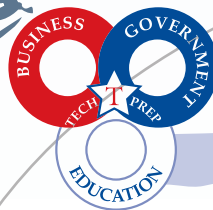


# Targeting *the* Future

2011

LABOR MARKET INFORMATION REPORT

Tech Prep of the Rio Grande Valley, Inc.



**TECH PREP**

of the Rio Grande Valley, Inc.

The Link Between Education & Economic Development

An Analysis of the **Emerging Labor Market**  
in the Lower Rio Grande Valley

# Tech Prep of the Rio Grande Valley, Inc. 2011 Labor Market Information Report

## C O N T E N T S

<b>Introduction and Acknowledgments .....</b>	<b>1</b>
The Link Between Education and Business.....	1
The Link Between Tech Prep and Economic Development.....	2
Tech Prep Labor Market Information Report .....	3
Acknowledgements.....	4
 <b>SECTION 1 Tech Prep of the RGV Service Area Profile .....</b>	 <b>8</b>
Figure 1.1 The Lower Rio Grande Valley of Texas.....	8
Jurisdictions, Educational Institutions, and Other Organizations .....	9
Table 1.1 Fall 2010 Rio Grande Valley College/University Enrollment by Institution and Race/Ethnicity .....	11
Table 1.2 Tech Prep Rio Grande Valley Public School Enrollment by County and by District .....	12
Region Characteristics .....	13
Table 1.3 2010 Population by Geographic Area and Race/Ethnicity .....	14
Table 1.4 2008 Birth and Death Rates in the Lower Rio Grande Valley .....	14
Table 1.5 Age Distribution by Geographic Jurisdiction in Percent .....	15
Table 1.6 2005-2009 Average Educational Attainment by Age and Geographical Area in Percent .....	16
Chart 1.1 2009 Educational Attainment for Persons 25 or Older.....	17
Chart 1.2 Household Types in the Lower Rio Grande Valley .....	18
Chart 1.3 2009 Earnings and Income in the Lower Rio Grande Valley, Texas and the Nation .....	19
Chart 1.4 Average Annual Salary by Educational Level and Geographical Area.....	20
Table 1.7 Income and Transfer Payments Comparison for 2009 .....	21
Table 1.8 2011 Poverty Guidelines for the 48 Contiguous States and the District of Columbia .....	22
Summary .....	22
Endnotes – Section 1.....	23
 <b>SECTION 2 Rio Grande Valley Labor Market Analysis .....</b>	 <b>24</b>
Civilian Labor Force, Population Growth and Geography .....	24
Table 2.1 April 2011 Rio Grande Valley Civilian Labor Force .....	25
Table 2.2 Geographic Characteristics of the Lower Rio Grande Valley .....	25
Table 2.3 2010 Border Crossing/Entry At Port Level (Yearly).....	26
Table 2.4 Population Numbers and Density .....	27
Employment by Major Industry Sector.....	27
Table 2.5 Employment and Change in Rio Grande Valley by Industry .....	27
Table 2.6 Ten-Year Record of Change in Employment Pattern .....	28
Location Quotients .....	28

Figure 2.1	Pictorial Representation of Meaning of Location Quotients .....	30
Table 2.7	Full Sector Report of Location Quotients for Cameron WID.....	31
Table 2.8	Location Quotient for Lower Rio Grande Valley WID .....	31
Shift-Share Analysis .....		32
Snapshot of Job Opportunities in the Valley .....		35
Table 2.9	Average Number of Job Opportunities by Occupational Category .....	35
Summary .....		36
Endnotes – Section 2.....		37

### **SECTION 3 Targeted Industries and Occupations..... 38**

Tech Prep RGV's Targeted Industries List .....		38
Chart 3.1	Rio Grande Valley Employment by Government, Private Industry and Self-Employment in Percent .....	39
Table 3.1	Employment by Industry in Percent .....	40
Table 3.2	Tech Prep of the RGV List of Targeted Industries .....	41
Tech Prep's List of Targeted Occupations.....		41
Table 3.3	The 16 Career Clusters.....	42
Table 3.4	Tech Prep's Targeted Occupations by Career Cluster, Education/ Training and Hourly Wage .....	44
Education and Training for Targeted Occupations Available at Local Colleges and Universities .....		46
Table 3.5	Education and Training Opportunities for Tech Prep's Targeted Occupations .....	46
Information Regarding Salary Ranges.....		51
Figure 3.1	How to Computer Salary Conversions .....	51
College Tech Prep Program Information.....		52
Figure 3.2	College Tech Prep Plan for Program of Study.....	54
Comparison of Tech Prep's Targeted Industries and Occupations with Those of the Work Investment Boards and VIDA .....		54
Table 3.6	Comparison of Tech Prep's Targeted Industries with the Two Workforce Solutions Boards and VIDA .....	55
Table 3.7	Comparison of Targeted Occupations Lists.....	56
Job Identification Matrix.....		61
Accountants and Auditors .....		62
Administrative Support Clerks, Various Types .....		63
Architects .....		64
Automotive Body and Related Repairers .....		65
Automotive Service Technicians/Mechanics/Related Specialties .....		66
Biomedical Engineering Technicians .....		67
Cardiovascular Technologists and Technicians .....		68
Carpenters .....		69
Chefs and Head Cooks .....		70
Chemical and Environmental Technicians .....		71
Chemists .....		72
Computer Programmers .....		73
Computer Support Specialists .....		74
Computer Systems Analysts .....		75
Construction Cost Estimators .....		76
Construction Managers and Construction Superintendents .....		77
Correctional Officers, Jailers .....		78
Counselors (School, Substance Abuse, Behavioral, Mental Health) .....		79

Dental Assistants .....	80
Dental Hygienists .....	81
Dental Laboratory Technologists .....	82
Diagnostic Medical Sonographers .....	83
Digital Imaging Technicians/Graphic Designers .....	84
Drafters .....	85
Electricians .....	86
Emergency Medical Technicians and Paramedics .....	87
Engineers .....	88
Engineering Technicians (Process, Quality Control, Other Areas) .....	89
Heating, Air Conditioning, and Refrigeration Mechanics/Installers .....	90
Licensed Practical/Vocational Nurses .....	91
Machinists .....	92
Mechatronics Technicians .....	93
Medical Assistants .....	94
Medical Records and Health Information Technicians .....	95
Medical Transcriptionists .....	96
Medical/Clinical Laboratory Technicians .....	97
Occupational Therapists and Occupational Therapy Assistants .....	98
Paralegals and Legal Assistants .....	99
Pharmacy Technicians .....	100
Physical Therapy Assistants .....	101
Physician Assistants .....	102
Plumbers, Pipefitters, and Steamers .....	103
Police/Sheriff Patrol Officers .....	104
Radiologic Technologists/Technicians .....	105
Registered Nurses .....	106
Respiratory Therapists .....	107
Secretaries (Executive/Administrative/Legal, Medical) .....	108
Social Workers .....	109
Surgical Technologists .....	110
Teacher Assistants .....	111
Teachers (Various Areas) .....	112
Tool and Die Makers .....	113
Veterinary Technologists and Technicians .....	114
Welders/Cutters/Solderers/Brazers .....	115
 <b>SECTION 4 Economic Development and Education .....</b>	 116
How Educators Influence the Valley's Economic Development .....	116
How Economic Development Works .....	116
The Pivotal Roles of Educators and Tech Prep in Workforce Development .....	117
Summary .....	118
Profiles of Four Harlingen Employers .....	119
 <b>SECTION 5 Supplemental Information .....</b>	 122
Helping Students Think Through Career Choice and Place of Residence .....	122
Figure 5.1 How to Compute Salary Conversions.....	124
Table 5.1 The Ten Most and Least Expensive Urban Areas .....	125

Table 5.2	Example Cost of Living Comparison for Wage Occupation .....	126
Table 5.3	Example of Cost of Living Comparison for Salaried Occupation..	127
Table 5.4	Expenses for a Middle Class Lifestyle for a Single Person Living Alone in Harlingen, Texas, or Houston, Texas.....	128
U.S. Department of Labor	Occupational Growth Projections: State and National Trends	129
Table 5.5	Top 25 Fastest-Growing Occupations in Texas.....	130
Chart 5.1	Percent Change in Total Employment, by Major Occupational Group, 2008-18 (Projected) .....	131
Table 5.6	Occupations with the Fastest Growth (National Perspective) .....	136
Table 5.7	Occupations with the Largest Numerical Growth (National Perspective).....	138
2011 Labor Market Report	Bibliography .....	139

# INTRODUCTION AND ACKNOWLEDGMENTS

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## THE LINK BETWEEN EDUCATION AND BUSINESS

Education may be the key economic issue of our times.

The unemployment rate of people who have never gone to college is nearly twice as high as that of those who have college degrees. At the same time, employers have job openings for those individuals with the skills and education to keep their companies competitive locally and globally. High school students choosing a career field are beginning to realize that the overwhelming majority of new jobs will require higher education or advanced technical training. Guided by counselors, parents, and six/eight-year career and education plans, students can start building academic and technical skills for interesting careers in fields where employers offer well-paid jobs.

Students' career and education decisions to pursue knowledge-based occupations determine more than their personal success. Their decisions shape the economic vitality of the region, Texas, and U.S. The presence of an available, skilled workforce is the acknowledged foundation for increased economic development. Yet the Valley's growing population of working-age people who are equipped with technical skills poses a challenge for the business community. The region's economy must develop at a pace that continues to create well-paid jobs for these skilled entrants into the workforce. The Valley's development of desirable jobs—well-paid, in-demand jobs—is essential to avoid a brain drain and to sustain regional growth.

A Labor Market Information Report (LMI) provides students with up-to-date data on a wide range of targeted jobs and the academic and technical education required to fill them. Informed students are better prepared to chart a rewarding future in the workplace.

This Labor Market Information Report produced by Tech Prep of the Rio Grande Valley, Inc. (Tech Prep) gives students and their parents in-depth information about skilled and in-demand jobs in the Rio Grande Valley and supplemental information regarding cost of living. With access to detailed local labor market information, students can research career opportunities in existing and emerging fields. Workforce and economic development organizations also use labor market information to assess current talent development and to track regional labor trends and educational directions. The pro-active involvement of Valley employers who contribute information to the LMI is essential for producing a home-grown workforce equipped with targeted skills that will keep the region growing. Employers forecast their workforce needs. In addition, education leaders can refer to the LMI as they develop and fine-tune curriculum and training programs to be responsive to current workplace realities.

Beginning in high school, students can lay the foundation of academic and technical courses that prepare them for their career goals. Selecting a career field—accounting or construction management, law enforcement, biomedical engineering, or other—is the first step for moving into a satisfying, well-paid occupation. Choosing a specific field with an established course of study during high school and beyond puts students on a proven path to future success.

The development of career-minded young people is a collaborative effort between students, parents, prekindergarten through college (P-16) public education, business and government. Tech Prep, a Texas non-profit corporation born of collaboration, works with public- and private-sector leaders to provide guidance and motivation for teachers and their students as well as a communication channel for the businesses that will employ the graduates. Tech Prep's voting members include 32 independent school districts, five colleges and universities, the Region One Education Service Center and numerous professional and civic organizations who work together under the leadership of the private-sector-led board. The loyal, exceptional support of the following Tech Prep consortium members makes this Labor Market Report possible:

#### School Districts

Brownsville Independent School District	Pharr-San Juan-Alamo ISD
Donna Independent School District	Point Isabel Independent School District
Edcouch-Elsa Independent School District	Progreso Independent School District
Edinburg Consolidated ISD	Raymondville Independent School District
Harlingen Consolidated ISD	Rio Grande City Consolidated ISD
Hidalgo Independent School District	Rio Hondo Independent School District
La Feria Independent School District	Roma Independent School District
La Joya Independent School District	San Benito Consolidated ISD
La Villa Independent School District	San Isidro Independent School District
Lasara Independent School District	San Perlita Independent School District
Los Fresnos Consolidated ISD	Santa Maria Independent School District
Lyford Consolidated ISD	Santa Rosa Independent School District
McAllen Independent School District	Sharyland Independent School District
Mercedes Independent School District	South Texas Independent School District
Mission Consolidated ISD	Valley View Independent School District
Monte Alto Independent School District	Weslaco Independent School Districts

#### Colleges, Universities, and Other Organizations

Area II, Southern, Business Professionals of America, Secondary	Teach for America-Rio Grande Valley
IDEA Public Schools	Texas State Technical College Harlingen
Region One Education Service Center	The University of Texas at Brownsville and Texas Southmost College
South Texas Career and Technical Assn.	The University of Texas-Pan America
South Texas College	

### **THE LINK BETWEEN TECH PREP AND ECONOMIC DEVELOPMENT**

Businesses must have a literate, skilled workforce to thrive and succeed. An educated workforce is the number one requirement for the growth of a region's economy. Economic development departments must present data showing their region's capable, skilled talent pool in order to attract new employers.

