry credentials. Thirty percent of students ($n = 2,483$) said they were able to earn industry credentials; 16 percent of principals ($n = 128$) said that students could earn credentials in any CTE program; 29 percent of teachers ($n = 252$) said students could earn credentials.

There was a concern about the overall rigor of CTE instruction. Fifty percent of students ($n = 2,483$) said teachers set high standards for them and were willing to help them meet the standards; 80.3 percent ($n = 252$) of CTE teachers said they set high standards.

Some stakeholder groups believed CTE students were not being adequately prepared for careers. For instance, 14 percent of business representatives ($n = 133$) said CTE programs adequately prepared students for careers.

Forty-seven percent of postsecondary administrators ($n = 19$) said this was true. Sixty-five percent of high school principals ($n = 128$)

said CTE students were being adequately prepared.

Sixty-two percent of community members ($n = 127$) said there were gaps in students' soft skills — work ethic, communication skills, professionalism, problem solving, teamwork and leadership.

Principals were not always able to hire and retain qualified CTE teachers. Nine percent of principals ($n = 128$) said they were always able to hire qualified CTE teachers. Ten percent of principals said they were always able to retain qualified CTE teachers.

Programs of Study

Out of 388 possible programs of study in 37 Central region high schools using a three-course progressive sequence, 68 programs made the cut as programs of study, or 17.5 percent. Using a four-course sequence, 63 programs, or 16.2 percent, were considered programs of study. These are very low program of study numbers and negatively impact CTE program success. (A program of study has secondary and postsecondary elements, a non-duplicative progression of courses and the opportunity to earn dual credit, and it leads to a postsecondary degree, certificate or industry-recognized credential.)

External Opportunities

Demographics

This region has the highest median income in the state, \$45,121.

There are a number of businesses in the Central WIOA region, over 450. There is more of an opportunity for students to be placed in work-based learning experiences and be hired for a job in this region.

Work-Based Learning

Businesses surveyed were open to students, CTE teachers and community college instructors participating in their ongoing training. Sixty-four percent of businesses surveyed ($n = 133$) would allow student interns to participate in training; 51 percent of businesses would allow CTE teachers and community college faculty to participate in training.

External Threats

Demographics

There is an annual unemployment rate of 7.8 percent. The national unemployment rate is 5.5 percent.

The poverty level is 21.1 percent; the national poverty level is 12.6 percent

Work-Based Learning

There are currently not enough work-based learning opportunities for students. Twenty percent of business representatives ($n = 133$) said that their companies offered work-based experiences to high school students. Seventy-three percent of counselors ($n = 81$) said it was a challenge to place students in work-based learning environments.

Workforce Preparation

Workforce preparation gaps do exist. (New Mexico Jobs Council Report, 2013)

Agriculture: There are 234 more job openings annually than qualified concentrators.

Back Office (call centers, data processing): There are 1,272 more job openings annually than qualified concentrators.

Government: There are 53 more job openings annually than qualified concentrators.

Information Technology: There are 1,276 more job openings annually than qualified concentrators.

Extractives/Energy: There are 934 more job openings annually than qualified concentrators.

Tourism: (*New Mexico Employment Projections, 2014*): There are 270 more job openings annually than qualified concentrators. (*New Mexico Jobs Council Report, 2013*): There are 1,643 more job openings annually than

qualified concentrators. Keep in mind that **Agriculture** and **Tourism** will have lower average hourly wages than **Back Office**, **Government**, **Information Technology** and **Extractives/Energy**.

New Mexico economic sectors where there are more concentrators than job opportunities annually include **Health and Social Services** and **Manufacturing**. (*New Mexico Employment Projections, 2014; Jobs Council Report, 2013*).

Central WIOA Conclusions: The urban and densely populated Central region has a variety of educational and work opportunities, and the median income is the highest in the state. Of concern is the low high school graduation rate, the high dropout rate, the high free and reduced-price student lunch rate and the high unemployment rate. Lack of CTE pathways between high school and community colleges, few work-based experiences for students, little CTE program awareness on the part of parents and students, and the lack of industrial credentialing opportunities for students are also of concern. Workforce gaps (more jobs than concentrators) include **Agriculture**, **Back Office**, **Government**, **Information Technology**, **Extractives/Energy** and **Tourism**.

Table 40: New Mexico Central WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Central Region ³	2013 State Total Post-Secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Central Region ¹	Annual Job Openings, (2012-2022) Central Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Agriculture	Agriculture, Food, & Natural Resources ⁷	\$13.23	79	8	3,000	300	40	26	58	-234
									+	-
Back Office	Business Management & Administration	\$17.13	225	23	25,000	2,500	90	1,138	1,206	-1,272
									+	-
Digital Media	Arts, Audio/Video Technology & Communication ⁶	\$20.90	No Data Available	No Data Available	9,100	910	1,258	279	No Data Available	627
										+
Education Services	Education & Training	\$16.25	No Data Available	No Data Available	2,500	250	1	677	No Data Available	428
										+
Emerging Technologies ⁴	Science, Technology, Engineering & Mathematics	No Data Available	No Data Available	No Data Available	1,000	100	116	458	No Data Available	474
										+
Exported Services ⁵	Finance; Marketing Sales & Services; Arts, Audio/Video Technology & Communication ⁶ ; Architecture & Construction; Science, Technology, Engineering & Mathematics	\$20.65	7,290	729	15,000	1,500	2,083	1,340	2,522	1,923
									+	+
Government	Government & Public Administration; Law, Public Safety & Security	\$21.45	-501	-50	8,100	810	83	674	807	-53
									+	-
Health and Social Services	Health Science; Human Services	\$18.63	13,583	1,358	23,000	2,300	168	3,103	1,913	971

Table 40: New Mexico Central WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Central Region ³	2013 State Total Post-Secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Central Region ¹	Annual Job Openings, (2012-2022) Central Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
									+	+
Information Technology	Information Technology	\$33.08	45	5	16,000	1,600	98	226	320	-1,276
									+	-
Manufacturing	Manufacturing; Architecture & Construction; Transportation, Distribution & Logistics	\$28.08	1,148	115	15,000	1,500	586	1,375	1,846	461
									+	+
Oil, Gas, Mining Extractives/ Energy	Agriculture, Food, & Natural Resources	\$35.60	-114	-11	10,000	1,000	40	26	77	-934
									+	-
Solo/ Independent Work ⁵		No Data Available	No Data Available	No Data Available	12,000	1,200	No Data Available	No Data Available	No Data Available	No Data Available
Tourism	Hospitality & Tourism	\$7.80	8,672	867	22,400	2,240	423	174	-270	-1,643
									-	-
Totals:			30,427	3,043	162,100	16,210	4,986	9,496	8,478	-528

¹This projection is based on current employment data and industry trends. It assumes that there will be no change to the current trends over the next ten years.

²This projection is based on a consensus among industry experts. It indicates the number of jobs that could be created if action is taken to increase economic development.

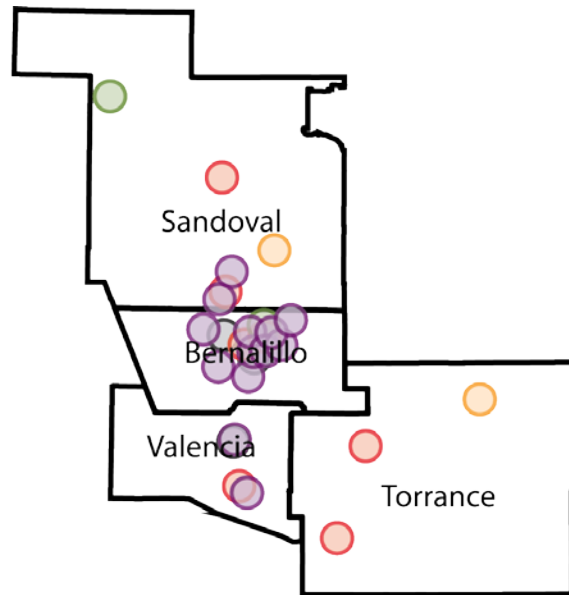
³Students may have concentrations in more than one area. Concentrator numbers include these multiple concentrations, so they may not accurately reflect the actual number of students in each of these pathways. There may be fewer students than shown in these columns.

⁴Emerging Technologies is a small subset of Professional, Scientific and Technical Services, an industry within Exported Services. Because there is no detail regarding the breakdown of this industry area, it cannot be determined how many of these jobs fit into Emerging Technology. Therefore, all of the Professional, Scientific and Technical Services data are listed under Exported Services

⁵Solo/ Independent Work is most likely underreported. Many jobs in the Solo - Independent category are captured in the other 12 economic sector categories. The data for these categories do not distinguish between individuals who are self-employed and those who are employed by an organization.

⁶The Agriculture, Food & Natural Resources cluster and the Arts, Audio/Video Technology & Communication cluster are each listed under two different sectors. This is because pathways in each of these clusters fit under different sectors. For example, in Agriculture, Food & Natural Resources, pathways in food processing, animal systems and plant systems fit under Agriculture, while pathways in natural resources fit under Oil, Gas, and Mining Extractives/Energy.

Note: Employment figures shown from the Department of Workforce Solutions and figures for secondary completers are for the Central region. Employment figures shown from the Jobs Council report and figures for postsecondary completers are statewide.

Figure 11: Central WIOA Map of High Schools and Postsecondary Schools

- High Schools with 250 students or fewer
- High Schools with 251-500 students
- High Schools with 501-750 students
- High Schools with 751-1000 students
- High Schools with 1000 and more students
- Community Colleges & Selected 4-year Universities

Number of Schools or Community Colleges in the Region

High Schools	37
Charter Schools	36
Community Colleges	3

Regional Results

2012 High School Graduation Rate	71%
2011-12 High School Dropout Rate	4.1%
2011-12 High School Free/Reduced-Price Lunch Rate	62%
2013 Annual Unemployment Rate	7.8%

Rates are typically an average of averages from the school or district level.