The importance of developing this human resource has brought representatives of businesses, government agencies and educators to the Tech Prep Board of Directors. Private-sector members bring a real-world link to economic development, an understanding of regional labor trends, and the workforce issues requiring immediate attention.

Tech Prep staff, advised by board members and regional employers, work to acquire and transmit workforce demands and career opportunities to the educational leadership. Tech Prep's research and programs have shown that employers today seek individuals with strong academic foundations coupled with critical-thinking and problem-solving skills. Computer literacy is essential along with competency in human relations. Tech Prep and its partners have focused on the skill-set development that yields a high value for employers.

Working through partnerships, Tech Prep uses multiple paths to introduce students to the qualifications required to gain employment in numerous fields. Educator externships, student internships, mentoring, and job-shadowing provide invaluable first-hand knowledge about the real world and about opportunities. The career information absorbed through these initiatives motivates students—the future workforce—to pursue specific career fields or to begin a search for alternative careers.

The alignment of the educational system with the needs of the private sector and public employers creates a viable, upwardly mobile workforce and results in economic success for all involved. To learn more, please see the updated LMI segment “How Educators Influence the Valley's Economic Development.”

## **TECH PREP LABOR MARKET INFORMATION REPORT**

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In 1996, Tech Prep assumed the responsibility of publishing a labor market information report for Cameron, Hidalgo, Starr and Willacy Counties. The task requires analyzing existing local labor market trends and identifying the most likely current and emerging-demand jobs. Tech Prep continues to periodically update labor market data for an avid audience.

The Lower Rio Grande Valley, which includes some of the top 10 metropolitan statistical areas (MSAs) in job growth, has both tremendous opportunities and great challenges. The region has a diverse, youthful and talented population with great potential. It is weathering the economic downturn better than most areas, although a few industries have declined. This Labor Market Information Report presents the latest information of current and projected career opportunities. Teens and young adults can capitalize on the wealth of career possibilities presented here whether they decide to pursue technical certification, an associate or bachelor degree, or an advanced degree.

The rest of this Tech Prep Labor Market Information Report is structured as follows:

- Section One provides a demographic and geographic profile of the area that Tech Prep serves: the four-county region that comprises the Lower Rio Grande Valley of Texas.



- Section Two provides a thorough analysis of the current Rio Grande Valley labor market and emergent trends.
- Section Three is designed to be useful for educators who work with students and their families. This section begins with additional research work conducted by Dr. Anadelia Gonzales, who reviewed prior reports and conducted additional research to ensure that this report provides information that is as accurate and current as possible. This section, which explains the meaning of the terms “targeted industries” and “targeted occupations,” has been reformatted into the career-cluster format utilized by schools and colleges (AchieveTexas) and includes an explanation of AchieveTexas and career clusters. Section Three provides specific information about targeted occupations, local targeted-occupation average wages, and the requirements to enter these occupations. Finally, this section provides information designed to be useful to counselors and teachers who work with students in planning for college and careers.
- Section Four describes functions of economic development organizations in general and contains information shared with Tech Prep by William A. (Bill) Martin, Executive Director, Harlingen Economic Development Corporation. This section also highlights four of the employers that provide employment in the targeted-occupations area in the Harlingen community.
- Section Five provides supplemental information designed to be useful for students, their families, and the educators who work with them. This section provides an introduction to understanding the relationship between income and cost of living and points to be considered when students compare the benefits of living in the Valley with other parts of the state and the nation.

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Eduardo Cancino, Ed.D., Deputy Director for Instructional Support, Region One ESC, Edinburg  
Cornelio Gonzalez, Ph.D., Superintendent of Schools, Mission CISD  
Laura Lara, A.I.A, Architect/Senior Project Manager, UT System, Rio Grande Valley Office of Facilities Planning and Construction  
Beatrice (Bea) Lopez, Unit Director, H-E-B Foods, Port Isabel  
Roberto F. Loreda, Superintendent of Schools, Donna Independent School District  
Raul O. Maldonado, DPM, PA, Podiatrist/President, Harlingen Foot and Ankle Center, Harlingen  
David Merrill, Branch Manager, Wells Fargo Advisors, LLC, Brownsville  
Janice H. Mumford, Community Volunteer (former Assistant Superintendent for Curriculum and Instruction, McAllen ISD), McAllen  
Gabriel Puente, Publisher, *rgVision Publications*, Harlingen  
Felipe Reyes, Administrator for Career and Technical Education, Brownsville Independent School District  
Joel Reyes, Lean Six Sigma/Training Manager, EMS, Enterprise Mobility Solutions, McAllen  
Felipe C. Salinas, Grant Writer, College Access and Support Programs, The University of Texas-Pan American, Edinburg  
Liz Shamlan, Branch Manager/Assistant Vice President, Capital One Bank, San Benito  
Lorie Swayze, Account Executive, KGBT Action 4  
Estella L. Trevino, Executive Director, Edinburg Housing Authority

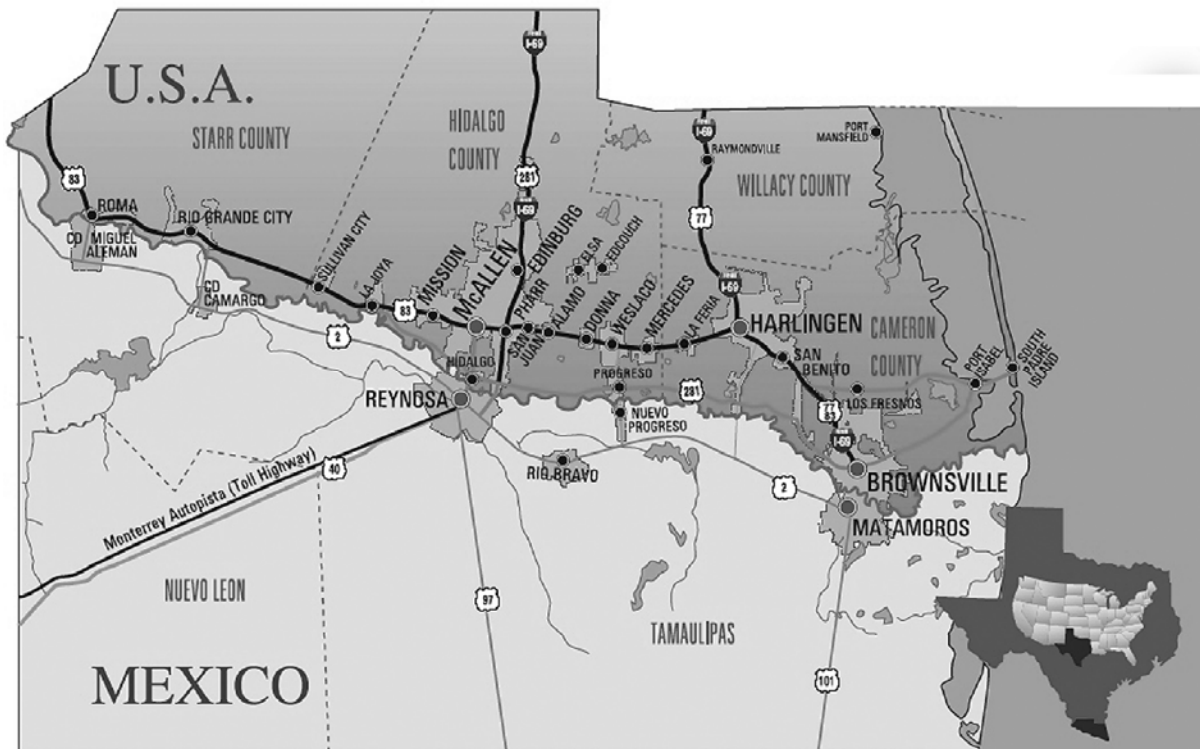
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## SECTION 1: TECH PREP OF THE RGV SERVICE AREA PROFILE

Tech Prep of the Rio Grande Valley, Inc. ("Tech Prep") serves a four-county region known as the Lower Rio Grande Valley (the Valley). The Valley has a total land area of 4,866.49 square miles and includes four counties: Cameron, Hidalgo, Starr, and Willacy. The Valley is located in the southern-most part of Texas, and three of its counties (Cameron, Hidalgo and Starr) are located on the U.S.-Mexico border (see Figure 1.1). The Valley has 47 independent municipalities, 92 unincorporated communities, 32 separate independent school districts (plus charter schools), two universities, two community colleges, one technical college, two workforce development boards (also called "workforce investment boards"), a significant number of non-profit service organizations, and several economic development organizations. According to the 2010 census projections this region has a total population of 1,264,111 with approximately 27% being school-age children. Texas Education Agency figures show that during the fall 2010-2011 school year there were 409,469 public school students in the seven-county region served by the Region One Education Service Center. Eighty-one percent of those students, a total of 333,164 students in prekindergarten through high school, were served by Tech Prep of the RGV, with 88,586 of the students served by Tech Prep were enrolled in grades nine through twelve.

**Figure 1.1 The Lower Rio Grande Valley of Texas**



Map courtesy of Rio Grande Valley Partnership—<http://www.valleychamber.com>

Tech Prep's primary mission is to serve the students of the Lower Rio Grande Valley by providing opportunities for them to acquire the educational foundation necessary to enter programs that will prepare them for high-skill, well-paying occupations. Embedded within this mission is the goal of responding to the talent requirements of the region's employers and the rapidly changing labor market as well as the responsibility of providing local educators with the labor market information they need for

curriculum planning and student career counseling. Achieving this mission requires that Tech Prep play a central role in bringing all the different stakeholders into active participation in Tech Prep's planning and implementation process. Tech Prep's work links the region's education and economic development systems and helps the various organizations understand one another's goals and work together in appropriate ways.

One part of Tech Prep's effort to provide local stakeholders with information and opportunities for participation is the annual production and distribution of a labor market information report ("LMI"). This report describes the consortium's demographics as well as the current labor market situation and the projections for future changes. Stakeholders are asked to participate in the development of this report by providing review and comment before publication. However, even in the best of situations, completing a labor market analysis can be a tremendous challenge. One of these challenges is making sense of data collected at different times and for varying geographical areas and populations. Nevertheless, with the help and cooperation of local educators, employers, and community leaders, Tech Prep strives to compile an accurate description of the current and future Rio Grande Valley labor market.

Data sources utilized for this report include the area counties, municipalities, school districts and other organizations as well as state and national agencies. Most of the statistics come from state and national agencies that report data for their own geographical units such, as the areas served by the Valley's two workforce development boards (each of which operates in a "workforce investment district [WID]") and Metropolitan Statistical Areas (MSAs). In this report most of the wage information, demographics, and workforce projections come from the two local workforce boards, the U.S. Bureau of Labor Statistics, and the U.S. Bureau of Census. Demographic data come primarily from the U.S. Census Bureau. In February 2011, the Bureau of Census published the 2010 population figures required by law for redistricting purposes. These data included population, race/ethnicity, and housing occupancy status for the nation, states, counties, and other jurisdictions within each state. During May 2011, the Bureau of Census published demographic profiles for each of the states, but not for jurisdictions within the state. However, in order to remain current on demographic information, the Census Bureau collects data throughout the year through the American Community Survey. These survey figures are reported as one-year or three- and five-year averages. The latest of these includes data collected between January 2009 and December 2009. The one-year figures, however, are only reported for jurisdictions with populations above 65,000; therefore, Starr and Willacy Counties are not part of the 2009 one-year file. Three-year estimates that include the average of data collected over a three-year period are published for all jurisdictions with a population of 20,000 or more. The demographic figures used in this report are mostly the three-year averages published in 2009 and collected between January 2007 and December 2009.

## **JURISDICTIONS, EDUCATIONAL INSTITUTIONS, AND OTHER ORGANIZATIONS**

Back in horse-and-buggy days, county lines were drawn so that the seat of one's local government would be within a half day's ride. In those times it was appropriate to treat each county as a separate labor market area; however, today, with modern telecommunications and transportation, labor markets spill across these old narrow boundaries. The Lower Rio Grande Valley ("the Valley") is a prime

example of an area where multiple political jurisdictions have morphed into a single labor market. (Labor-shed and commute-shed analysis based on the Census Bureau's Longitudinal Employer-Household Dynamics' data confirm that the four counties comprise a nearly self-contained and distinct labor market.) The political jurisdictions, educational institutions and other agencies that are part of this labor market area include the following:

**Counties and Cities.** The Valley's labor market consists of the four counties mentioned in the first paragraph and their multiple municipalities and communities, as follows:

- Hidalgo County: 22 independent municipalities and 34 unincorporated communities.
- Cameron County: 18 independent municipalities, towns, and villages and 30 unincorporated communities.
- Starr County: four independent municipalities and 18 unincorporated communities.
- Willacy County: three independent municipalities and ten unincorporated communities.