Charter Schools

Academy of Trades and Tech	Digital Arts and Technology	New America School
Ace Leadership High	East Mountain High	Nuestros Valores Charter
Albuquerque Charter Academy	El Camino Real Academy	Public Academy for Performing Arts
Albuquerque Institute of Math & Science	Estancia Valley Classical Academy	Robert F. Kennedy Charter
Albuquerque School of Excellence	Gilbert L Sena Charter	School of Dreams Academy
Albuquerque Talent Development Charter	Gordon Bernell Charter	South Valley Academy
Amy Biehl Charter	Great Academy	Southwest Secondary
Ask Academy	La Academia de Esperanza	SW Aeronautics, Mathematics and

Charter Schools

Bataan Charter	Learning Center	Science
Cesar Chavez Community School	Learning Community	Tierra Adentro
Corrales International	Los Puentes Charter	Walatowa Charter
Cottonwood Classical Prep	Media Arts Charter	New America School
Creative Ed Prep #1	Native American Comm Academy	Nuestros Valores Charter

High Schools

	<i>n</i>	Within 50 miles of a CC?	2013 4-Yr Graduation Rates	2012 4-Yr Graduation Rates	2012-2013 Dropout Rate	2011-2012 Dropout Rate	2011-12 Free/Reduced-Price Lunch
Albuquerque High	1707	Yes	70%	58%	3.7%	3.7%	63%
Atrisco Heritage Academy	2413	Yes	76	-	2.0	1.7	82
Belen High	1137	Yes	60	68	6.3	5.7	59
Belen Infinity Academy	80	Yes	16	30	28.4	31.6	97
Bernalillo High	804	Yes	59	65	8.3	10.9	100
Century Alt High (Alt)			23	35	24.1	20.4	98
Cibola High	1817	Yes	79	76	1.8	3.0	31
Continuation School (Alt)			18	-	9.1	30.2	36
Coronado High	62		75	81	1.6	3.1	95
Cuba High	251		73	71	4.9	4.1	99
Del Norte High	1182	Yes	62	62	6.7	5.5	61
Early College Academy	197	Yes	90	74	1.0	0.5	31
Eldorado High	1882	Yes	84	80	1.7	2.1	20
Estancia High	228	Yes	83	80	1.8	0.9	66
Estancia Valley Learning (Alt)			36	19	9.8	55.6	71
Freedom High	178	Yes	45	23	17.1	14.5	98
Highland Autism Center (Alt)			-	-	0.0	0.0	50
Highland High	1598	Yes	64	47	6.5	6.3	77
Independence High	237	Yes	80	50	12.1	15.0	70
Jemez Valley High	105	Yes	82	91	0.0	0.0	80
La Cueva High	1851	Yes	87	85	2.2	1.6	12
Los Lunas High	1222		73	64	2.9	3.2	73
Manzano High	1799	Yes	68	68	5.7	5.0	54
Moriarty High	888	Yes	73	68	6.6	5.7	47
Mountainair High	97	Yes	89	82	8.2	5.0	59
New Futures School (Alt)			37	48	20.1	25.9	99
Next Gen Academy	254	Yes	62	-	2.0	1.9	41
Rio Grande High	1459	Yes	65	50	4.8	5.5	80
Rio Rancho Cyber Academy (Alt)			94	61	0.6	1.2	42
Rio Rancho High	2399	Yes	80	85	0.8	1.8	48
Sandia High	1883	Yes	83	77	2.7	3.0	28
School on Wheels (Alt)			27	15	18.6	19.4	76
V. Sue Cleveland High	2327	Yes	91	-	0.4	1.2	39
Valencia High	1002	Yes	71	64	1.9	2.6	70
Valley High	1335	Yes	71	67	3.5	3.2	58
Volcano Vista High	2159	Yes	81	85	1.8	1.3	25
West Mesa High	1551	Yes	65	54	4.4	3.8	76

Community Colleges: Postsecondary Course Offerings

Central New Mexico Community College		
Accounting	Developmental Education	Medical Laboratory Sciences
Adult Basic Education (ABE) GED Program	Diagnostic Medical Sonography	Medical Office Assistant
Advanced Systems Technology	Diesel Equipment Technology	Modern Languages
Alternative Teacher Licensure	Dietary Manager	Nursing
Anthropology	Early Childhood Multicultural Education	Nursing Assistant
Apprenticeships	Electrical Trades	Nutrition
Architectural/Engineering Drafting Technology	Electronic Health Record	Office Assistant
Automotive Technology	Emergency Medical Services	Office Technology
Aviation Technology	Engineering	Paralegal Studies
Baking	English	Patient Care Technician
Biology	English as a Second Language	Pharmacy Technician
Biotechnology	English for Speakers of Other Languages	Physical Therapy Assistant
Business	Entrepreneurship	Physics
Business Administration	Film Technician	Plumbing and Gas Fitting
Career Technical	Fine Arts	Political Science
Carpentry	Fire Science	Polysomnography
Chemistry	Fitness Technician	Pre-Health Sciences
Child, Youth and Family Development	Food Service Management	Pre-Law
College Success Experience	General Educational Development (GED)	Psychology
Communication	Geographic Information Technology	Radiologic Technology
Community Dental Health Coordinator	Health Information Technology	Respiratory Therapy
Computer Information Systems	Heating, Ventilating, Air Conditioning and Refrigeration	Sociology
Construction Management Technology	History	Sterile Processing Technician
Construction Technology	Hospitality and Tourism	Surgical Technology
Cosmetology	Integrated Studies	Surveying Engineering
Criminal Justice	Latin American Studies	Teacher Education
Criminology	Liberal Arts	Theatre
Culinary Arts	Machine Tool Technology	Truck Driving
Culinary Fundamentals	Mathematics	Veterinary Technology
Dental Assisting		Welding
Southwestern Indian Polytechnic Institute		
Accounting	Geospatial Information Technology	Network Management
Business Administration	Natural Resources Management	Pre-Engineering
Culinary Arts	Natural Resources/Environmental Science	Vision Care
Electronics Technology		
University of New Mexico-Valencia		
Business Administration	Emergency Medicine	Liberal Arts
Computer-Aided Drafting	Game Design & Simulation	Nursing
Construction Technology	General Science	Office and Business Technology
Criminology	General Studies	Pre-Engineering
Digital Media Arts	Health Education	Secondary Education
Early Childhood Multicultural Education	Information Technology	Studio Art
Elementary Education		

Businesses by Employee Size		
Employ 10-19 people		
A B Plumbing Heating Inc	H&R Block	Peifer Hanson & Mullins
Accessories Unlimited	Highland Pharmacy	Pexa Insurance
Active Life	Imetco	Ph Dx Systems
Advantage Rent-A-Car	Integrated Family Wellness Ctr	Planet Fitness
Aesop's Gables	Inventory Co Inc	Prestige Electric
Albuquerque Alternative Health	Java Joe's	Pyramid Concrete Contractors
Albuquerque The Magazine	Jay Walton Automotive	Quality Inn
Allen Douglas Construction Co	Jaz Construction LLC	Quality Inn
Ambercare	Jemez Mountains Electric Co-Op	Quiznos
America's Massage	Jiffy Lube	Randy's Electric Co Inc
Ameriplex Mortgage	Jiffy Lube	Rapid Imaging Software Inc
Aquila Travel	Jobsite Software Inc	Research & Polling
Arland & Assoc LLC	Justice Legal Group	Response Group
Arrow Animal Hospital LTD	Kchf-TV	RIO Eye Care
Aspen Printing Co	Kilmer & Kilmer Inc	Robert Half Finance & Acctg
Associated Insurance Pros Inc	Krawietz & Assoc Inc	Ron Montoya Designs
B & F Trucking Inc	Kubiak & Melton LLC	S & J Enterprises Inc
Ball Aerospace & Technologies	LA Crpe Michel	Sandwich Co On Carlisle
Barnett Aldon Ironworks	Langford Sports & Physical	Science & Technology Corp
BBVA Compass	Lastrapes Spangler & Pacheco	Silver Star Jewelry
Black Mesa Coffee Co	Leader Technologies Inc	Slk Farming LLC
Bodyworks By R & C	Lee Gamelsky Architects	Sonic Mill
Bone's Towing & Salvage	Letter Press Svc Inc	Sonrise Technologies Solutions
Bricklight Dive	Lighthouse Business Info Sltns	Spinns Restaurant
Brycon Construction	Lobo Internet	Stelzner Winter Warburton
Campbell Farming Corp	Los Lunas Medical Assoc	Stolar Research
Carter Law Firm Atty	Lovelace Health System	Stone Age Climbing Gym
Casa Di Ferro	M & J Sign Co	SUBWAY
CBS Chimney Sweepers	M & M Sales Inc	Sun Comm
Classic Travel Inc	Maaco	Superior Ambulance Svc
Claudio Vigil Architects	Mac Construction	Synch Inc
Color Works	Madison Medical	T M's Body Repair
Commercial Warehouse Co	Main Bank	Takach Press Corp
Consumer Direct Personal Care	Main Event Transportation	Tasty Puff
Conway Electric	Management Resource Group	Technically Write
Cottonwood Printing Co	Mark Goodwin & Assoc	Tetra Corp
Cox American Car Care	Market Finders Inc	Tlc Pet & Uptown Cat Hospitals
Coyote Clay School	Martinez Hart & Thompson PC	Tokyo Electron America
Craig Sowers Custom Furniture	Masterworks In Wood LLC	Tours Of Old Town
Creative Lending Corp	MCO Electric Inc	Twisters
Creative Networks	Medrano Concrete Inc	United Transmissions
Csi Aviation Svc	Micro RDC	Universal Advisory Svc Inc
D & L Plumbing & Heating	Midas Auto Svc Experts	Upsite Technologies
Daniels Insurance Inc	Milestone Mortgage	US New Mexico Federal Cu
Del Sol Aviation	Motel 6	VA Electric Inc
El Comedor	Narvaez Law Firm	Valley Impound Inc
El Rey Theater	New Dawn Horizons Inc	Varsity
Employee Health Resources Inc	New Mexico Bank & Trust	Walker Radio Co Inc
Entrust Association Management	New Mexico Stockman	Wells Fargo Bank
Eye Institute Of Albuquerque	New Mexico Wholesale Mortgage	WESST Enterprise Ctr
Eyeworks	Noor Manufacturing Co Inc	Wheatfield Communication Co
Fiber Works Inc	Nordhaum Law Firm	Whole Hog Café
Fidelity National Title	Northwest Animal Clinic & Hosp	Will Ferguson & Assoc
Firewheel Casting	Oco Biomedical-Dental Implant	Willard Cantina & Café
First American Bank	Omnisleep Medicine Ctr	Wilsons Chevron Foodmart
Flash Automotive Inc	Oso Grande Technologies	Wolf & Fox
Foul Play Café	Overhead Door	Worth Hearing Ctr
Four Seasons Sunrooms	Pacific Paradise Trop Grill	Zero Debt Bottling LTD Co
Gonstead Family Chiropractic	Peak Motion Physical Therapy	
Employ 20-49 people		
Acme Towing Inc	Gecko's Bar & Tapas	PTI Electrical Contractors
ADA	Greer Stafford/Sjcf Inc	Quell Corp
AECOM	Guebert Bruckner PC	Rd Auto Care

Businesses by Employee Size		
Aerospace Corp	H&E Equipment Svc Inc	Reserve Industries Corp
Affordable Service Plumbing	Hampton Inn	Ricci Porch & Co
Alameda Health Ctr	Hawthorn Suites	Riccobene Patio Pavers
Albuquerque Asphalt Inc	Henrietta's Dining & Coffee	Rietech Global
All American Enterprises Inc	High Noon Restaurant & Saloon	Robles Rael & Anaya
All American Enterprises Inc	Hoffman Enterprises Inc	Rocky Mountain Ems
Anesthesia Associates	Hoffmantown Body Shop East	Rose Little Brand PC
Annapurna Chai House	Holiday Bowl	Rudy's Country Store & Bar-B-Q
Armstrong Services Inc	Homewood Suites	Sagebrush Technology
Atlas Resources Inc	Hospice De LA Luz	Sandia Sunrooms
Attachment Healing Ctr	Hurricane's Restaurant & Drive	Santa Fe Door Store Inc
Aztec Animal Clinic	Indigo Crow Café	Scott Patrick Homes Inc
Aztec Grading Inc	Installation Services Heating	Share 'n Care Pharmacy
Bac Enterprises	James Barb Construction	Sigler
Bac Enterprises	K L Steven Co	Silverado Enterprises Inc
Baileys On The Beach	Kaehr Corp	Source
Barley Room	Keenan & Assoc	South Aero Inc
Beal Schoolbus	Keenan & Assoc	Southwest Collision Craftsmen
Beaty Construction Co	Kewa Gas LTD	Southwest Lath & Plaster Co
Big J Enterprises Fab Shop	KNKT	Specs Inc
Bill Gordon & Assoc	Larkin Group Nm Inc	Stainless Motors Inc
Brownstein Hyatt Farber Schrck	Legacy Mortgage	Stryker Orthopaedics
C Y Research Inc	Leisure Bowl	Sundancer Jewelry Co
Carlson Heating & AC	Lithexcel	Sunrise Bank Of Albuquerque
Casework Technologies	Little Anita's Mexican Foods	Surv-Tek Inc
Century Dry Wall & Constr	Lonesun Builders Inc	Sw Stucco
Cervantes Restaurant & Lounge	Long John Silver's	TGS Web Design
Christy Mae's Restaurant	Marble Brewery	Tiara Homes Inc
Coaches Sports Grill	Massage Envy	Tim's Place
Comfort Foods	Massage Envy	Tomato Café
Concentra Urgent Care	Massage Envy	Topform Data
Cordray Electric Inc	Maurers Collision	Transmission Distribution Svc
Crego's Metal Systems	Mechanical Concepts	UFC Gym
Crego's Metal Systems	Mesa Verde Resources	Ultramain Systems Inc
Custom Designs & Traditional	Monroe's Restaurant	Uptown Sports Bar & Grill
Dan's Boots & Saddles	Mountain Bus Co	US New Mexico Fcu
Defined Fitness	Networks Inc	Used Equipment Sales LLC
Demand Printing Solutions	Northridge Electric Inc	Waddell & Reed Inc
Elite Electric	O'Niell's Pub	Wells Fargo Bank
EMW Gas Assn	Otero & Sons Roofing Co	Western Assurance
Epsilon Solutions Systems Inc	Otero & Sons Roofing Co	Westward Connections Inc
Explor Abilities	P & M Techline	Whitener Law Firm PA
Family Medicine	Papa Felipe's New Mexican Csn	Wonik Quartz Intl Corp
Farm Credit Of New Mexico	Parsons Brinckerhoff	Woodman Of World Lf Insur Soc
Frost Mortgage	Payday-Payroll Processing Inc	Woods Insurance
Fuddruckers	Pension Planning Consulting	Woodworker's Supply Inc
Gamblin Rodgers Electrical Svc	Pharma Care Health Svc	Yale Plasma Donor Ctr
Garcia's Kitchen Express	Presbyterian Healthcare Svc	Zia Trust Inc
Garcia's Kitchen-The Original	Presbyterian Medical Group	Zinc Wine Bar & Bistro
Employ 50-99 people		
66 Diner	Firebird Structures	Presbyterian Health Plex
A-2-Z Computer Sales & Mntnc	Flying Star Café	Presbyterian Healthcare Svc
Able Information Inc	Flying Star Café	Prime
Aero Mechanical Industries Inc	Four Hills Country Club	Quarters BBQ
Aid Home Health Care Svc LLC	Garcia's Kitchen	Range Café
Albert Sanchez Bus Co	HDR	Reelz Channel
AMEC Earth & Environmental	Heels	RGIS Inventory Specialists
Amestoy Dri-Wall	Hematology Oncology Assoc	Rio Grande Credit Union
Applied Research Assoc Inc	Hertz Rent A Car	Rudy's BBQ
Apria Healthcare	Hooters	Sandia Golf Club
Aspen Masonry Inc	KABQ	Santa Ana Golf Club
Berger Briggs Real Est Ins Inc	Keleher & McLeod	Santa Fe Gold Corp
Bowers Electric Inc	Kiewit New Mexico Co	Seasons Rotisserie & Grill
Butt Thornton & Baehr	KTM Labor & Machines	Slate Street Café

Businesses by Employee Size		
Centex Homes	Lazer Tag Hinkle Family Fun	Trombinos Restaurant
Central NM Electric Co-Op	Lovelace Westside Hospital	Tucanos Brazilian Grill
Chaparral Electric Co Inc	Mc Donald's	Turtle Mountain Brewing Co
Chavez Lath & Plaster Inc	Merrill Lynch Wealth Mgmt	Twin Peaks Restaurant
Checkerboard Area Health Syst	Mountain States Ins Group	UNIVERSITY Hospital
Chick-Fil-A	New Mexico Sports & Wellness	University Of Nm-Emergency Med
Cochiti Community Health Rep	NM Orthopaedic Surgery Ctr	UNM Department Of Radiology
D & R Tank Co Inc	Outback Steakhouse	VCA Animal Hospital
Dex Media	Paa-Ko Ridge Golf Club	Waycor Materials Inc
Elite Dri-Wall	Parks & Rec Open Space Div	Women's Specialists-New Mexico
Esthetic Dental Lab	Peyton Enterprises Inc	
Employ 100-249 people		
Acoma Canoncito Laguna Hosp	Gentiva Hospice	New Mexico Student Loans
Albuquerque IHS Dental	Insight Lighting	Pepsi Bottling Group
Albuquerque Studios	Jeff Davis Law Firm	Pro Build Co
Array Technologies Inc	Kabana Inc	Redw Bus & Fincl Resources LLC
Bank Of Albuquerque NA	Kindred Hospital-Albuquerque	REDW LLC
Bowlin Travel Ctr Inc	KOB	Sheraton-Airport
Cinemark 14 Downtown	KRWB	Southwest
Crowne Plaza	Los Cuates	St Theresa Healthcare & Rehab
Cumulus Media Inc	Manuel Lujan Agencies	Texas Roadhouse
D R Horton	Marriott-Albuquerque Pyramid	Trans Core
Dts	Miller Bonded Inc	Unirac Inc
Enchanted Hills Home Health	Montebello On Academy	United Blood Svc
Family & Community Medicine	New Mexico Mutual Casualty Co	Usda Forest Svc Southwestern
First American Title Ins Co		
Employ 250-499 people		
Inteli-CARE LLC	Not Just Payroll	University Nm Cancer Ctr
Lovelace Medical Group	Princeton Place	US Forestry Dept
New Mexico Educators FCU	San Felipe's Casino Hollywood	
Employ 500-999 people		
Ambercare Home Health-Hospice	Cancer Research & Treatment	Lovelace Health Plan
Employ 1000-4999 people		
Honeywell Aerospace	Isleta Casino & Resort	Wells Fargo Bank
Employ 5000-9999 people		
UNM Hospitals		
Employ amount unknown		
ARES Security Corp	DPW Solar	Samba Safety Holdings LLC
Comet Solutions Inc	Presbyterian Medical Group	Tri Core Reference Labs

Eastern WIOA — 47 High Schools

Introduction—The Eastern WIOA is comprised of 12 counties. It is sparsely populated, with approximately nine people per square mile. Eighty-one percent of inhabitants have a high school diploma, a relatively low percentage. Eighteen percent of the population have a college degree, also a low percentage in comparison with the national percentage of 38 percent. The median income is low, at \$38,200. Surprisingly, the poverty rate is 18.4 percent; it is the lowest poverty rate of the four WIOA regions (2010 U.S. Census).