**Postsecondary Educational Institutions.** The Valley is served by two universities, two community colleges, and one technical college. Other institutions of higher education conduct satellite operations in the region (for example, Texas A & M Health Science Center offers a public health master's program in McAllen, and Our Lady of the Lake University offers a doctorate in leadership in Harlingen), and the number of satellite programs offered by public higher education institutions in the region is growing. Table 1.1 shows enrollment, by ethnicity and institution, of the post-secondary education institutions that are currently working with Tech Prep. This table shows that in the fall of 2010 these institutions of higher learning served a total of 70,392 students, 88.78% of whom identified themselves as Hispanic or Latino. The following is a brief summary of the educational programs available through these educational institutions. A more complete description of the Tech Prep programs of study created through agreements between Tech Prep, school districts and institutions of higher education is provided in section 3.

- South Texas College is a community college with three campuses in McAllen, Texas, Hidalgo County; one campus in Weslaco, Hidalgo County; and another campus in Rio Grande City, Starr County. STC offers over 100 program options leading to certificates, associate of arts, associate of science, and associate of applied science degrees in several disciplines plus three baccalaureate degrees in applied technology.

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### ***A Description of the Region That Tech Prep Serves***

*Tech Prep's primary mission is to serve the students of the Lower Rio Grande Valley by providing opportunities for them to acquire the educational foundation necessary to enter programs that will prepare them for high-skill, well-paying occupations.*

*Embedded within this mission is the goal of responding to the talent requirements of the region's employers and the rapidly changing labor market as well as the responsibility of providing local educators with the labor market information they need for curriculum planning and student career counseling.*

*Tech Prep's work links the region's education and economic development systems and helps the various organizations understand one another's goals and work together in appropriate ways.*

*This section of report describes the political jurisdictions and types of organizations that operate in the region. In addition to agency descriptions, this section provides a breakdown of post-secondary enrollment (by educational institution and race/ethnicity) and public school enrollments for the public school districts that Tech Prep serves.*

- Texas State Technical College, located in Harlingen, Cameron County, is part of the Texas State Technical College System. TSTC Harlingen provides technical education programs leading to certificates (Level 1 and Level 2)<sup>1</sup>, associate of science, and associate of applied science degree awards. TSTC Harlingen has established agreements with partnering institutions to provide continuing-education opportunities for graduates at the baccalaureate, graduate, and doctoral levels. In Fall 2011, through partnerships with the City of Harlingen and the Harlingen Economic Development Corporation, TSTC Harlingen will open on its campus The University Center at Harlingen, with eight participating higher education institutions.
- The University of Texas at Brownsville and Texas Southmost College, located in Brownsville, Cameron County, is a partnership of a community college and a university campus. UTB is part of the University of Texas system, and Texas Southmost College is a community college with its main campus in Brownsville plus satellite campuses in other locations, including Willacy County. UTB/TSC offers certificate programs, associate degrees, associate of applied science degrees, baccalaureate degrees, and master's degrees in a variety of disciplines including technical fields. UTB/TSC also offers a doctorate in education specializing in curriculum and instruction plus a doctorate in education and a doctorate in physics through cooperative programs with the University of Houston and the University of Texas-San Antonio respectively.
- The University of Texas-Pan American, located in Edinburg, Hidalgo County, is part of the University of Texas system. UTPA offers programs leading to bachelor's and master's degrees in a variety of fields including several in health sciences. UTPA also offers doctorates in business administration, educational leadership and rehabilitation counseling plus a program leading to a doctorate in Spanish in cooperation with the University of Houston, a cooperative program with the University of Texas at Austin leading to a Doctor of Pharmacy degree, and others.

**Table 1.1 Fall 2010 Rio Grande Valley College/University Enrollment by Institution and Race/Ethnicity**

RACE/ETHNICITY	TSTC	STC	TSC	UTB	UTPA	TOTAL	PERCENT
White –Not Hispanic	556	192	368	455	860	2,431	3.45%
African American	38	25	44	42	97	246	.35%
Hispanic	5,038	24,817	10,169	5,875	16,596	62,495	88.78%
Asian	37	74	64	51	135	361	.51%
American Indian/Alaskan Native	2	3	8	10	15	38	.06%
Unknown or Not Reported	99	2,770	67	52	520	3,508	4.98%
Native Hawaiian/Pacific Island	7	1	0	0	6	14	.02%
Multiracial	2	0	0	0	50	52	.08%
International	0	89	323	370	465	1247	1.77%
Total	5,779	27,971	11,043	6,855	18,744	70,392	100.00

Source: Texas Higher Education Coordinating Board



**Secondary Educational Institutions.** The Valley has 32 independent school districts, some with multiple high schools, as well as several charter schools and private schools. The school districts and charter schools that work actively with Tech Prep are listed in the introduction to this report. These school districts, as well as others, also receive services provided by the Region One Education Service Center, which is also an active partner in Tech Prep's programs. The following is a listing of all the public school districts and charter districts served by Tech Prep, with their total enrollment as of October 2010 as reported by the Texas Education Agency.

**Table 1.2 Tech Prep Rio Grande Valley Public School Enrollment by County and by District**

Cameron County Independent School Districts		Starr County Independent School Districts	
Brownsville ISD	49,879	Rio Grande City CISD	10,780
Harlingen CISD	18,422	Roma ISD	6,627
La Feria ISD	3,579	San Isidro ISD	272
Los Fresnos CISD	9,981	Total	17,679
Point Isabel ISD	2,544	Willacy County Independent School Districts	
Rio Hondo ISD	2,301	Lasara ISD	464
San Benito CISD	11,358	Lyford CISD	1,539
Santa Maria ISD	715	Raymondville ISD	2,270
Santa Rosa ISD	1,181	San Perlita ISD	287
South Texas ISD	3,173	Total	4,560
Total	103,133	Charter Districts	
Hidalgo County Independent School Districts		IDEA Public Schools	6,855
Donna ISD	15,028	Total	6,855
Edcouch-Elsa ISD	5,359	REGIONAL SUMMARY	
Edinburg CISD	33,223	Independent School Districts	
Hidalgo ISD	3,437	Cameron County	103,133
La Joya ISD	28,846	Hidalgo County	200,937
La Villa ISD	638	Starr County	17,679
McAllen ISD	25,622	Willacy County	4,560
Mercedes ISD	5,734	Total ISDs	326,309
Mission ISD	15,841	Charter School Districts	
Monte Alto ISD	955	Total Charter Districts	6,855
Pharr-San Juan-Alamo ISD	31,508	Regional Total, All Public Schools Served by Tech Prep	333,164
Progreso ISD	2,227		
Sharyland ISD	9,978		
Valley View ISD	4,702		
Weslaco ISD	17,839		
Total	200,937		

**Economic Development Agencies, Chambers of Commerce, and Other Agencies.** Economic development organizations, chambers of commerce, and other business-focused agencies all have a vested interest in the economic success of the Valley's population in order to expand economic development and the tax base for local jurisdictions. Agencies that work actively with Tech Prep are listed in the introduction section of this report.

**Workforce Investment Districts (WIDs).** Texas has 28 workforce investment districts, each served by a workforce development board (WIDs), whose mission is to provide employers and job seekers with a “one-stop” system of workforce investment. These WIDs collect information and provide services for adults, dislocated workers, and young people. The region served by Tech Prep includes two WIDs as follows:

### **Region Characteristics**

*The primary purpose of this report is to serve students and their families. Tech Prep and the numerous individuals who have contributed to the content are providing information to help Rio Grande Valley students and their families make good decisions as students make plans for college, careers, and life.*

*The report has been organized to maximize its usefulness for the secondary and post-secondary education leaders who use the report. The goal is to provide these education leaders with the information they need to make informed decisions about program and course offerings and providing counseling and guidance for students and their families.*

*The Region Characteristics data provided in this report center on those factors that influence the life situations of Rio Grande Valley students. This includes, but is not limited to, the resources available to students from their families as well as the educational institutions.*

- Cameron County, which includes all of Cameron County and is served by a workforce development board known as Workforce Solutions Cameron.
- Lower Rio WID that includes the Counties of Hidalgo, Starr, and Willacy combined, and is served by a workforce development board known as Workforce Solutions.

**Metropolitan Statistical Areas (MSAs).** For planning and fund-allocation purposes, the federal government defines population clusters (e.g., core cities with their suburbs and exurbs) based on population density, commuting patterns, and degree of economic interaction. MSAs overlap municipal boundaries. Sometimes they extend across county lines.

- The McAllen-Edinburg-Mission MSA has a combined official population<sup>2</sup> of 600,000.
- The Brownsville-Harlingen MSA’s population is just under 400,000.
- The Brownsville-Harlingen *Consolidated* SMA extends north of the Cameron County line along Highway 77. Inclusion of Raymondville, Lyford, etc. puts the CSMA’s population over 400,000.
- The Rio Grande City-Roma MSA has a population of approximately 25,000 inhabitants.

## **REGION CHARACTERISTICS**

To a large extent, an area’s characteristics, such as geography and population profile, determine its economic growth and development.

**Racial/Ethnic Composition.** During the 2010 Census, respondents are asked to identify their race and ethnicity separately. Also, the race categories were expanded to include Hawaiian or Pacific Islander separately from Asian. Table 1.3 indicates that a vast majority of Rio Grande Valley residents self-identify as Hispanic or Latino. However, since "Hispanic or Latino" is an ethnicity and Hispanics can be of any race, they were also asked to select a racial category. A majority of Hispanics in this area identified themselves as White; therefore, most Valley residents identify themselves as Hispanic or Latino White.

**Table 1.3 2010 Population by Geographic Area and Race/Ethnicity in Percent**

<b>Race/Ethnicity Identification</b>	<b>Cameron</b>	<b>Hidalgo</b>	<b>Starr</b>	<b>Willacy</b>	<b>RGV</b>	<b>Texas</b>
	Percent	Percent	Percent	Percent	Percent	Percent
White	87.00	87.98	96.09	85.82	88.02	70.40
Black or African American	.53	.59	.11	2.14	.57	11.80
American Indian	.42	.33	.13	.28	.35	.70
Asian	.66	.97	.22	.63	.83	3.82
Hawaiian or Pacific Islander	.03	.01	0	.03	.02	.10
Other Race	9.82	8.79	2.97	9.25	8.85	10.48
Two or More Races	1.54	1.33	.48	1.84	1.36	2.70
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Hispanic or Latino	88.07	90.63	96.01	87.18	90.01	37.60
Not Hispanic/Latino	11.93	9.37	3.99	12.82	9.99	62.40
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Source: 2010 Census Redistricting Data (Public Law 94-171) Summary File

**Birth and Death Rates.** According to the Texas Department of State Health Services, vital statistics for the year 2008, the annual birth rate (calculated at per 1,000 women ages 15-44 in that area) continues to be higher in the Valley than it is statewide (see Table 1.4). Even though, the birthrates in the Valley have decreased slightly since 2006 and the annual death rate (calculated at per 100,000 population) increased in both Cameron and Starr Counties, both continue to be higher and lower, respectively, than the state rates. With a higher-than-average fertility rate and lower-than-average death rate, the Valley population's "*natural growth*" is faster than elsewhere in the state. In general, this means that the Valley's median age is still lower than the rest of the state and will continue to be lower as long as the birth and death rates continue the current pattern. It also means that the number of school-age children in the Valley will remain close to its current number.

**Table 1.4 2008 Birth and Death Rates in the Lower Rio Grande Valley**

	<b>Cameron</b>	<b>Hidalgo</b>	<b>Starr</b>	<b>Willacy</b>	<b>Texas</b>
<b>Birth Rates</b>	94.5	103.2	95.4	80.2	76.8
<b>Death Rates</b>	624.9	626.3	826.9	610.9	808.8
<b>Infant Mortality Rates*</b>	4.5	5.3	NA	NA	6.1

Source: Texas Bureau of Vital Statistics Selected Health Facts 2008

\*Infant death rates are per 1,000 live births.

**Age and Gender Distribution.** Across Texas and the nation, the population is "*graying*" at a fast rate. That is, a general decrease in the birth rate and a significant increase in life expectancy at the national level are driving up the median age. Persons residing in the Valley, however, tend to be younger than the statewide and national averages. The statewide median age (as of 2009) was estimated to be 33.0 years old, and the estimate for the nation was 36.7. The median age of Valley residents in 2009 ranged from 25.9 in Willacy County to 31.5 in Cameron County. Starr County had the highest percentage of residents under 20 years old (41%). While all four counties had a higher percentage of residents under age 20 than the statewide average, both Cameron and Willacy Counties also had a slightly higher-than-average percentage of persons 65 or older than Hidalgo and Starr Counties. All Rio Grande Valley Counties, however, had a smaller number of persons over age 65 than the state of Texas or the nation.