Internal Strengths

Demographics

The 84 percent high school graduation rate is above the national average of 79 percent.

The 2.6 percent dropout rate is below the national average of 3.3 percent.

There are seven community colleges in 12 counties.

Internal Weaknesses

Demographics

There is a 63 percent free and reduced-price lunch rate; the national average is 48.1 percent.

Only five high school schools in the region enroll 1,000 or more students. Large high schools traditionally offer more CTE opportunities to students.

Nine high schools, or almost 20 percent, are more than 50 miles from a community college. This deters communication and program participation between high schools and community colleges.

Seventy percent of high schools in the region have 250 or fewer students enrolled. This is a very high number of small high schools. Smaller schools traditionally have fewer CTE opportunities for students.

Quality and Rigorous Assignments

On the CTE student survey, only 50 percent of students ($n = 504$) reported they had an intensive level of exposure (5-10 indicators) to rigorous assignments.

Based on the student survey, less than 50 percent of students ($n = 504$) in this region reported experiencing rigorous CTE assignments. Specifically, this included such indicators as predicting outcomes based on observations, developing a logical argument for a solution to a problem and applying technical knowledge and skills to new situations.

Based on CTE student survey results ($n = 504$) in the quality assignments section, less than 50 percent of students said they saw a connection between what they did in class and potential further studies and careers, and less than 50 percent stated that they often developed and analyzed tables, charts and graphs in their school work.

Based on student survey results ($n = 504$), only 43 percent of students reported at the intensive level (8-11 indicators) for quality assignments.

Literacy

Of students surveyed ($n = 504$), only 35 percent reported an intensive level of literacy experiences (7-9 indicators).

Less than 42 percent of CTE students ($n = 504$) in this region said they made inferences from information to develop a solution for a problem.

Less than 46 percent of students completed an extended project.

Math

Only 44 percent of students surveyed ($n = 504$), had an intensive level of indicators for a balanced approach to math. The intensive level is 6-9 indicators.

Less than 53 percent of CTE students ($n = 504$) in this region said they were grouped with students with similar math skills. Less than 55 percent of students stated they used math to solve complex problems related to their CTE course.

Career Counseling

Only 43 percent of CTE students ($n = 504$) report that a counselor or adult has helped them understand their strengths, skills, aptitudes and abilities.

Student Achievement

New Mexico's Standards Based Assessment in 2013-14 for 10th-graders showed that 62.2 percent of students ($n = 23,054$) scored below Proficient in reading, 69.6 percent ($n = 23,038$) scored below Proficient in math and 55.3 percent ($n = 284$) scored below Proficient in science.

Of the students who took the 2014 ACT ($n = 12,945$) in New Mexico, just 18 percent met ACT's college readiness benchmarks in English, reading, math and science.

Career and Technical Education

Regarding career pathway alignment, only 58 percent of CTE students' parents surveyed ($n = 271$) across the state said CTE pathways of study continued at the community college level.

Regarding career readiness/counseling, only 53 percent of parents ($n = 271$) across the state said their eighth-grade child was told about CTE high school courses.

In the Eastern WIOA region, 43 percent of CTE students ($n = 504$) reported they received an intensive level of counseling for careers (5-7 indicators).

CTE programs not producing enough graduates was a concern among stakeholder groups. Twenty percent of business people ($n = 133$) said that CTE programs produced enough graduates to meet local workforce needs; 35 percent of principals ($n = 128$) said this was so. Sixteen percent of postsecondary administrators ($n = 19$) said this was the case.

There were not enough students earning industry credentials. Thirty percent of students ($n = 2,483$) said they were able to earn industry credentials; 16 percent of principals ($n = 128$) said that students could earn credentials in any CTE program; 29 percent of teachers ($n = 252$) said students could earn credentials.

There was a concern about the overall rigor of CTE instruction. Fifty percent of students (2,483) said teachers set high standards for them and were willing to help them meet the standards; 80.3 percent ($n = 252$) of CTE teachers said they set high standards.

Some stakeholder groups believed CTE students were not being adequately prepared for careers. For instance, 14 percent of business representatives ($n = 133$) said that CTE programs adequately prepared students for careers. Forty-seven percent of postsecondary administrators ($n = 19$) said this was true. Sixty-five percent of high school principals ($n = 128$) said CTE students were adequately prepared.

Sixty-two percent of community members ($n = 127$) said there were gaps in students' soft skills — work ethic, communication skills, professionalism, problem solving, teamwork and leadership.

Principals were not always able to hire and retain qualified CTE teachers. Nine percent of principals ($n = 128$) said they were always able to hire qualified CTE teachers. Ten percent of principals said they were always able to retain qualified CTE teachers.

Programs of Study

Out of 305 possible programs of study in 42 Eastern WIOA region high schools using a three-course progressive sequence, 38 programs made the cut as programs of study, or 12.5 percent. Using a four-course sequence, 30 programs, or 9.8 percent, were considered programs of study. These are extremely low program of study numbers and negatively impact the quality and effectiveness of CTE programs in the region. (A program of study has secondary and postsecondary elements, a non-duplicative progression of courses and the opportunity to earn dual credit, and it leads to a postsecondary degree, certificate or industry-recognized credential.)

External Opportunities

Demographics

The annual unemployment rate for this region is 5.5 percent; this is the same as the national average.

Work-Based Learning

Businesses surveyed were open to students, CTE teachers and community college instructors participating in their ongoing training. Sixty-four percent of businesses surveyed ($n = 133$) would allow student interns to participate in training; 51 percent of businesses would allow CTE teachers and community college faculty to participate in training.

External Threats

Demographics

There are 194 businesses in the region that includes 12 counties. This is a low number of businesses.

Work-Based Learning

There are currently not enough work-based learning opportunities for students. Twenty percent of business representatives ($n = 133$) said that their companies offered work-based experiences to high school students. Seventy-three percent of school counselors ($n = 81$) said it was a challenge to place students in work-based learning environments.

Workforce Preparation

Workforce preparation gaps do exist. (New Mexico Jobs Report 2013).

Agriculture: There are 129 more job openings annually than qualified concentrators.

Back Office (data processing, call centers): There are 1,332 more job openings annually than qualified concentrators.

Digital Media: There are 296 more job openings annually than qualified concentrators.

Government: There are 116 more jobs annually than qualified concentrators.

Information Technology: There are 1,343 more job openings annually than qualified concentrators.

Extractives/Energy: There are 829 more job openings annually than qualified concentrators.

Tourism: There are 1,792 more jobs annually than qualified concentrators. Remember that **Agriculture** and **Tourism** will have lower average hourly wages than **Back Office**, **Digital Media**, **Government**, **Information Technology** and **Extractives/Energy**.

New Mexico economic sectors where there are more concentrators than job opportunities

annually include **Education Services, Health and Social Services** and

Manufacturing. (New Mexico Employment Projections, 2014; Jobs Council Report, 2013).

Eastern WIOA Conclusions: The Eastern region is sparsely populated, with few business opportunities. Interestingly enough, the unemployment rate is low and the graduation rate is high. However, this is not a region where inhabitants overall are well educated.

Although there are seven community colleges in the Eastern region, more than 20 percent of the high schools are more than 50 miles from a community college. This is a concern in establishing a CTE pathway pipeline. Another concern is the high free and reduced-price lunch rate, few CTE pathways between high school and community colleges, a lack of work-based experiences for students, little CTE program awareness on the part of parents and students, and the lack of industrial credentialing opportunities for students. Workforce gaps (more jobs than concentrators) include **Agriculture, Back Office, Digital Media, Government, Information Technology, Extractives/Energy and Tourism.**

Table 41: New Mexico Eastern WIOA Current and Projected Jobs by Economic Sector

New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Eastern Region ³	2013 State Total Post-secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Eastern Region ¹	Annual Job Openings, (2012-2022) Eastern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Agriculture	Agriculture, Food, & Natural Resources ⁶	\$13.23	-24	-2	3,000	300	145	26	173	-129
									+	-
Back Office	Business Management & Administration	\$17.13	50	5	25,000	2,500	30	1,138	1,163	-1,332
									+	-
Digital Media	Arts, Audio/Video Technology & Communication ⁶	\$20.90	99	10	9,100	910	335	279	604	-296
									+	-
Education Services	Education & Training	\$16.25	1,908	191	2,500	250	8	677	494	435
									+	+
Emerging Technologies ⁵	Science, Technology, Engineering & Mathematics	No Data Available	No Data Available	No Data Available	1,000	100	330	458	No Data Available	688
										+
Exported Services ⁴	Finance; Marketing Sales & Services; Arts, Audio/Video Technology & Communication ⁶ ; Architecture & Construction; Science, Technology, Engineering & Mathematics	\$20.65	1,929	193	15,000	1,500	941	1,340	1,380	781
									+	+
Government	Government & Public Administration; Law, Public Safety & Security	\$21.45	-118	-12	8,100	810	20	674	706	-116
									+	-

Table 41: New Mexico Eastern WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions-Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Eastern Region ³	2013 State Total Post-secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Eastern Region ¹	Annual Job Openings, (2012-2022) Eastern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Health and Social Services	Health Science; Human Services	\$18.63	4,726	473	23,000	2,300	304	3,103	2,934	1,107
									+	+
Information Technology	Information Technology	\$33.08	1	0	16,000	1,600	31	226	257	-1,343
									+	-
Manufacturing	Manufacturing; Architecture & Construction; Transportation, Distribution & Logistics	\$28.08	373	37	15,000	1,500	290	1,375	1,628	165
									+	+
Oil, Gas, Mining Extractives/ Energy	Agriculture, Food, & Natural Resources	\$35.60	1,612	161	10,000	1,000	145	26	10	-829
									+	-
Solo/ Independent Work ⁵		No Data Available	30	3	12,000	1,200	No Data Available	No Data Available	No Data Available	No Data Available
Tourism	Hospitality & Tourism	\$7.80	3,651	365	22,400	2,240	274	174	83	-1,792
									+	-
Totals:			14,237	1,424	162,100	16,210	2,853	9,496	9,432	-2,661

¹This projection is based on current employment data and industry trends. It assumes that there will be no change to the current trends over the next 10 years.

²This projection is based on a consensus among industry experts. It indicates the number of jobs that could be created if action is taken to increase economic development.

³Students may have concentrations in more than one area. Concentrator numbers include these multiple concentrations, so they may not accurately reflect the actual number of students in each of these pathways. There may be fewer students than shown in these columns.

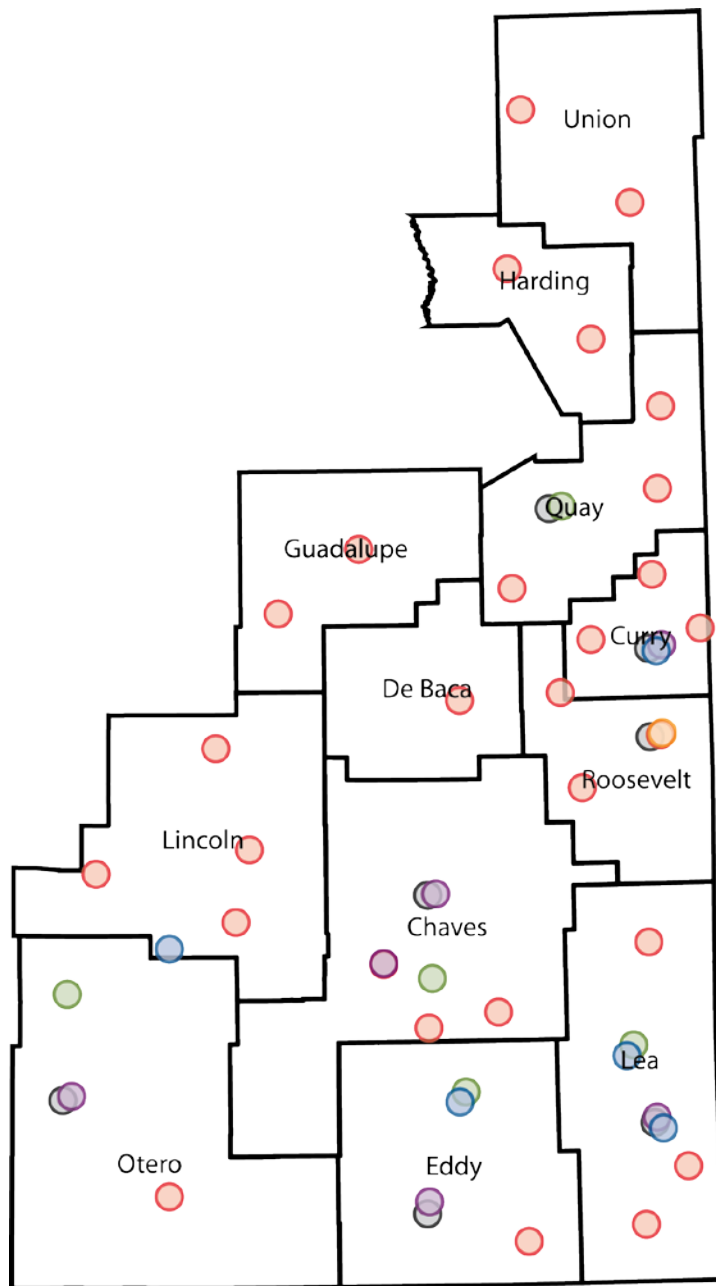
⁴Emerging Technologies is a small subset of Professional, Scientific and Technical Services, an industry within Exported Services. Because there is no detail regarding the breakdown of this industry area, it cannot be determined how many of these jobs fit into Emerging Technology. Therefore, all of the Professional, Scientific and Technical Services data are listed under Exported Services

⁵Solo/Independent Work is most likely underreported. Many jobs in the Solo - Independent category are captured in the other 12 economic sector categories. The data for these categories do not distinguish between individuals who are self-employed and those who are employed by an organization.

⁶The Agriculture, Food & Natural Resources cluster and the Arts, Audio/Video Technology & Communication cluster are each listed under two different sectors. This is because pathways in each of these clusters fit under different sectors. For example, in Agriculture, Food & Natural Resources, pathways in food processing, animal systems and plant systems fit under Agriculture, while pathways in natural resources fit under Oil, Gas, and Mining Extractives/Energy.

Note: Employment figures shown from the Department of Workforce Solutions and figures for secondary completers are for the Eastern region. Employment figures shown from the Jobs Council report and figures for postsecondary completers are statewide.

Figure 12: Eastern WIOA Map of High Schools and Postsecondary Schools



Number of Schools or Community Colleges in the Region

High Schools	47
Charter Schools	2
Community Colleges	7

Regional Results

2012 High School Graduation Rate	84%
2011-12 High School Dropout Rate	2.6%
2011-12 High School Free/Reduced-Price Lunch Rate	63%
2013 Annual Unemployment Rate	5.5%

Rates are typically average of averages from school or district level.

Charter Schools

Jefferson Montessori

Moreno Valley High

High Schools

	<i>n</i>	Within 50 miles of a CC?	2013 4-Yr Graduation Rates	2012 4-Yr Graduation Rates	2012- 2013 Dropout Rate	2011-2012 Dropout Rate	2011-12 Free/ Reduced- Price Lunch
Academy del Sol (Alt)	181		88%	79%	11.1%	12.8%	98%
Alamogordo High	1494	Yes	76	76	3.0	3.5	49
Artesia High	723	Yes	79	79	6.0	7.9	33
Artesia Park Junior High	275	Yes	57	-	0.7	1.7	43
Capitan High	164	Yes	82	77	1.2	4.4	49
Carlsbad High	1652	Yes	77	78	4.5	3.3	44
Carrizozo High	47	Yes	83	77	4.3	2.1	93
Clayton High	157		66	94	4.8	0.5	63
Cloudcroft High	123	Yes	74	89	1.6	0.0	33
Clovis High	1608	Yes	78	83	6.3	6.0	54
Clovis HS Freshman Academy	585	Yes	67	-	0.5	0.2	64
Corona High	20		79	86	0.0	0.0	92
Des Moines High	25		98	98	0.0	0.0	84
Dexter High	303	Yes	83	93	2.3	1.3	77
Dora High	86	Yes	98	97	0.0	0.7	30
Elida High	39	Yes	86	89	0.0	0.0	32
Eunice High	168	Yes	70	87	5.8	4.0	48
Floyd High	78	Yes	94	91	4.3	0.0	66
Fort Sumner High	99		87	89	2.0	0.0	49
Goddard High	1033	Yes	78	76	2.4	3.2	51
Grady High	32	Yes	95	90	2.6	3.7	52
Hagerman High	121	Yes	77	71	3.3	3.1	98
Hobbs Freshman High	633	Yes	67	-	0.6	0.9	56
Hobbs High	1701	Yes	82	77	4.0	6.7	53
Hondo High	49	Yes	82	86	0.0	0.0	96
House High	30		42	63	11.4	28.3	54
Jal High	119	Yes	86	81	2.4	2.7	44
Lake Arthur High	41	Yes	83	71	0.0	10.9	94
Logan High	117	Yes	69	94	0.8	2.3	39
Loving High	191	Yes	90	69	1.5	0.6	98
Lovington Freshman High	257	Yes	68	-	0.0	0.9	59
Lovington High	554	Yes	88	91	0.2	1.5	51
Melrose High	49	Yes	89	97	4.1	0.0	40
Mosquero High	16		-	100	4.3	3.6	63
New Hope Alt High	95		45	63	32.9	20.0	42
Portales High	759	Yes	81	80	2.0	3.6	49
Roswell High	1347	Yes	68	74	5.1	5.8	100
Roy High	10		62	96	0.0	0.0	61
Ruidoso High	569	Yes	71	81	2.4	3.6	44
San Jon High	29	Yes	87	91	0.0	3.2	55
Santa Rosa High	168		91	87	1.8	3.1	98
Tatum High	109	Yes	88	99	0.0	3.5	50
Texico High	165	Yes	92	98	1.2	0.0	32
Tucumcari High	257	Yes	54	75	4.3	4.1	98
Tularosa High	260	Yes	72	89	2.6	3.5	99
University High	147	Yes	26	50	33.7	48.9	77
Vaughn High	27		61	75	0.0	0.0	94

Community Colleges: Postsecondary Course Offerings

Mesalands Community College

Agri-Business	Equine Services	Physical Science
Animal Science	Fine Arts	Power Technology
Building Trades	Human Services	Pre-Medical Arts
Business Administration	Liberal Arts	Public Administration
Business Office Technology	Natural Sciences	Wind Energy Technology
Education		

Clovis Community College

Administrative Assistant	Esthetics	Liberal Arts
Automotive Technology	Fine Art	Nail Technician
Business Administration	Fire Science Technology	Nursing
Business/Office Technology	General Studies	Physical Therapist Assistant
Computer Information	Graphic & Media Art	Plant Operations
Cosmetology	Health & Physical Education	Psychology
Criminal Justice	Industrial Technology	Radiologic Technology
Early Childhood Education	Information Technology	Welding
Educational Assistant	Legal Assistant	Wind Energy
Emergency Medical Services		

Eastern New Mexico University – Roswell

Agriculture	Early Care and Education	Psychology
Art	Family and Consumer Sciences	Recreation
Culinary Arts	Pre Nursing	