**Table 1.5 Age Distribution by Geographic Jurisdiction in Percent**

Age	Cameron	Hidalgo	Starr	Willacy	Texas	U.S.A
Under 5	11.2	12.0	12.0	9.3	8.4	6.9
5 – 9	9.3	9.7	9.7	8.5	7.6	6.6
10-14	9.2	9.6	10.0	6.6	7.5	6.7
15-19	8.2	8.2	9.2	8.6	7.3	7.1
20-24	6.7	7.1	7.5	8.1	7.3	7.0
25-34	12.7	14.1	12.2	13.0	14.6	13.4
35-44	12.2	12.5	11.7	12.2	14.0	13.9
45-54	11.0	10.1	10.0	12.5	13.5	14.5
55-59	4.3	4.0	3.9	6.4	5.3	6.1
60-64	4.2	3.4	3.6	3.0	4.3	5.0
65-74	5.6	4.9	5.2	6.4	5.5	6.6
75-84	4.3	3.6	4.0	4.5	3.4	4.4
85 & Over	1.2	1.1	.9	1.1	1.3	1.6
Median Age	31.5	29.1	27.6	25.9	33.0	36.7

Source: U.S. Census Bureau, 2007-2009 American Community Survey, 3-Year Estimates

The percentage of females in the Valley's population (51.6%) was slightly higher than the state-wide average of 50.4%. (Willacy County, where females comprised only 48.7% of the population, proved to be the exception.) The age and gender distribution of the population is important to economic development and general planning because it provides data necessary to estimate workers available in the future, educational needs as well as the potential for population growth. For example, a higher than average number of Hispanic women of child-bearing age correlates directly with the area population's above-average growth rate.

**Population Growth Projections.** The Valley's population is growing at a faster rate than is the statewide population. *QuickFacts* from the U.S. Census Bureau indicates that the Valley's population grew 22.8% (nearly a quarter of a million people) between 2000 and 2008 compared to the statewide growth rate over the same period of 15.6%. Three of the counties in the Valley surpassed the statewide growth rate (Cameron and Starr Counties both at 16.9%; Hidalgo at 27.5%). But Willacy County's population growth rate (4.8%) was significantly below the statewide rate. The region's high population-growth rate is driven by at least three factors, as follows:

- immigration from Mexico and parts of Central America;
- higher fertility rates for Hispanic women in the region of child-bearing age; and
- in-migration from other parts of the state and the nation.

The State Demographer<sup>3</sup> does not issue a definitive population projection for any county or for Texas as a whole. Rather, his staff prepares several scenarios.<sup>4</sup> The conservative estimate is that an area's population will grow at half the rate it did between the two most recent Censuses (1990 and 2000)—the so-called “0.5 scenario.” Another scenario is prepared to reflect population growth at the same rate experienced between 1990 and 2000 (the “1.0 scenario”). The state demographer's staff also prepare “1.5” and “2.0 scenarios.”<sup>5</sup> In general, the State Demographer recommends using the 0.5 scenario for most counties in Texas. His recommendation rests on the belief that the phenomenal growth rate experienced in most parts of the state during the 1990s could not be sustained.

While the State Demographer is most likely correct in using an 0.5 scenario for population projections across most parts of the state, faster growth scenarios are likely to be a better fit for the Valley. However, whichever rate is used, by the end of this decade, the Valley's population is likely to be even younger than the "graying" statewide average and even more predominantly Hispanic. Volatility in external factors<sup>6</sup> significantly reduces the reliability and validity of assumptions about net migration in border counties and the confidence anyone outside the area has in any forecasting scenario for the Valley's population growth. What is important is not the precision of any population estimate but rather the growth rate of each community relative to the balance of the state and nation.

**Education.** Average educational attainment is a key predictor of a community's employment rate, average earnings, and household income. According to estimates from the U.S. Bureau of Census, all of the Valley's counties have lower average educational attainment than does the population in the balance of Texas or the nation. **(Census figures are what is known as the "status dropout rate" and should not be confused with the "annual dropout rate" calculated by the schools. The "status dropout rate" in the quoted estimates includes all people over 25. For the nation's current population, age has a negative correlation with educational attainment—as age increases, the number of school years completed decreases.)**

Chart 1.1 shows that in 2009 the percent of Valley residents 25 or older with less than a high school diploma ranged from 37.2% to 50.9% compared with 20.4% for Texas and 14.1% for the nation. Conversely, the percent of those with a bachelor's degree or higher ranged from 9.6% to 15.3% compared with 25.5% for Texas and 27.8% for the nation.

Taken alone, Chart 1.1 presents a bleak picture of the educational attainment for the Rio Grande Valley. Table 1.6, however, presents a much more hopeful and correct picture of the progress that has been accomplished in this region in the past twenty years.

*If a region's available labor supply does not contain adequately trained talent, then it is harder to attract new firms and expand existing local establishments that are able to compete in the global economy. When the Valley's economic development efforts are successful, more job opportunities become available for students and their families.*

*The United States Bureau of Labor Statistics projects that jobs requiring at least some college are expected to be the fastest-growing ones in the coming decade.*

*Sections 2 and 3 provide more information about the types of good jobs available in this region in areas such as healthcare, educational services, and others.*

**Table 1.6 2005–2009 Average Educational Attainment by Age and Geographical Area in Percent**

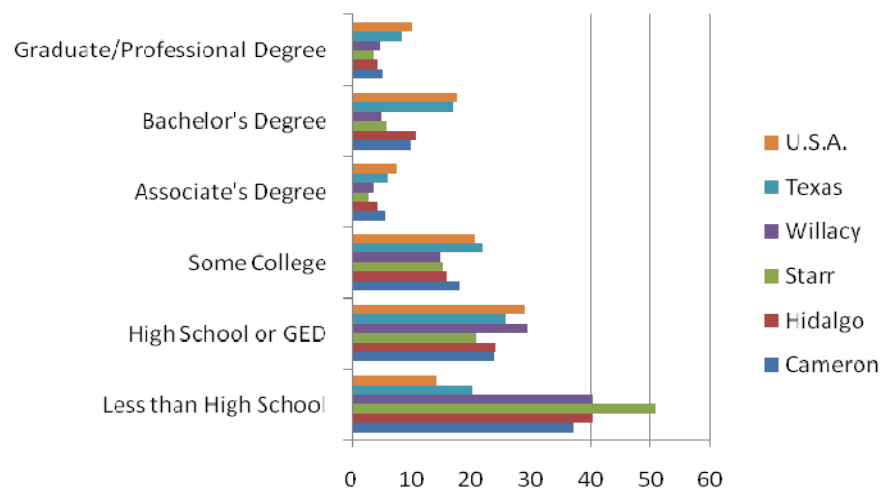
Age	18 -24	25-34	35-44	45-64	65 plus
CAMERON					
High School Graduate or Higher	71.1	74.4	67.8	61.1	46.8
Bachelor's Degree or Higher	2.6	13.7	17.2	16.4	10.9
HIDALGO					
High School Graduate or Higher	73.6	70.2	65.3	54.6	44.5
Bachelor's Degree or Higher	4.2	15.2	17.3	16.5	10.6

Age	18 -24	25-34	35-44	45-64	65 plus
STARR					
High School Graduate or Higher	67.5	67.3	56.1	40.6	20.0
Bachelor's Degree or Higher	1.8	11.1	10.0	7.6	3.6
WILLACY					
High School Graduate or Higher	76.5	60.7	63.1	56.4	35.8
Bachelor's Degree or Higher	2.8	2.6	12.1	12.9	8.2
TEXAS					
High School Graduate or Higher	79.4	80.5	80.9	81.8	69.5
Bachelor's Degree or Higher	6.8	25.0	27.0	27.3	19.3
UNITED STATES					
High School Graduate or Higher	89.9	86.6	87.2	87.2	74.2
Bachelor's Degree or Higher	9.0	30.5	30.2	28.5	19.3

Source: U.S. Bureau of Census 2005–2009 American Community Survey five-year estimates

Table 1.6, which depicts educational attainment by age ranges, shows that the younger the group, the higher the educational level attained. Throughout the Valley, the percentage of persons 25-34 years old who are high school graduates is much higher than that of those who are 65 and older. The same pattern holds true for the 35-44 and 45-64 age cohorts. Table 1.6, therefore, shows that since about the 1960s, the Valley has shown remarkable progress in advancing the educational level of its citizens. A comparison with the State of Texas and the nation as a whole, however, indicates that there is still a substantial gap between the percentage of young people in the Valley who are high school graduates and the percentage in the state and nation who have similar credentials. Also, the gap between those in the Valley who have a bachelor's degree or higher and those in the state of Texas and the nation as a whole is more than 15 percentage points. The improvement in educational levels clearly shows that Rio Grande Valley educators and community leaders along with Tech Prep are working hard to encourage young people to graduate and continue their education beyond high school.

**Chart. 1.1 2009 Educational Attainment Comparison for Persons 25 and Older by Level Attained**



Because the vast majority of the workforce for the coming decade is already over 25 years old, bringing the average educational achievement of the Valley's talent pool up to the level where it can attract new high-technology companies is also very important. This requires that those already out of school also be provided with opportunities to increase or upgrade their skills.

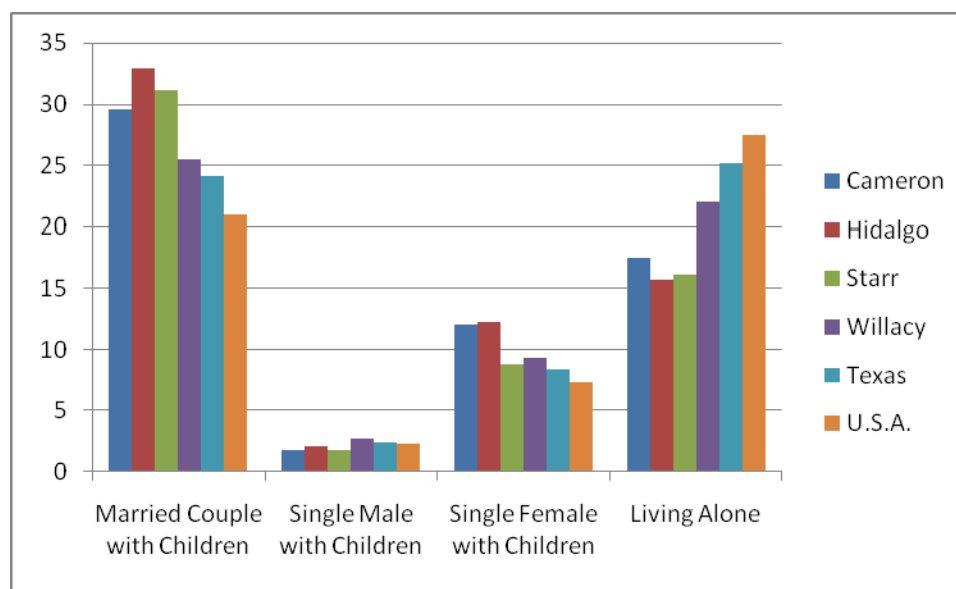
A discussion of this aspect of the labor force question is beyond the scope of this report. However, it is important to recognize that Tech Prep's partners, such as the workforce development boards and Valley Initiative for Development and Advancement (VIDA) are an essential part of any regional economic development plan because they target these over-25 individuals who need to acquire or upgrade their skills. These organizations can sometimes also be sources of assistance for young people to help them pursue education after high school.

**Household Types.** The 2009 Bureau of Census estimates indicate that the Rio Grande Valley has a higher percentage of married-couple families than the State or the United States as a whole (see Chart 1.2). This is good news because most of the research indicates that children who are raised in married-couple families are much more likely to stay in school and out of trouble.<sup>7</sup>

These estimates also indicate that the Rio Grande Valley also has a high percentage of female-headed single parent families. According to the research, lack of both time and money can create serious problems for children living in this type of household. Children from single-parent households are more likely to drop out of school. (Chart 1.2 also includes statistics for individuals living alone.)

Overall the numbers regarding household types in the Rio Grande Valley indicate that most are family households consisting of parents and their children who are age 18 or less.