Eastern New Mexico University – Ruidoso

Accounting - A.A.S. Degree	History - A.A. Degree	Psychology- A.A. Degree
Biology - A.S. Degree	Hospitality and Tourism - A.A.S. Degree	Studio Arts - A.A. Degree
Business Administration - A.A. Degree	Information Systems - A.A.S. Degree	Teacher Education Transfer Program - A.A. Degree
Construction Trades - A.A.S. Degree	Natural Resources - A.S. Degree	
Criminal Justice - A.A. Degree	Police Science- A.A.S. Degree	University Studies - A.A. Degree
General Studies - A.A. Degree		

New Mexico Junior College

Associate of Applied Science in Automotive Technology: ASSET or ASEP	Associate of Applied Science in Criminal Justice	Associate of Arts
Associate of Applied Science in Business	Associate of Applied Science in Energy Technology	Associate of Arts in Early Childhood Education
Associate of Applied Science in Computer Information Systems	Associate of Applied Science in Equine	Associate of Science
Associate of Applied Science in Cosmetology	Associate of Applied Science in Nursing	
	Associate of Applied Science in Welding	

New Mexico State University – Alamogordo

Apprenticeship Programs	Early Childhood	Heritage Interpretation
Associate of Arts	Education	Information Technology
Automotive and Hybrid Technology	Electrical Apprenticeship Program	Nursing (Program Converting to BSN)
Biomedical Electronics Technology	Electronics Technology	Paralegal Studies
Business Office Technology	Fine Arts	Pre-business
Computing	General Engineering	Science
Criminal Justice	Graphic Design	Social Services

New Mexico State University – Carlsbad

Business Studies	Health Information Technology	Nursing
Criminal Justice	Heritage Interpretation	Science
Developmental Education	Industrial Maintenance Technician	Social Services
Digital Media	Language and Linguistics	
Education & College Studies	Manufacturing Sector Development Program	
English Studies, Humanities, and Fine Arts	Mathematics	

Businesses by Employee Size		
Employ 10-19 people		
AC & Co LLC	Dunagan Associates Inc.	Mayes Lumber Co
Access Home Health LLC	Elwell Construction	Moreno's Electric
A-Frame Cabins	E-Z Rentals & Sales	Nichols Printing & Office Prod
Alamogordo Dental Group	Featherstone Development Corp	Numex Plastics Inc.
Alamogordo Title Co	First National Bank	Otero Federal Credit Union
Al-O-Mar Restaurant	Flying J Ranch Chuck Wagon	Quality Inn
Alto Mesa Builders Inc.	Fortune Transportation	Ready Trucking LLC
Ashley Construction	Fwb Co	Rembrandt's Auto Body Inc.
Bandera Petroleum Inc.	George Young Sales Co Inc.	Rooney Moon Broadcasting
Baptist Children's Home	Golden Seward & Kelley	Roosevelt County Road Dept.
Bar-M Construction Inc. Cstm	Graham Abstract & Title Co	Roswell Hand Clinic & Ocptnl
Barr & Co LLP	H&R Block	Slash Exploration LP
BBVA Compass	Helco Inc	Smokey Bear Restaurant
Big Time Roustabout Svc	Helms Roofing Co Of New Mexico	Star Hospice
Cal-Ray Electric	High Plains FCU	SUBWAY
Cannon Federal Credit Union	Hobbs Orthopaedic-Sports Thrpy	SUBWAY
Casa De Suenos	J S Ward & Son Inc.	SUBWAY
Cavern City Construction Co	Joe's Boot Shop	SUBWAY
Church's Chicken	John D Wheeler & Assis	SUBWAY
Corner Drug Store Inc.	Juanito's Mexican Restaurant	Super 8
Cow Country AM 1450	KFC	Title Co Inc.
CWBC Inc.	LA May Electric	Union Home & Indl Inc.
Daniels Insurance Inc.	Lancon	VIF Drywall
Double R Inc.	Lyman Pipe & Supply Inc	Wade Construction
Double Tree Glass & Windows	Maddox Holloman & Kirksey	Woodcrest Dairy
Employ 20-49 people		
Alamogordo Financial Corp	Great Wall Of China	Peppers Grill & Bar
BAC Enterprises	H&R Block	Pioneer Abstract & Title Co
Basin Surveys	Harvey Yates Co	Powerline Inc.
Best Western	Heart Of The Desert Pistachios	SAS Dairy
Caprock Diesel	Hi-Pro Feeds Inc.	Schlotzsky's
Carlsbad Medical Supply	Hobbs Family Inn	SRJ Development
Clean Slate Svc LLC	Jaime's Welding Svc LLC	Taco Box
Commerce Bancshares Of Roswell	KINN	Trident Media Svc Inc.
Community Homecare	Kripple Creek Restaurant	TWS Inc.
Craig Hughes Welding	Kymera Independent Physicians	Tyler Well Svc
Desert Gardens Assisted Living	LA Quinta Inn	Van Winkle Roofing Inc.
Dudley Sales & Svc	Lasco Construction Inc.	W Diamond Dairy-Rogers
El Rancho Restaurant	Leal's Mexican Food Restaurant	Wellhead Restaurant-Brew Pub
Encompass Home Health	Links At Sierra Blanca	Wells Fargo Bank
Entrench Inc.	Mac Laskey Oilfield Svc Inc.	Western Drilling Inc.
Environmental Monitoring Rsrch	MBF Service	Who's Trucking LLC
First American Bank	National Construction	WTI Inc.
Florez R Welding	Pathology Consultants	
Employ 50-99 people		
Baker Hughes	Interim Health Care	Morco Geological Svc
Baker Hughes	J & J Home Care Inc.	Myers Electric
Best Western	James Polk Stone Cmnty Bncshrs	Nolan H Brunson Inc.
Carlsbad National Bank	Key Energy Svc	Pemco Of New Mexico Inc.
CBC Inc.	L & E Svc	Safety & Environmental Sltns
Coca-Cola Refreshments	LA Casa Family Health Ctr	Weatherford Completion Systems
Cummins Natural Gas Engines	Lea County State Bank	White's City-Corp Ofc
Golden Services Home Health		
Employ 100-249 people		
Artesia General Hospital	First Alamogordo Bancorp Of NV	Roosevelt General Hospital
Chase Oil Corp	First Artesia Bancshares Inc.	Watson Truck & Supply
Comfort Keepers	Mc Vay Drilling Co	Zia Park Casino
D & D Pipeline Construction		
Employ 250-499 people		
C I Construction Svc Inc.	Lin-Mar Inc.	Madrone Services Inc.

Businesses by Employee Size		
Ferguson Construction Co	Mack Energy Corp	Wellbores USA Inc.
Employ 500-999 people		
Eastern New Mexico Medical Ctr	Lea Regional Medical Ctr	
Employ 1000-4999 people		
Bell Gas Co Inc.		
Employ 5000-9999 people		
None		
Employ amount unknown		
Dan C Trigg Memorial Hospital	Hinkle Hensley Shanor & Martin	Super 8
Daniel Construction Co	Honetreat Co	Terry's Service Ctr
Dels Restaurant & Gifts	KIX On 66	Tessengerlo Kerley Svc
Farmers & Stockmens Bank	Love's Travel Stop	Union Bancshares Inc.
First National Bank-New Mexico	SS Kent Construction LLC	Union County General Hospital
Hartley Construction Co		

Southwestern WIOA — 22 High Schools

Introduction — There are seven counties in the Southwestern WIOA region. This is a sparsely populated area, with 11.2 people per square mile. At 36.6 percent, the non-English speaking population is at a high level. The number of inhabitants with a high school diploma is low, at 79.8 percent (in comparison with the national average of 85 percent) as is the number of individuals with an undergraduate degree, 19.7 percent (in comparison to the national average at 38 percent). The median income is low, at \$34,355, and the number of inhabitants below the poverty level is high, at 24.1 percent (2010 U.S. Census).

Internal Strengths

Demographics

The high school graduation rate is 82 percent; the national average is 79 percent.

A third of high schools enroll 250 students or fewer; a third of high schools enroll more than 250 students and fewer than a 1,000 students; a third of high schools enroll 1,000 students or more. This a good mix of small, medium and large high schools.

Internal Weaknesses

Demographics

There are only two community colleges in the region. Eight high schools in the region are more than 50 miles from a community college. This makes collaborative activities between high schools and community colleges difficult.

The dropout rate for this region is 4.3 percent; the national average is 3.3 percent.

The free and reduced-price lunch average in the Southwestern WIOA region is 71 percent, which is extremely high; the national average is 48.1 percent.

The percentages of adults with high school diplomas and those with undergraduate degrees are low.

Quality and Rigorous Assignments

On the CTE students surveys, only 51 percent of students ($n = 990$) reported they had an intensive level of exposure (5-10 indicators) to rigorous assignments.

Based on the student survey, less than 50 percent of students ($n = 990$) reported experiencing rigorous CTE assignments. Specifically, this included such indicators as predicting outcomes based on observations, developing a logical argument for a solution to a problem and applying technical knowledge and skills to new situations.

Based on CTE student survey results ($n = 990$) in the quality assignments section, less than 50 percent of students in this region said they saw a connection between what they did in class and potential further studies and careers, and less than 50 percent of students stated they often developed and analyzed tables, charts and graphs in their school work.

Based on student survey results ($n = 990$), only 45 percent of students reported experiencing an intensive level (8-11 indicators) of quality assignments.

Literacy

Of students surveyed ($n = 990$), only 35 percent reported an intensive level of literacy experiences (7-9 indicators).

Less than 42 percent of CTE students ($n = 990$) in this region said they made inferences from information to develop a solution for a problem. Less than 46 percent of students completed an extended project.

Math

Only 44 percent of students surveyed ($n = 990$), had an intensive level of indicators for a balanced approach to math. The intensive level is 6-9 indicators.

Less than 53 percent of CTE students ($n = 990$) in this region said they were grouped with students with similar math skills. Less than 55 percent of students stated they used math to solve complex problems related to their CTE course.

Career Counseling

Only 46 percent of CTE students ($n = 990$) report that a counselor or adult has helped them understand their strengths, skills, aptitudes and abilities.