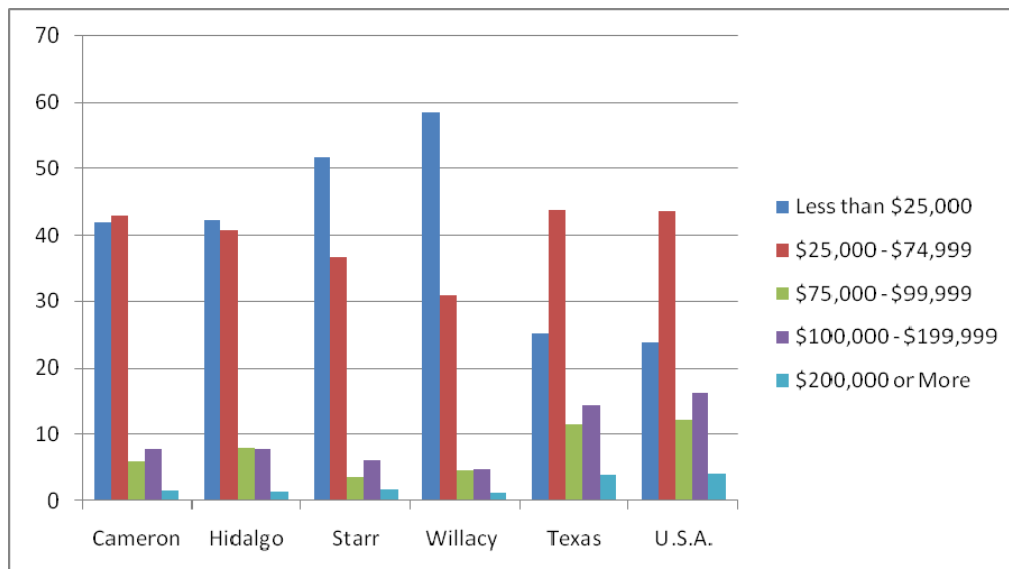
**Chart 1.2 Household Types in the Lower Rio Grande Valley**



**Earnings and Income.** The average earnings and household income in the Valley are considerably below those of the state as a whole and the nation. Chart 1.3 shows that the median and mean incomes in all four of the Valley's counties are as much as \$20,000 below the state and the nation. Median

household income figures show that in 2009 one-half of the population in Cameron and Hidalgo counties had a household income below \$30,000 a year, and in Starr and Willacy counties that figure was just slightly over \$20,000 a year.

**Chart 1.3 2009 Earnings and Income in the Lower Rio Grande Valley, Texas and the Nation**



*Both national and Valley statistics show that people with at least some college have a higher median income than those with just a high school diploma.*

*The numbers make it clear that the best jobs go to individuals who continue their education beyond high school.*

Source: 2007-2009 American Community Survey 3-Year Estimates

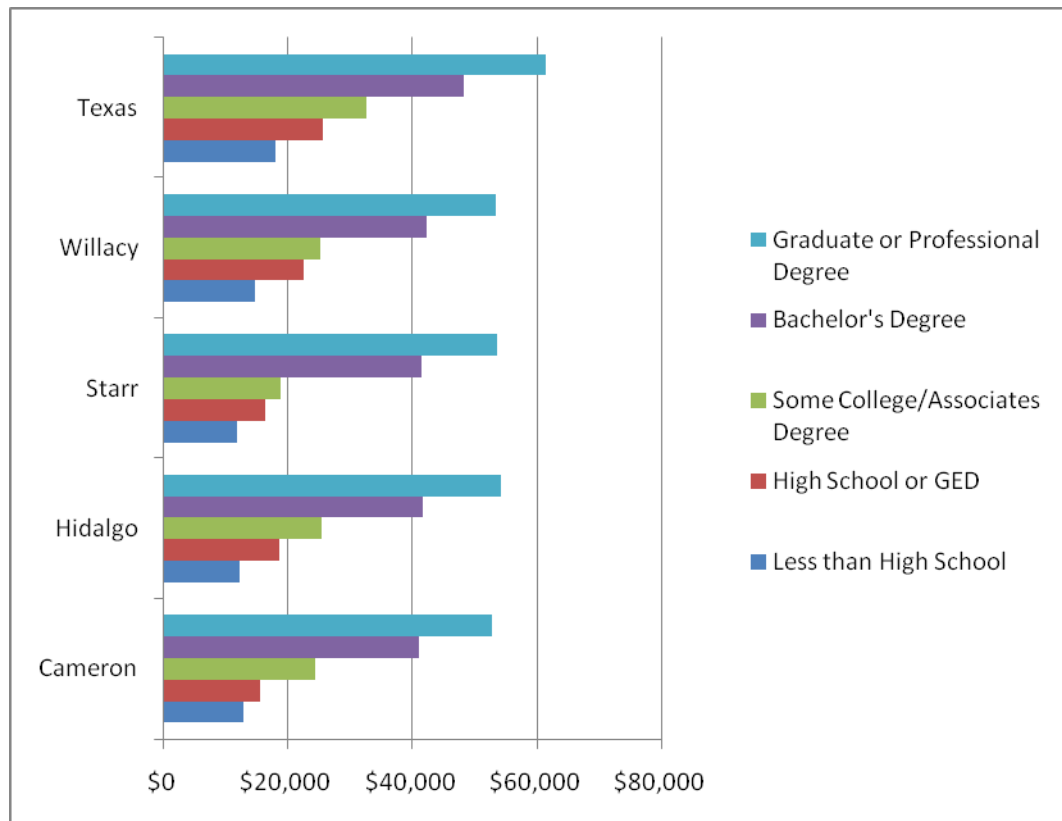
A topic that has enjoyed a great deal of discussion since the beginning of the current recession is the return on the investment of a college education. Much of the discussion centers on the high cost of a college education and the large debt that results for many students. Many also point to the fact that many college graduates are now unemployed or underemployed due to the recession. However, few continue with a discussion of what the employment situation will be after the recession.

There is plenty of reason to believe as discussed in the education part of this section that high-paying jobs now do, and will continue to, require post-secondary training and credentials. Many of these do not require a bachelor's degree; they do, however, require an associate's degree or a certification that the individual is qualified to perform that job.

Both national and Valley statistics show that people with at least some college have a higher median income than those with just a high school diploma (see Chart 1.4). Therefore, it is not prudent to advise young people to forego post-secondary training in their chosen fields. Instead, students must be given as much information as possible about the prospects for current and emerging occupations locally as well as outside the Valley.



**Chart 1.4 Average Annual Salary by Educational Level and Geographical Area**



Source: U.S. Bureau of Census 2005–2009 American Community Survey Five-Year Estimates

The numbers in Chart 1.4 make it clear that those individuals who do not graduate from high school, and even those with just a high school diploma, have a high probability of falling into poverty. Poverty levels are calculated by the federal government (see Table 1.8) and published for use in calculating statistics as well as ascertaining qualification for transfer payments such as Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI); Supplemental Nutritional Assistance Program (SNAP or food stamps) and Medicaid. In the Valley, the average annual income for individuals without some college is below \$20,000. According to the poverty guidelines, a family of four with an annual income \$22,350 or below is considered to be in poverty and may be qualified (there is more to qualification than just income) for some type of transfer payment(s).

It is not surprising, then, that many households in the Valley with at least one working adult meet the poverty guidelines. Table 1.7 shows that the poverty rate in the Rio Grande Valley is double that of the State of Texas and triple that of the nation as a whole. Even though three-fourths of the households in the Valley (except for Willacy, which has a 55.1%) have earnings from work or sources other than public assistance or social security, for many, the earnings are not sufficient to lift them out of poverty. Therefore, a significant number of households qualify for transfer payments such as TANF and/or SNAP. The result is that many children are living in disadvantaged situations as far as financial resources are concerned.

**Table 1.7 Income and Transfer Payments Comparison for 2009**

	<b>Cameron</b>	<b>Hidalgo</b>	<b>Starr</b>	<b>Willacy</b>	<b>Texas</b>	<b>U.S.A.</b>
<b>Families in Poverty</b>	29.7%	30.8%	32.1%	42.5%	12.9%	9.9%
<b>Median Household Income</b>	\$30,720	\$30,613	\$23,942	\$20,396	\$48,756	\$51,369
<b>Mean Household Income</b>	\$44,792	\$46,037	\$40,049	\$35,364	\$68,035	\$70,404
<b>Households with Earnings</b>	75.3%	80.0%	72.0%	55.1%	83.7%	80.0%
<b>Mean from Earnings</b>	\$46,928	\$46,036	\$44,530	\$52,243	\$68,088	\$71,279
<b>Mean from Social Security</b>	\$11,961	\$11,585	\$9,477	\$9,306	\$14,356	\$15,127
<b>Mean Retirement Income</b>	\$20,461	\$18,668	\$14,046	\$23,323	\$21,193	\$21,201
<b>Per Capita Income</b>	\$13,731	\$13,423	\$11,130	\$11,179	\$24,541	\$27,100
<b>Households with SSI</b>	6.8%	7.0%	16.0%	6.5%	3.4%	3.7%
<b>Mean SSI Income</b>	\$6,280	\$5,819	\$5,131	\$7,680	\$7,087	\$7,904
<b>Households with Cash Public Assistance</b>	2.1%	2.6%	2.3%	2.0%	1.5%	2.4%
<b>Households with SNAP</b>	24.0%	29.4%	37.4%	33.8%	10.0%	8.9%

Source: 2007-2009 American Community Survey Three-Year Estimates

Especially for children, living in poverty is a serious situation that often has a negative effect on their educational attainment. Numerous studies have shown that the most robust predictors of children's educational attainment are parents' educational attainment, parents' earnings, the number of siblings, and household type (two-parent or one-parent). The higher the parents' educational attainment and income, the higher the child's educational attainment. However, both a high number of siblings and living in a single-parent family serve to mitigate the positive effects of income and education.<sup>8</sup> In reality these factors are measuring resources of time and money. Parents who have high educational attainment earn higher salaries and can provide their children with more physical resources such as a comfortable home, books and computers. They are also more equipped to help their children with homework as well as to help them maneuver through the educational system. On the other side, low educational attainment of the parents often translates into low earnings and, in many cases, poverty. These factors often result in a "cycle of poverty" in which, due to lack of funds and social capital, offspring are not able to acquire the skills necessary to move out of poverty.

Unfortunately, many children in the Valley are faced with one or more of the known obstacles to success in school and the labor market. As shown in Chart 1.1, a significant percent of Rio Grande Valley adults (parents) do not have a high school diploma. Chart 1.4 reflects that the average income in the Valley is lower than that of the State of Texas and the nation as a whole. Also, Chart 1.4 shows that a significant percentage of families in the Rio Grande Valley have incomes below the poverty level. Given these facts, it is a credit to parents, educators, and other helping agencies, such as Tech Prep, that many students in the Valley still excel in the educational system. Data gathered by the Texas Education Agency show that students who participate in Tech Prep are more likely to graduate from high school, attend school regularly and transition to post-secondary educational institutions (see Tech Prep's Annual Report for more information on the success of students participating in Tech Prep programs).

**Table 1.8 2011 Poverty Guidelines for the 48 Contiguous States and the District of Columbia**

<b>Persons in family</b>	<b>Poverty Guideline</b>
1	\$10,890
2	14,710
3	18,530
4	22,350
5	26,170
6	29,990
7	33,810
8	37,630

For families with more than 8 persons, add \$3,820 for each additional person.

Source: Federal Register, Vol.76, No. 13, January 20, 2011.

## **SUMMARY**

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Tech Prep of the Rio Grande Valley's service area consists of four counties, Cameron, Hidalgo, Starr, and Willacy, that together constitute one Labor Market Area. This area's geography gives it a comparative advantage for industry in agriculture, tourism, and international trade. The region has a fast-growing population that is mostly young and Hispanic. Immigration, as well as historical discrimination, has resulted in a lower-than-average educational attainment for the adult population and significant challenges for the young people striving to achieve a socioeconomic status higher than their parents. Some have lost their battle and have dropped out of high school; however, data also show that many are winning the battle. The success of those who are participating in Tech Prep, as well as programs that combine academics with career and technical education, proves that with the help of their parents and agencies such as Tech Prep of the Rio Grande Valley, the economic future of the Rio Grande Valley can shine as brightly as any other part of the nation.

## ENDNOTES—SECTION 1

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<sup>1</sup>The Texas Higher Education Coordinating Board publishes rules governing programs offered by public institutions of higher education, "Level 1 and Level 2 certificates" are among those programs. To learn more, see the rules published by the Texas Higher Education Coordinating Board in Title 19 of the Texas Administrative Code. (See [http://info.sos.state.tx.us/pls/pub/readtac\\$ext.viewtac](http://info.sos.state.tx.us/pls/pub/readtac$ext.viewtac).)

<sup>2</sup>The official population count is a matter of significant controversy as the Census of 2010 is conducted. Census figures are used in determining the apportionment of seats in the U.S. House of Representatives and the drawing of district boundaries for the U.S. House, Texas Senate and Texas House of Representatives. Census figures also are critically important to the appropriation of federal dollars. Advocates of services to immigrants and poverty populations have argued that the residence-based Census undercounts populations in need of services and, thus, skews representation in legislative bodies and appropriations. Moreover, the counting of Winter Texans is controversial since it is difficult to determine which are temporary and which are "stayers" because many have purchased second homes in the Valley--and whether they are permanent or temporary, their older demographics suggest that they are disproportionately users of public services.

<sup>3</sup>In the State Census Data Center at the University of Texas at San Antonio (<http://txsdc.utsa.edu/>).

<sup>4</sup>Each scenario starts with baseline data (i.e., percentage distribution of the population by age and race/ethnicity in the reference area). All scenarios assume that the differential fertility and mortality rates for each age cohort of each racial/ethnic group will continue along historic trend lines. The chief difference among scenarios, therefore, rests on different expectations about the net migration pattern (i.e., in-migration minus out-migration) that is most likely to occur.

<sup>5</sup>The "2.0 scenario" does NOT mean that the population would double in ten years; but rather, it forecasts growth will be twice as fast as it was between 1990 and 2000.

<sup>6</sup>In the past two decades, dramatic changes in the economic climate on both sides of the border have affected the peso-dollar exchange rates, the relative purchasing power of wages in the USA and Mexico and, thus, the availability and attractiveness of low-skill/low-wage jobs in the USA. Successive Presidential administrations and shifting Congressional majorities have had on-again-off-again debates about immigration reform, and enforcement of existing immigration laws has varied from one situational context to the next. For example, border crossings were tightened after "9-1-1," but relaxed again when guest workers were in high demand in disaster-recovery areas after Hurricanes Katrina, Rita and Ike.

<sup>7</sup>For a discussion on the role of parental income and education on child educational attainment and achievement see Astone & McLanahan (1991); Bowles & Gintis (2002); Cameron & Heckman (2001); Davis-Kean (2005; Davis-Kean & Sexton (2009); DeGraff, et al (200) and Heckman (2008).

<sup>8</sup>For a discussion on the effects of single parenthood on children see McLanahan (1991); McLanahan & Booth (1989).

## SECTION 2: RIO GRANDE VALLEY LABOR MARKET ANALYSIS

### **Labor Market Analysis**

*This section describes the data used to support the selection of Tech Prep's targeted industries and occupations. The list of targeted industries and occupations as well as the additional criteria used in that selection are described in Section 3. This section merely takes the reader through the different analyses conducted to compile the data used in the selection process.*

*The tools used include:*

- *Description of the Region's characteristics*
- *Location Quotient Analysis*
- *Shift-Share Analysis*
- *Brief Study of Valley Job Openings*

*The results of any one of these analyses on their own should not be used as a complete and accurate description of the Valley's Labor Market. Rather, any conclusions must utilize a combination of these plus the "local wisdom" provided by business people and community leaders with first-hand knowledge of the region.*

Analysis of a region's labor market requires an examination and evaluation of a number of factors from at least two perspectives. The first perspective is size and skills of the current and projected labor force. The second is the state of the market itself as far as which industries predominate in the region and projections for growth of these industries and the occupations within the industries. This analysis of the Rio Grande Valley's labor market considers the region's current and past employment profile by industry, the results of Location Quotient and Shift-Share Analyses, plus a snapshot of job openings reported by the two Workforce Investment Districts for this region. This report also considers the size, characteristics and growth of the region's current and projected labor force. Any analysis of a region's labor market, however, is not complete without the input of "local wisdom" provided by those who have firsthand knowledge of the region. Therefore, a draft of this report was presented to a group of business and community leaders, and their suggestions have been incorporated into the final analysis.

### **CIVILIAN LABOR FORCE, POPULATION GROWTH AND GEOGRAPHY**

A region's civilian labor force (CLF) is defined as persons of working age who are either employed or available for work.<sup>1</sup> The unemployment rate is the number of persons available for work, but not employed. Unemployed individuals who have stopped looking for work are not considered part of the civilian labor force. The employment rate is computed as the number of

residents employed divided by the CLF. The CLF and the employment and unemployment rates are calculated for specific periods of time; therefore, growth rates and trends can be calculated by comparing the numbers for one period against another. Caution should be exercised when comparing the current rates with the rates of a year ago because a single event could have skewed the numbers considerably. It is generally best to compute trends over several years. However, an annual comparison does provide a snapshot of current changes.

With a higher-than-average CLF growth rate, the Valley must have a job-creation rate that is higher than average in order to simply hold its employment rate constant. The most recent CLF estimate for Texas (April 2011) was 12,248.4 thousand--an increase of approximately 112.4 thousand persons in the labor force since April 2010. That represents an annual increase of slightly less than 1% compared to an increase of 1.2% in the Rio Grande Valley over a similar period from 2009 to 2010. Reports for the two

metropolitan areas in the Rio Grande Valley indicate the Rio Grande Valley's labor force continues to grow at a rate higher than that of the state. Table 2.1 shows that the Brownsville-Harlingen metropolitan area had a civilian labor force of 159.4 thousand for April 2011—which was an increase of 1.5% over April 2010. The McAllen- Edinburg-Mission metropolitan area had a 1% growth over the same period. These figures indicate that while the CLF growth rates for the State of Texas and the Rio Grande Valley seem to have slowed down in the last year, the RGV rate continues to grow at a rate slightly higher than that of the state.

**Table 2.1 April 2011 Rio Grande Valley Civilian Labor Force**

	Texas	Brownsville-Harlingen	McAllen-Edinburg-Mission
Total CLF 04/2011*	12,248.4	159.4	308.3
Change 04/2010 – 04/2011*	112.4	2.4	3.1
Percent Change	0.9%	1.5%	1.0%
Unemployment Rate	7.7%	11.5%	11.4%

\*Numbers in thousands

Source: U.S. Bureau of Labor Statistics

The health of the Valley's labor market depends, in part, on whether there is enough employment demand to accommodate growth of the area's CLF. Employment demand has two components:

- 1) new jobs created by expansion or new businesses/organizations; plus
- 2) replacement job openings created by death, retirement, etc.

The health of the labor market is, however, more than a numbers game. In addition to the size of the CLF, economists generally consider a number of other factors, including an analysis of comparative advantage, the distribution of employment, and growth trends in particular industries and occupations as well as Location Quotients and Shift-Share Analyses.

**Geography and Comparative Advantage.** Basic understanding of an area's existing industry mix starts with a look at its geography. The four counties comprising the Lower Rio Grande Valley share climatological, topographical, and location characteristics (see Table 2.2) that favor certain kinds of economic development and growth over other kinds of businesses. The geographic characteristics of this area, including its location at the U.S.-Mexican border, predispose it to three main industries. This does not mean that these are the only industries in the Valley; however, these are the main industries that come “naturally” to the area. These industries are likely to employ a significant number of people in the area, and the types of occupations native to these industries will remain in high demand most of the time.

**Table 2.2 Geographic Characteristics of the Lower Rio Grande Valley**

County	Cameron	Hidalgo	Starr	Willacy
Average Annual Rainfall ( <sup>inches</sup> / <sub>year</sub> )	26.6	23.4	22.3	27.6
Average Growing Season ( <sup>days</sup> / <sub>year</sub> )	341	327	314	331
Average January Temperature (F)	50°	49°	43°	46°
Average July Temperature (F)	93°	96°	99°	96°
Surface Water (% of acreage)	29.0%	0.8%	0.5%	23.9%
Topography	flat plains	smooth plains	irregular plains	flat plains

In the field of economics, industries for which a region's climate and geography are favorable are said to have a “comparative advantage” over other industries. In the Rio Grande Valley the industries that have this comparative advantage are:

1. ***Agricultural Production.*** Annual rainfall in all four counties is below the Texas average (30.1 inches per year); however, the typical growing season in the Valley is longer than the state’s average. The region’s relatively flat tillable topography, subtropical climate, and long growing season provide comparative advantage for agriculture (particularly citrus<sup>2</sup> and row crops). However, having below-average rainfall and a relative scarcity of non-saline surface water means farming in the area depends heavily on irrigation. (Indeed, it is estimated that 90% of the cropland in Hidalgo and Cameron Counties is irrigated.)
  
2. ***Tourism.*** Access to the natural amenities of South Padre Island and proximity to Mexico create comparative advantage for the Hospitality, Leisure, and Travel industries. Mild winters historically have attracted tourists from colder northern states. Many, known as “*Winter Texans*,” reside temporarily in the Valley during the winter months. Some “*Winter Texans*” buy second homes or relocate permanently to the Valley; thereby influencing real estate and construction activity. However, the recent recession has had a negative impact on this activity, and it is unclear how long this negative impact will continue.
  
3. ***International Trade.*** Proximity to Mexico also provides a comparative advantage for trade. There are several major (high volume) border crossings for vehicular and foot traffic in Cameron, Hidalgo, and Starr Counties. The principal beneficiaries are retail merchants in Brownsville and those in Starr and Hidalgo Counties with stores along and south of Highway 83. Brownsville and Hidalgo border crossings carry significant truck and rail cargo traffic (see Table 2.3). To a lesser extent, truck-borne cargo also passes through Progreso, Rio Grande City, and Roma. In addition, cargo en route to and from Mexico and the balance of Central America is handled at the Port of Brownsville (Brownsville Navigation District). This international trade has significant economic impact across the entire region.

**Table 2.3 2010 Border Crossing/Entry At Port Level (Yearly)**

Port Name	Trucks	Trains	Buses	Bus Passengers	Personal Vehicles	Personal Vehicle Passengers	Pedestrians
Brownsville	207,408	502	7,639	49,330	4,640,465	9,291,617	2,367,700
Hidalgo	459,331	0	20,031	310,943	5,604,124	10,691,969	2,245,341
Progreso	43,327	0	65	1,569	568,026	1,217,753	825,035
Rio Grande City	21,503	0	0	0	297,051	694,742	42,296
Roma	6,417	0	745	20,265	650,247	1,305,173	268,695
Total	737,986	502	28,480	382,107	11,759,913	23,201,254	5,749,067

SOURCE: U.S. Department of Transportation Bureau of Transportation Statistics OMR database.

**Population Density.** In its 4,872 square miles, the Valley had an estimated population of 1,220,589 in 2010. Its population density was 246.62 residents per square mile—well above the average statewide density of 91.95 residents per square mile. Population density, however, varies widely among counties

in the Valley. Cameron and Hidalgo Counties are considered “*metropolitan*” while Willacy and Starr Counties are considered “*primarily rural*.” (See Table 2.4)

**Table 2.4 Population Numbers and Density**

Designation	County	Population 2010	Square Miles	Population Density
Metropolitan	Hidalgo	774,769	1,569.8	448.47/square mile
	Cameron	406,220	905.8	493.54/square mile
Rural	Starr	60,698	1,223.0	49.63/square mile
	Willacy	22,134	596.7	37.09/square mile

Source: 2010 Census Redistricting Data (Public Law 94-171) Summary File; Texas Department of Health Service

Population density is important because it impacts the cost of education and training. The real unit cost of education includes transportation expenses as well as direct expenditures for instructional delivery. Rising diesel fuel prices disproportionately affect public schools that serve students who are scattered across a large territory. At the postsecondary level, students provide their own transportation. For them, distance from the classroom represents opportunity costs in terms of time as well as for fuel.

## EMPLOYMENT BY MAJOR INDUSTRY SECTOR

Table 2.5 shows that the sector that employs the highest number of people in the Valley is Government, followed by Education & Health and third, Retail Trade. In the McAllen-Edinburg- Mission (M-E-M) metropolitan area, Education & Health is the industry sector with the highest growth, and this is also true of the Brownsville-Harlingen (B-H) area, even though the extent of the growth was much higher in M-E-M. (High-growth industries are highlighted in green.) M-E-M also had double-digit growth in the Government & Trade, Transportation & Utilities industry sectors. Industry sectors that showed a decline are highlighted in red. Both metropolitan areas had a decline in Mining, Logging & Construction, and in Manufacturing.

**Table 2.5 Employment and Change in Rio Grande Valley by Industry (Numbers in Thousands)**

Industry	Brownsville-Harlingen			McAllen-Edinburg- Mission		
	2001	2010	Change	2001	2010	Change
Mining, Logging & Construction	4.8	3.2	-1.6	10.3	8.6	-1.7
Trade, Transportation & Utilities	22.4	23.5	1.1	34.9	45.1	10.2
Manufacturing	11.3	5.5	-5.8	11.5	6.0	-5.5
Wholesale Trade	3.7	3.0	-.7	5.8	6.2	.4
Professional & Business Services	6.5	8.8	2.3	10.2	13.6	3.4
Retail Trade	14.5	15.7	1.2	24.5	32.0	7.5
Financial Activities	4.2	5.1	.9	6.3	7.9	1.6
Information	1.5	2.0	.5	1.1	2.0	.9
Leisure & Hospitality	11.1	12.0	.9	14.9	19.2	4.3
Government	25.7	30.9	5.2	42.0	54.9	12.9
Education & Health	20.6	32.0	11.4	26.7	56.4	29.7
Other Services	3.1	3.6	.5	4.4	5.7	1.2

Source: U.S. Bureau of Labor Statistics

The ten-year pattern (see Table 2.6) for Mining, Logging & Construction indicates that the decline occurred within the last two years; therefore, it could be concluded that this is a temporary situation due



to the current recession and that this sector will rebound when the economy improves. Manufacturing, however, indicates a slow decline over the last decade.