Student Achievement

New Mexico's Standards Based Assessment in 2013-14 for 10th-graders showed that 62.2 percent of students ($n = 23,054$) scored below Proficient in reading, 69.6 percent ($n = 23,038$) scored below Proficient in math and 55.3 percent ($n = 284$) scored below Proficient in science.

Of the students who took the 2014 ACT ($n = 12,945$) in New Mexico, just 18 percent met ACT's college readiness benchmarks in English, reading, math and science.

Career and Technical Education

Regarding career pathway alignment, only 58 percent of CTE parents surveyed ($n = 271$) across the state said CTE pathways of study continued at the community college level.

Regarding career readiness/counseling, only 53 percent of parents ($n = 271$) and their eighth-

grade children across the state were told about CTE high school courses.

In the Southwestern WIOA region, 43 percent of CTE students ($n = 990$) reported they experienced an intensive level of counseling for careers (5-7 indicators).

CTE programs not producing enough graduates was a concern among stakeholder groups. Twenty percent of business people ($n = 133$) said that CTE programs produced enough graduates to meet local workforce needs; 35 percent of principals ($n = 128$) said this was so. Sixteen percent of postsecondary administrators ($n = 19$) said this was the case.

There were not enough students earning industry credentials. Thirty percent of students ($n = 2,483$) said they were able to earn industry credentials; 16 percent of principals ($n = 128$) said students could earn credentials in any CTE program; 29 percent of teachers ($n = 252$) said students could earn credentials.

There was a concern about the overall rigor of CTE instruction. Fifty percent of students ($n = 2,483$) said teachers set high standards for them and were willing to help them meet the standards; 80.3 percent ($n = 252$) of CTE teachers said they set high standards.

Some stakeholder groups believed CTE students were not being adequately prepared for careers. For instance, 14 percent of business ($n = 133$) representatives stated that students were prepared. Forty-seven percent of post-secondary administrators ($n = 19$) said this was true. Sixty-eight percent of high school principals ($n = 128$) said CTE students were being adequately prepared.

Sixty-two percent of community members ($n = 127$) said there were gaps in students' soft skills such as work ethic, communication skills, professionalism, problem solving, teamwork and leadership.

Principals were not always able to hire and retain qualified CTE teachers. Nine percent of principals ($n = 128$) said they were always able to hire qualified CTE teachers. Ten percent of principals said they were always able to retain qualified CTE teachers.

Programs of Study

Out of 247 possible programs of study in 22 Southwestern WIOA region high schools using a three-course progressive sequence, 62 made the cut as programs of study, or 25.1 percent. Using a four-course sequence, 45, or 18.2 percent, were considered programs of study. This is of concern because programs of study are the cornerstone of quality CTE programs. (A program of study has secondary and postsecondary elements, a non-duplicative progression of courses and the opportunity to earn dual credit, and it leads to a postsecondary degree, certificate or industry-recognized credential.)

External Opportunities

Demographics

Businesses were open to students, CTE teachers and community college instructors participating in their ongoing training. Sixty-four percent of businesses surveyed ($n = 133$) would allow student interns to participate in training; 51 percent of businesses would allow CTE teachers and community college faculty to participate in training.

External Threats

Demographics

The 8 percent unemployment rate is very high. This negatively impacts work opportunities for students.

There are only 92 businesses in the seven counties. The lack of businesses does not

support workplace learning or job opportunities for students.

Work-Based Learning

There are currently not enough work-based learning opportunities for students. Twenty percent of business representatives ($n = 133$) said that their companies offered work-based experiences to high school students. Seventy-three percent of counselors ($n = 81$) said it was a challenge to place students in work-based learning environments.

Workforce Preparation

Workforce preparation gaps do exist. (Jobs Council Report, 2013).

Agriculture: There are 205 more jobs annually than qualified concentrators.

Back Office: There are 1,315 more jobs annually than qualified concentrators.

Digital Media: There are 191 more job openings annually than qualified concentrators.

Information Technology: There are 1,339 more job openings annually than qualified concentrators.

Extractives/Energy: There are 905 more job openings annually than qualified concentrators.

Tourism: There are 1,547 more jobs than qualified openings. Remember that **Agriculture** and **Tourism** will traditionally have lower average hourly wages than **Back Office**, **Digital Media**, **Information Technology**, **Extractives/Energy**.

New Mexico economic sectors where there are more concentrators than job opportunities annually include **Education Services**, **Government**, **Health and Social Services** and **Manufacturing**. (New Mexico Employment Projections, 2014; Jobs Council Report, 2013).

Southwestern Conclusions: This sparsely populated and impoverished region has few businesses and a high unemployment rate. The high school graduation rate is high, but the overall level of educational attainment of adults is low. There are only two community colleges in the region that includes seven counties; this makes CTE collaboration with high schools difficult.

Few CTE pathways between high school and community colleges, a lack of work-based experiences for students, little CTE program awareness on the part of parents and students, and the lack of industrial credentialing opportunities for students are all of concern. Workforce gaps (more jobs than concentrators) include **Agriculture, Back Office, Digital Media, Information Technology, Extractives/Energy** and **Tourism**.

Table 42: New Mexico Southwestern WIOA Current and Projected Jobs by Economic Sector										
New Mexico Economic Sectors	16 Career Clusters	2014 Dept. of Workforce Solutions Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Southwestern Region ³	2013 State Total Post-Secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Southwestern Region ¹	Annual Job Openings, (2012-2022) Southwestern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
Agriculture	Agriculture, Food, & Natural Resources ⁶	\$13.23	-344	-34	3,000	300	69	26	129	-205
									+	-
Back Office	Business Management & Administration	\$17.13	588	59	25,000	2,500	47	1,138	1,126	-1,315
									+	-
Digital Media	Arts, Audio/Video Technology & Communication ⁶	\$20.90	-5	-1	9,100	910	440	279	720	-191
									+	-
Education Services	Education & Training	\$16.25	1,954	195	2,500	250	28	677	510	455
									+	+
Emerging Technologies ⁴	Science, Technology, Engineering & Mathematics	No Data Available	No Data Available	No Data Available	1,000	100	170	458	No Data Available	528
										+
Exported Services ⁴	Finance; Marketing Sales & Services; Arts, Audio/Video Technology & Communication ⁶ ; Architecture & Construction; Science, Technology, Engineering & Mathematics	\$20.65	942	94	15,000	1,500	903	1,340	1,342	743
									+	+
Government	Government & Public	\$21.45	-350	-35	8,100	810	165	674	874	29

Table 42: New Mexico Southwestern WIOA Current and Projected Jobs by Economic Sector

New Mexico Economic Sectors	16 Career Clusters Administration; Law, Public Safety & Security	2014 Dept. of Workforce Solutions Avg. Hourly Wage	2014 New Mexico Employment Projections Report		2013 Jobs Council Report		2014 State Total Secondary Concentrators Southwestern Region ³	2013 State Total Post-Secondary Concentrators Statewide ³	Annual Gap Between Job Growth and Concentrators (Positive=More concentrators than openings, Negative=More openings than concentrators)	
			Projected Job Growth, (2012-2022) Southwestern Region ¹	Annual Job Openings, (2012-2022) Southwestern Region ¹	Projected Job Growth (2013-2023) Statewide ²	Annual Job Openings (2013-2023) Statewide ²			NM Employment Projections Report Gap	2013 Jobs Council Report Gap
									+	+
Health and Social Services	Health Science; Human Services	\$18.63	2,605	261	23,000	2,300	340	3,103	3,183	1,143
									+	+
Information Technology	Information Technology	\$33.08	No Data Available	No Data Available	16,000	1,600	35	226	No Data Available	-1,339
									+	-
Manufacturing	Manufacturing; Architecture & Construction; Transportation, Distribution & Logistics	\$28.08	2	0	15,000	1,500	296	1,375	1,671	171
									+	+
Oil, Gas, Mining Extractives/ Energy	Agriculture, Food, & Natural Resources	\$35.60	86	9	10,000	1,000	69	26	86	-905
									+	-
Solo/ Independent Work ⁵		No Data Available	-98	-10	12,000	1,200	No Data Available	No Data Available	No Data Available	No Data Available
Tourism	Hospitality & Tourism	\$7.80	2,183	218	22,400	2,240	519	174	475	-1,547
									+	-
Totals:			7,563	756	162,100	16,210	3,081	9,496	6,288	-2,433

¹This projection is based on current employment data and industry trends. It assumes that there will be no change to the current trends over the next 10 years.

²This projection is based on a consensus among industry experts. It indicates the number of jobs that could be created if action is taken to increase economic development.

³Students may have concentrations in more than one area. Concentrator numbers include these multiple concentrations, so they may not accurately reflect the actual number of students in each of these pathways. There may be fewer students than shown in these columns.

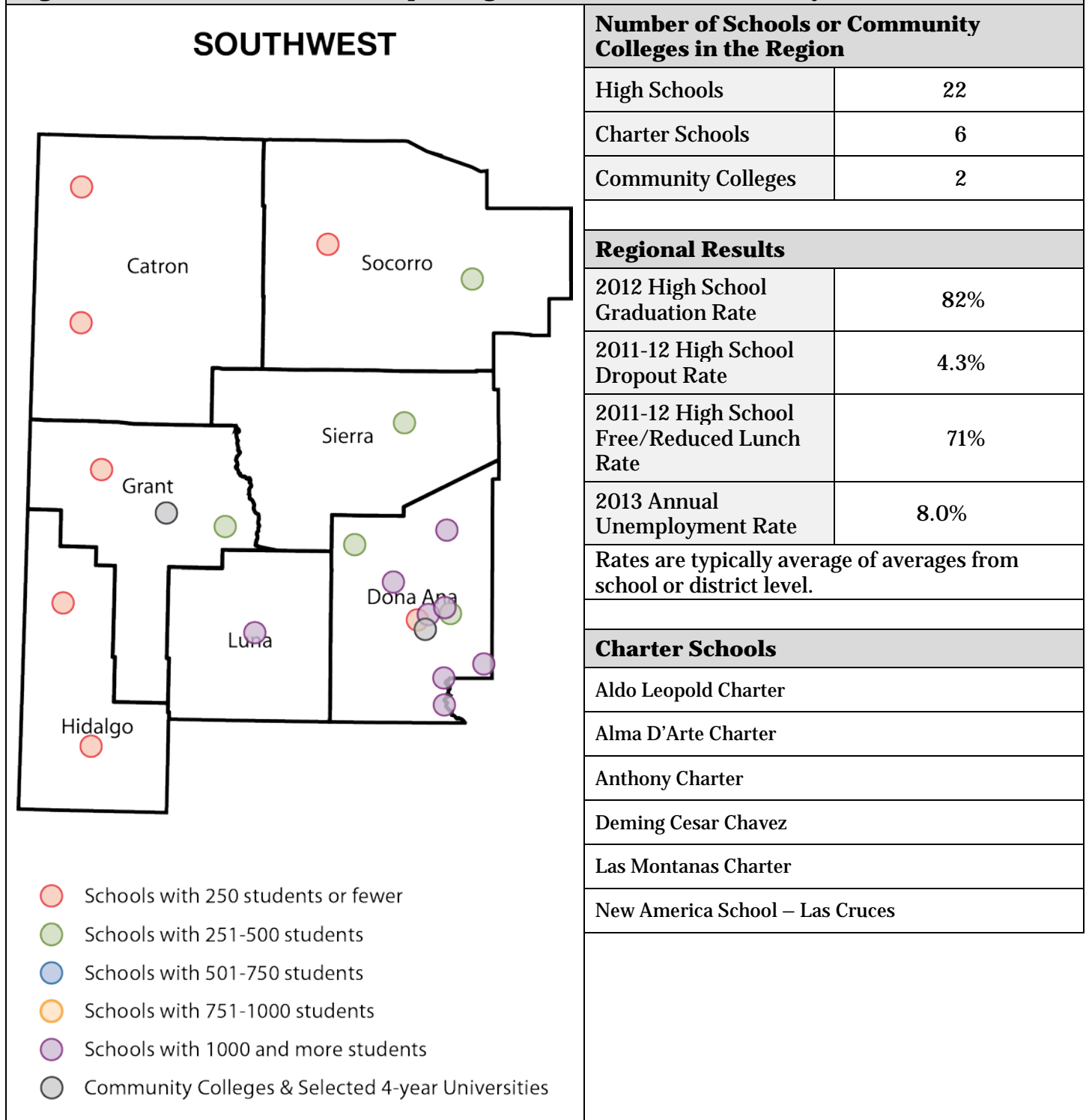
⁴Emerging Technologies is a small subset of Professional, Scientific and Technical Services, an industry within Exported Services. Because there are no details regarding the breakdown of this industry area, it cannot be determined how many of these jobs fit into Emerging Technology. Therefore, all of the Professional, Scientific and Technical Services data are listed under Exported Services

⁵Solo/Independent Work is most likely underreported. Many jobs in the Solo - Independent category are captured in the other twelve economic sector categories. The data for these categories do not distinguish between individuals who are self-employed and those who are employed by an organization.

⁶The Agriculture, Food & Natural Resources cluster and the Arts, Audio/Video Technology & Communication cluster are each listed under two different sectors. This is because pathways in each of these clusters fit under different sectors. For example, in Agriculture, Food & Natural Resources, pathways in food processing, animal systems and plant systems fit under Agriculture, while pathways in natural resources fit under Oil, Gas, and Mining Extractives/Energy.

Note: Employment figures shown from the Department of Workforce Solutions and figures for secondary completers are for the Southwestern region. Employment figures shown from the Jobs Council report and figures for postsecondary completers are statewide.

Figure 13: Southwestern WIOA Map of High Schools and Postsecondary Schools



High Schools

	<i>n</i>	Within 50 miles of a CC?	2013 4-Yr Graduation Rates	2012 4-Yr Graduation Rates	2012-2013 Dropout Rate	2011-2012 Dropout Rate	2011-12 Free/Reduced-Price Lunch
Animas 7-12 School	62		93%	98%	1.0%	0.8%	58%
Centennial High	1090	Yes	2	-	3.3	-	-
Chaparral High	1079	Yes	77	-	3.2	4.8	100
Cliff High	76	Yes	82	79	3.0	0.0	35
Cobre High	341	Yes	94	89	0.9	2.5	99
Deming High	1456		64	73	3.4	2.7	100
Early College High	334	Yes	-	-	0.0	0.0	45
Gadsden High	1597	Yes	77	-	2.5	4.3	100
Hatch Valley High	363	Yes	66	77	5.9	5.3	99
Hot Springs High	367		65	70	1.8	2.9	63
Las Cruces High	1787	Yes	68	75	3.8	6.1	47
Lordsburg High	157	Yes	78	74	6.9	6.7	58
Magdalena High	129		80	88	4.0	4.5	98
Mayfield High	1767	Yes	70	75	2.2	3.3	50
Ocate High	1851	Yes	76	72	3.4	3.5	50
Quemado High	54		85	98	0.0	3.9	71
Reserve High	47		90	96	1.4	16.4	71
San Andreas High	160	Yes	24	-	13.4	21.8	85
Santa Teresa High	1247	Yes	89	-	1.6	3.5	100
Silver City Opportunity	72		54	76	10.0	5.9	63
Silver High	730	Yes	86	78	3.1	1.1	41
Socorro High	491		65	76	8.6	11.5	48

Community Colleges: Postsecondary Course Offerings

Western New Mexico University

Business Administration	e-Commerce and System Administration	Industrial Maintenance
Certified Nurse Assistant	Electrical Technology	New Media
Computer Technology	Environmental Electrician	Nursing
Cosmetology	Financial Services	Occupational Therapy Assistant
Criminal Justice Online Available	Graphic Design	
Early Childhood Education and Family Support		

New Mexico State University – Dona Ana Community College

Aerospace Technology	Dental Hygiene	Hospitality
Apprenticeship Programs	Diagnostic Medical Sonography	Hospitality Services Management
Associate in General Studies	Drafting & Design Technologies	Law Enforcement Academy
Associate of Arts	Early Childhood Education	Library Science
Associate of Science	Education	Nursing
Automation & Manufacturing Technology	Electrical Programs	Paralegal Studies
Automotive Technology	Electronics Technology	Pre-Architecture (Drafting & Design Technologies)
Building Construction Technology	Emergency Medical Services	
Business Management	Environmental & Energy Technology	Pre-Business
Business Office Technology	Fire Investigations	Public Health
Certified Nursing Assistant (Health Care Assistant)	Fire Science Technology	Radiologic Technology
	General Engineering Technology	Respiratory Therapy
Computer & Information Technology	Health Care Assistant	Water Technology
Creative Media Technology	Health Information Technology	Web Design
Criminal Justice (Law Enforcement)	Health Occupations	Welding Technology
Culinary Arts	Heating, Ventilation, Air Conditioning & Refrigeration	
Dental Assistant		

Businesses by Employee Size		
Employ 10-19 people		
1 Call Plumbing	East Lohman Veterinary Clinic	R & R Concrete
Alliance Hospital	Environmental Systems Control	Rancho LA Frontera
Alpha Nurses	Floor Concepts Design Ctr	RCI
American Southwest Theatre Co	Fluorescent Signs Inc	Rio Bravo Construction
Argyle Welding Supply Co Inc	Hidalgo Medical Svc	Shevek & Mi
Bank 34	Jiffy Lube	Si Senor
Bengal Building Corp	KCHS	Sports Accessories
Casa Mexicana Tile	Ken Thurston Homes	Sun City Finance Co
Climate Masters Inc	Kershaw Electric	United Drug Of Hatch
Covenant Clinic	Los Girasoles	USDA Forest Svc
Dave Koenig Enterprises	Matrix Home Care Svc Of New	Ventureline
David Salopek Farms	Mc Ginley Construction Inc	Vid Cad By Comm By Syst Design
Davis-Fleck United Pharmacy	Merryweather Foam Inc	Wilson Binkley Advertising
Deming Excavating Inc	Old Town Bistro	WNM Communications Inc
Digital Solutions	Presbyterian Medical Svc	
Employ 20-49 people		
Advanced Care Hosp-Southern Nm	Diane's Bakery & Cafe	Las Cruces Constr LLC
American Eagle Brick Co	Encompass Home Health	Las Cruces Imaging LLC
ASA Architects	First State Bank	Lordsburg Financial Corp
Bank Of The Rio Grande	Horizon Mechanical Inc	Massage Envy
Billy Crews Dining Room	Jornada Veterinary Clinic	Old Mesilla Pastry Café
Caballo Dairy	Joseph's Lite Cookies	Sunview Imaging Svc
Cafe Bellaluca	KRWG	Superior Sign & Lighting
Carver Electric Co	L E Electric	Triple D Logistics
Comfort Inn		
Employ 50-99 people		
Amigo's Mexican Food	IHOP Restaurant	Peppers On The Plaza
Buffalo Wild Wings Grill & Bar	NMSU Golf Course	Ruby Tuesday
Deming Electronics		
Employ 100-249 people		
Aerojet Rocketdyne	Home Kare Inc Of Dona Ana	Texas Roadhouse
Genesis Health Care LLC	Las Uvas Valley Dairy	
Employ 250-499 people		
FXI	Mimbres Memorial Hospital	
Employ 500-999 people		
Sunland Park Racetrack/Casino		
Employ 1000-4999 people		
None		
Employ 5000-9999 people		
None		
Employ amount unknown		
Dona Ana Title Co	First New Mexico Fncl Corp	First NM Bank-Silver City
F & A Dairy Products Inc		