*Recent technology has increased the productivity of workers in the Manufacturing industry in this nation.*

The manufacturing decline pattern is very similar to that of the nation, and according to economists analyzing the situation, this has several possible causes other than the recession. These other factors include the relocation of manufacturing plants to other countries and, probably most significant for Tech Prep, the fact that recent technology has increased the productivity of workers in this industry. This increased productivity also requires that workers have different skills than in the past. These different skills often mean that workers must have post-secondary training and credentials.<sup>3</sup>

*The increased productivity requires that workers have different skills than in the past.*

*These different skills often mean that workers must have post-secondary training and credentials.*

**Table 2.6 Ten-Year Record of Change in Employment Pattern (Numbers in Thousands)**

Year	Mining Logging & Construction		Manufacturing	
	Brownsville-Harlingen	McAllen-Edinburg-Mission	Brownsville-Harlingen	McAllen-Edinburg-Mission
2001	4.8	10.3	11.3	11.5
2002	4.7	10.7	10.2	9.9
2003	4.6	11.1	9.1	9.1
2004	4.7	10.8	7.8	8.9
2005	4.4	10.6	7.3	8.3
2006	4.4	10.9	7.8	8.1
2007	4.4	11.2	7.7	8.0
2008	4.4	10.9	7.3	7.4
2009	3.7	9.3	6.1	6.3
2010	3.2	8.6	5.5	6.0

Source: U.S. Bureau of Labor Statistics

## LOCATION QUOTIENTS

Location Quotients (LQs) provide another way of looking at trends in the distribution of employment in the local economy.<sup>4</sup> A location quotient measures the degree to which employment in a particular sector, industry cluster or specific industry is concentrated locally.

$$LQ = \frac{(\% \text{ of an area's employment in industry X})}{(\% \text{ of national employment in industry X})} \cdot^5$$

If a “self-sufficient” local industry employs just enough workers to produce exactly as much as is consumed locally, its LQ will equal 1. An LQ greater than 1 suggests that a local industry produces more than is consumed locally. The surplus goods and services produced by a local industry with  $LQ > 1$  can be sold to consumers outside the area to generate in-bound cash flow and local wealth creation.<sup>6</sup> An industry is termed a “base” industry or “export” industry if its  $LQ > 1$ .<sup>7</sup> If a local industry’s LQ is less than 1.0, then some portion of those goods and services bought locally (e.g., woollens or televisions) must be imported from producers outside the region. **An  $LQ > 1.2$  suggests a high concentration of industrial employment in an area. An  $LQ < 0.8$  suggests that employment demand for that**

**industry is not very concentrated locally. The direction of change in an industry's LQ over time indicates whether it is growing more concentrated in an area or losing ground.**

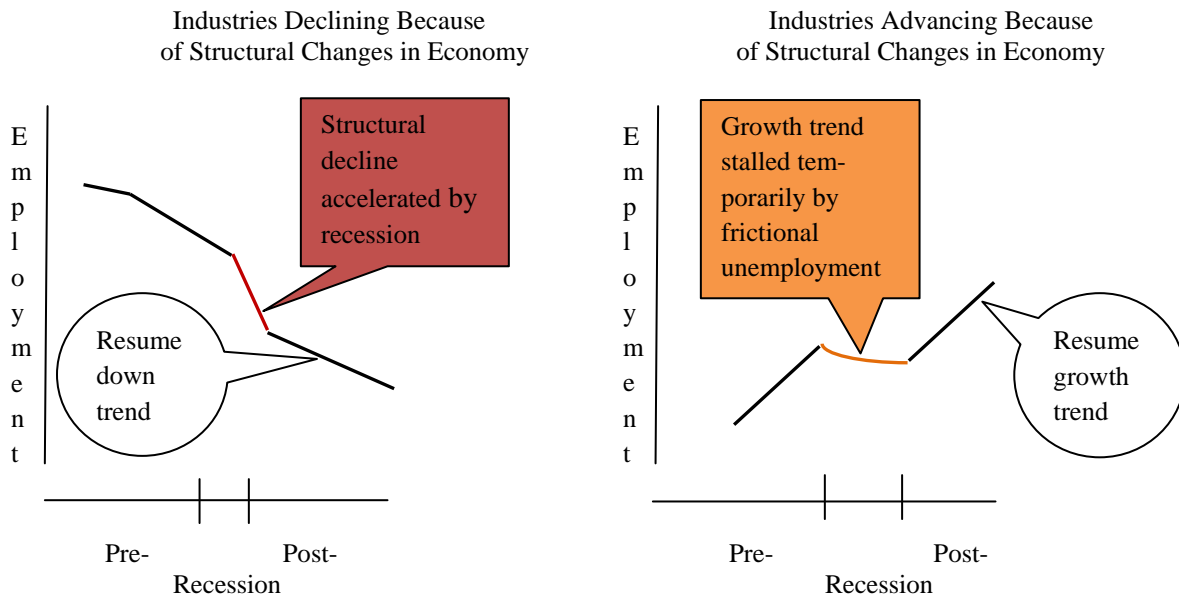
Changes in LQs over an extended time are more accurate because they standardize the peaks and valleys brought about by seasonal, short-term or cyclical events. For example, many retail firms bring on staff for the Christmas rush, then lay them off at the end of the year. Also, additional staff are hired at the beginning of summer in Agriculture and in the Leisure & Hospitality industries. Both of those are seasonal changes. To avoid misinterpretation, it is important to compare data from the same quarter in a base year and terminal year.

During a recession, one must sort out the long-term trends from the short-term changes. Typically two kinds of unemployment occur simultaneously during a recession: 1) “*frictional*” unemployment and churning as specific firms in almost every sector downsize in order to ride out the storm; and 2) “*structural*” unemployment wherein declining industries simply see an acceleration of pre-recession trends. Employment is likely to rebound in friction-affected sectors and in ones that were growing or stable before the recession. However, employment in sectors that were declining before the recession because of structural changes in the region's economic base is likely to continue its downward trajectory. An analysis by the National Employment and Law Project<sup>8</sup> shows that in the current recession recovery, lower-wage industries account for 49 percent of the recent growth, mid-wage industries for 37 percent, and higher-wage industries for 14 percent. That same analysis indicates long-term nationwide trends in the shrinking of jobs in both durable and nondurable manufacturing and telecommunications.

Since labor markets extend beyond county borders, LQs are calculated by sector, cluster and individual industry for each Workforce Investment District (WID) area rather than on a county-by-county basis. The Lower Rio Grande Valley Tech Prep Consortium area is divided into two WID areas: Cameron WID (Cameron County) and Rio Grande Valley WID (Hidalgo, Starr, and Willacy Counties). The Texas Workforce Commission archives employment data by industry and WID area dating back to 1990. That makes it possible to look at nearly two decades of LQs as a way of assessing patterns in any region's changing employment structure. With longitudinal data going back to 1990, it is possible to look at long-term trends in the structure of employment for the Valley. Long-term trend analysis provides a better forecast of what the Valley's economy will look like after the current recession.

In general, employment is becoming more homogenous across the nation. That is, an industry with a very high LQ in an area two decades ago most likely will have lost ground very slowly (i.e., its LQ regresses toward 1). An industry with a very low LQ in an area likely will gain ground slowly through incremental homogenization. Any industry that starts with a high LQ and remains high or gains ground is thought to benefit from some strong local comparative advantage. An industry which starts with a low LQ and remains low or loses ground has comparative advantage “stacked against it.” Since the employment concentration of most industries hovers around  $LQ = 1$ , and since the concentration of employment in most industries seldom shifts dramatically from one region to another, economists focus primarily on those industries in an area with the highest LQs and/or the most exaggerated changes in their LQs.

**Figure 2.1 Pictorial Representation of Meaning of Location Quotients**



Before examining specific Location Quotients, one cautionary note is in order. In general, a high LQ indicates that an area enjoys a strong comparative advantage for attracting and growing a specific sector or industry. Thus a high LQ is generally a positive indicator that implies the region's base industries generate an inflow of revenue and create wealth locally that can be used to drive development of support, ancillary and population-serving industries. However, there can be "too much of a good thing." If employment is too highly concentrated in one sector or industry, then the entire regional economy is vulnerable to any disruption in that industry. A sound regional economy should have several base industries with sufficient diversity (or dispersion in its employment distribution across sectors or industries) to withstand a dramatic downturn in one of its key firms or an entire industry cluster.<sup>9</sup>

Location Quotient reports for the Cameron and Rio Grande Valley WID regions (see Table 2.7 and Table 2.8) compare the LQs for the ten-year period beginning in the 3<sup>rd</sup> quarter of 1990 with those of the 3<sup>rd</sup> quarter of 2010. This analysis shows that in the Rio Grande Valley WID region the Agriculture, Forestry and Food sector has slowed down; however, it still has a LQ higher than 1.0, while in Cameron, this sector has dropped down to 0.89. Another difference between the two WID areas is that in the RGV WID, Energy, Mining & Related Support Services has an LQ of 2.31 and growing, while in Cameron that sector is not even present.

**Table 2.7 Full Sector Report of Location Quotients for Cameron WID (3<sup>rd</sup> Qtr. 1990 – 3<sup>rd</sup> Qtr. 2010)**

Sector	Cameron Percent	US Percent	Base LQ	End LQ	Change LQ
Agriculture, Forestry & Food	1.94	2.18	2.41	0.89	-1.52
Biotechnology, Life Sciences & Medical	3.95	3.00	1.15	1.32	.22
Business & Financial Services	6.33	11.21	.66	.56	-.09
Corporate HQ, Administrative & Government	8.03	8.27	.93	.97	.04
Distribution, Transportation & Logistics	3.49	2.37	.98	1.47	.49
Education, Training & Personal Development	15.01	6.40	2.45	2.35	-.10
Electronics & Applied Computer Equipment	1.18	2.20	.70	.54	-.16
General Line Store Retailers	8.86	7.08	1.52	1.25	-.27
Heavy & Special Trade Construction	2.14	3.74	.78	.57	-.20
Legal, Protective & Human Support Services	3.91	3.10	.87	1.26	.40
Personal & Residential Services	12.71	4.27	1.67	2.98	1.31
Petroleum Refining & Chemicals	1.30	1.12	.81	1.16	.35
Production Support & Industrial Machinery	.40	.69	.95	.58	-.37
Telecommunications & Information Services	.42	1.27	.73	.33	-.40
Tourism, Hospitality & Leisure	9.28	9.78	1.04	.95	-.09
Transportation Equipment	2.72	1.92	1.63	1.42	-.21

**Table 2.8 Location Quotient for Lower Rio Grande Valley WID**

Sector	RGV Percent	US Percent	Base LQ	End LQ	Change LQ
Agriculture, Forestry & Food	2.81	2.34	3.92	1.20	-2.72
Apparel, Leather, Wood & Related Non-durables	.63	.66	.64	.95	.31
Biotechnology, Life Sciences & Medical	8.55	7.25	.85	1.18	.33
Business & Financial Services	6.52	10.64	.61	.61	.00
Corporate HQ, Administrative & Government	7.97	8.27	1.06	.96	-.10
Distribution, Transportation & Logistics	2.59	2.08	.87	1.25	.38
Education, Training & Personal Development	15.99	6.64	3.10	2.41	-.70
Electronics & Applied Computer Equipment	.67	1.10	.60	.61	.01
Energy, Mining & Related Support Services	.83	.36	2.03	2.31	.28
General Line Store Retailers	10.35	7.45	1.63	1.39	-.24
Heavy & Special Trade Construction	3.13	4.38	.85	.71	-.13
Legal, Protective & Human Support Services	4.11	3.10	.69	1.33	.63
Personal & Residential Services	13.44	4.37	1.00	3.08	2.07
Petroleum Refining & Chemicals	.91	.65	1.71	1.40	-.31
Production Support & Industrial Machinery	.56	.73	.91	.77	-.15
Telecommunications & Information Services	.80	1.47	.63	.54	-.08
Tourism, Hospitality & Leisure	8.45	9.85	.81	.86	-.04
Transportation Equipment	2.19	2.06	1.44	1.06	-.37

Other than those two differences, the two WID regions are very similar. For example, the analysis indicates that both Cameron and Rio Grande Valley began with, and continue to have, high LQs in the following sectors (highlighted in green in Tables 2.7 and 2.8):

- Biotechnology, Life Sciences & Medical
- Distribution, Transportation & Logistics
- Education, Training & Personal Development
- General Line Store Retailers
- Legal, Protective & Human Support Services
- Personal & Residential Services
- Transportation Equipment

The analysis also indicates that the two WIDs have had, and continue to have, low LQs (highlighted in red) in the following sectors:

- Business & Financial Services
- Electronics & Applied Computer Equipment
- Heavy & Special Trade Construction
- Production Support & Industrial Machinery
- Telecommunications & Information Services

The numbers then indicate that most of the jobs in the Rio Grande Valley are concentrated in those high LQ sectors (highlighted in green). **This does not mean that there are no jobs in the low LQ sectors (highlighted in red); however, these jobs are more likely to be few and far between.** Also, based on the data available at this time, it is not likely that the number of jobs in those low-LQ sectors will increase in the near future.

## SHIFT-SHARE ANALYSIS

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Shift-share analysis is a way to account for the competitiveness of a region's industries and to analyze the local economic base. This analysis is primarily used to decompose employment changes within an economy over a specific period of time into mutually exclusive factors. It paints a picture of how well the region's current industries are performing by systematically examining the national, local, and industrial components of employment change. A shift-share analysis will provide a dynamic account of total regional employment growth that is attributable to growth of the national economy, a mix of faster- or slower-than-average growing industries, and the competitive nature of the local industries.

Like other analytical economic tools, the shift-share technique is only a descriptive tool that should be used in combination with other analyses to provide a summary of a region's key employment potential industries. Once completed, the analysis provides a representation of changes in employment growth or decline, and it is useful for targeting industries that might offer significant future employment opportunities. By interpreting data provided by shift-share, one can explore the advantages a local area may enjoy, as well as identify growth or potential growth industries worthy of further investigation.

## **Components of Regional Industry Employment Change**

As stated above, the shift-share analysis divides the change in local industry employment into three components:

- ***National growth share*** - The share of local job growth that can be attributed to growth of the national economy. Specifically, if the nation as a whole is experiencing employment growth ("a rising tide lifts all boats"), one would expect total national growth to exert a positive growth influence on the local area. This factor describes the change that would be expected simply by virtue of the fact that the local area is part of a changing national economy. In the analysis, one first examines the *national growth share*, or the number of jobs lost or gained in a region as if total employment in the region had changed at the same rate as overall total national employment.
- ***Industrial mix*** - The share of local job growth that can be attributed to the region's mix of industries being analyzed. This second factor is the change in a local industry that would be attributable to the growth or decline of the industry nationally. This component isolates the fact that nationwide, some industries have grown faster or slower than others. It represents the contribution that a specific industry nationally has made to the change in the number of jobs in the region.
- ***Local share (regional shift)*** - This share of local job growth describes the extent to which factors unique to the local area have caused growth or decline in regional employment of an industrial group. Even during periods of general prosperity, some regions and still some industries grow faster than others do. This is usually attributed to some local comparative advantage, such as natural resources, linked industries, or favorable local labor situations. The local component aids in identifying a local area's economic strengths. This element of the analysis is a representation of how a region's competitive position can contribute to regional job growth. Shift-share, and the local-share component in particular, can point to industries that enjoy local comparative advantage. These components cannot, however, identify what the actual comparative advantage is. It is important to identify the factors that have contributed to the local area in outperforming the nationwide growth. This wide range of factors is very diverse and often includes elements such as:
  - Local raw materials or local inputs
  - Transportation methods
  - Local wage rates
  - Influence of local industries
  - University influences
  - Local consumption and savings
  - Other comparative advantages

## **Greatest Likelihood for Potential Job Opportunities**

From an industrial perspective, certain industries within the Valley exhibited high employment potential between the 3rd Quarter 1990 and the 3rd Quarter 2010. That is, from this analysis, these industries displayed a positive industry mix and a positive local share during this time period.

### ***Lower Rio Grande Valley WID Region (Hidalgo, Starr, and Willacy Counties)***

- Ambulatory Health Care Services displayed the largest change in absolute employment with a gain of 34,735.
- Educational Services followed with a gain of 20,793 jobs.
- Food Services and Drinking Places followed closely in absolute employment change with a gain of 11,227,
- followed by Social Assistance with 7,451 and
- Hospitals with 6,460.

Also significant for the Lower Rio Grande Valley region during this time period were Administrative & Support Services, Local Government, Professional & Technical Services, Nursing & Residential Care Facilities, Support Activities for Mining, Support Activities for Transportation, Warehousing & Storage, Membership Organizations & Associations, Transit & Ground Passenger Transportation, Electronics and Appliance Stores, Motion Picture & Sound Recording, and Waste Management and Remediation Services.

### ***Cameron WID Region (Cameron County)***

- Ambulatory Health Care Services displayed the largest change in absolute employment with a gain of 13,503.
- Educational Services followed with a gain of 8,967 jobs.
- Administrative & Support Services followed closely in absolute employment change with a gain of 5,082,
- followed by Food Services and Drinking Places with 4,908 and
- Social Assistance with 2,959.

Also significant for the Cameron County region during this time period were Local Government, Nursing & Residential Care Facilities, Support Activities for Transportation, Warehousing & Storage, Private Households, Couriers & Messengers, Waste Management & Remediation Services, and Electronics & Appliance Stores.

It should be noted that shift-share is a simple analytical technique and does not account for many factors. Most notably, it minimizes the impact of issues such as business cycles, identification of actual comparative advantages, and differences caused by levels of industrial detail. Program outputs should be interpreted with caution, given limitations of the methodology, and used in conjunction with other regional analysis techniques to come to a more complete representation or accurate picture.

The shift-share analysis cannot explain the causes of each component. Moreover, this shift-share analysis examines employment changes, not changes in income, earnings, or value-added, which are alternative measures of an industry's size and strength. While the shift-share technique can be applied to these additional measures, they have not been included here.

A shift-share industrial analysis is a "snapshot" of two particular time frames and may not give an entirely clear picture of the local and national economies because the results are sensitive to the period

of time chosen. Shift-share analysis does, however, offer a simple, straightforward approach to separating out the national and industrial contributions from local or regional employment growth.

## **SNAPSHOT OF JOB OPPORTUNITIES IN THE VALLEY**

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During the period of February 27, 2011 through March 14, 2011, Tech Prep staff monitored the job postings on the internet for the Rio Grande Valley area that includes a geographical area from Brownsville to Roma. One day each week the number of jobs for each occupational category was noted, and at the end of the ten-week period an average was calculated (see Table 2.9). The purpose of this exercise was to determine if the job-opening pattern was significantly similar to, or different from, the data produced by the labor market analysis tools employed in this report. The result was that the pattern observed by this survey adheres closely to that of the other labor force analysis tools. Office and Administrative Support was the occupational category with the highest number of openings, followed by Sales and Related, and third, Healthcare Practitioners and Technical. Office and Administrative Support occupations can be found in almost every industry sector; therefore, they are almost always in demand even if the technical skills required change over time. For example, twenty years ago the main requirement for a clerical worker was typing speed; today, the main requirement is a thorough knowledge of several computer software programs. As described in the comparative advantage description in Section 1 of this report, sales workers, especially retail sales workers, continue to have a high demand. One reason is that the Valley did not see as low a decrease in retail sales as the rest of the nation due to the Mexican shoppers who continue to cross the border to shop in Valley stores. Healthcare occupations are the fastest-growing in the nation, and this brief study indicates that the Valley is following the same pattern.

While this tally of job openings in the Valley is an interesting study and does provide useful information, it cannot be taken as a completely accurate depiction of the employment picture in this area. The only source employed in this study was the two local WIDs; and according to several of the participants in the pre-release meeting of this document, the WID listings usually do not include job openings in the higher-paying and executive-type occupations. Most of those positions are usually advertised through the employer's own website and/or with private-sector recruiting firms.

**Table 2.9 Average Number of Job Opportunities by Occupational Category**

<b>Occupational Category</b>	<b>Average Number of Openings</b>
Office & Administrative Support	253
Sales & Related	252
Healthcare Practitioners & Technical	151
Transportation & Materials Moving	110
Management	108
Installation, Repairs & Maintenance	75
Healthcare Support	59
Food Preparation & Serving	58
Business & Financial Operations	48
Production	48



<b>Occupational Category</b>	<b>Average Number of Openings</b>
Construction & Extraction	39
Education, Training & Library	39
Protective Services	35
Community & Social Services	34
Architecture & Engineering	31
Building & Grounds, Cleaning & Maintenance	28
Personal Care & Services	27
Computer & Mathematical	21
Life, Physical & Social Sciences	18
Arts, Design, Entertainment, Sports & Media	14
Farming, Forestry & Fishing	7
Legal	3
Military Specific	1

## SUMMARY

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The Civilian Labor Force in the Rio Grande Valley continues to grow at a faster rate than that of the state or the nation as a whole. Simple percentage comparisons plus location quotients and shift-share analysis show that most of the Civilian Labor Force is employed in Health Services and in Educational Services. Hospitality & Tourism, Retail Trade, and Transportation are the next three industries of significance as far as numbers are concerned. Like the rest of the nation, the Rio Grande Valley has a wide spectrum of occupations that range from agricultural workers to highly skilled specialists in the manufacturing sector. However, these other sectors employ a much smaller portion of the Valley's Civilian Labor Force, and the analysis does not indicate that the pattern will change significantly in the near future.

## ENDNOTES—SECTION 2

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<sup>1</sup>The CLF does not count, for example, those of working age who were in the military, incarcerated or too severely disabled to work. The Texas Workforce Commission provides a monthly estimate of the state's CLF and county-level breakdowns.

<sup>2</sup>Texas ranks third behind Florida and California in citrus production as estimated by the U.S. Department of Agriculture (latest data from 2006). In the 2005-2006 growing season, sales of Texas grapefruit were approximately \$63.9 million and oranges at \$10.6 million. Of all the acres in Texas devoted to growing citrus, 85% are in Hidalgo County with the entire balance in the other three counties in the Rio Grande Valley.

<sup>3</sup>Vitner, Mark and Seydl, Joe. ( May 18, 2011). "Cyclical vs. Structural Unemployment: The Debate Rages On", Wells Fargo Economics Group. [www.wellsfargo.com/research](http://www.wellsfargo.com/research).

<sup>4</sup>The LQ concept and comparable formulas can be applied to industries, sectors, clusters, occupations, sales, patent applications, loans, foreclosures, etc.

<sup>5</sup>In theory, if each area is self-sufficient (producing locally everything purchased and consumed locally) then the distribution of employment across all industries would be identical for the entire nation. (Presumably, if Frostbite Falls County, Minnesota and Starr County, Texas had the same population, the percentage of workers in both counties engaged in citrus growing would be identical. But given different comparative advantage, citrus farming is concentrated in Starr County while potato farming might be concentrated in Frostbite Falls.)

<sup>6</sup>Minus any "leakage" of capital to out-of-region headquarters, shareholders and vendors.

<sup>7</sup>In such cases, the "exports" don't necessarily leave the country. They simply are consumed by persons residing outside the region. Thus, even Health Care in some regions may be considered an "export" industry. Although all the procedures and patient care are provided at local facilities, the Valley is a regional health care hub that sells ("exports") its "surplus" services to patients from Mexico, South Texas and the Middle Rio Grande Valley.

<sup>8</sup>Bernhardt, Annette and Riordan, Christine. February 2011. "A Year of Unbalanced Growth: Industries, Wages, and the First 12 Months of Job Growth After the Great Recession", National Employment Law Project, New York, N.Y.

<sup>9</sup>A community that is too dependent on Agricultural production is vulnerable to economic disruptions due to drought, flooding, overproduction or surplus dumping of the particular commodity on the international market by a foreign producer. A community that is too dependent on retail sales to customers coming across the Rio Grande is vulnerable to periodic stoppages at border crossings and fluctuations in the dollar-to-peso conversion rate. One that is too dependent on tourism is vulnerable to decreased travel due to recession, bad weather cancellations and competition for newer developments in lower cost destinations.

## SECTION 3: TARGETED INDUSTRIES AND OCCUPATIONS

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**Targeted Industries and Targeted Occupations:** Section 3 includes this information:

*Lists of Tech Prep's Targeted Industries and Targeted Occupations and the rationale used to construct both lists.*

*A Job Identification Matrix for every occupation in Tech Prep's Targeted Occupations list. Each Job Identification Matrix provides a description of the job, education/ training required, and RGV employment opportunities.*

*Information about Tech Prep programs and other education opportunities that will help students prepare for jobs listed.*

*Information about the way workforce development boards and VIDA might help students and their families prepare for the jobs.*

**Section 3 is designed to answer the following questions:**

- Which occupations are in demand in the Rio Grande Valley?
- What level of compensation (pay) can I expect in those occupations?
- What type of secondary and post-secondary preparation do I need to qualify for these occupations?
- How long will this preparation take?
- What are the duties and tasks that are part of this occupation?
- What are the conditions of employment for those occupations?
- Where can I go to get the education and training necessary to qualify for these occupations?

Since the **primary purpose** of this analysis of the labor market in the Rio Grande Valley is to **provide information for educators, students, and students' families, the focal point of this report is Tech Prep's list of targeted occupations.** Targeted occupations are drawn from targeted industries.

**Targeted industries** are those that employ a large number of people and have a potential for growth and/or stability.

**Targeted occupations** are occupations within those industries that are in demand and also have a potential for growth and stability and offer an average wage that is sufficient to support a good standard of living.

**Not all targeted industries are represented in the targeted occupations lists.** Because the definition of a good standard of living can vary among individuals (see Section 5 for more information), some may disagree with the cut-off average wage set by Tech Prep. However, based on knowledge of the amount necessary to support a family of four (see Table 1.8 in Section 1 of this report), Tech Prep has set this cut-off average wage at a little over \$20,000 a year or \$10.00 an hour. (Note: Please remember that this is an average wage and not a starting wage.)

This section includes a description of the data used to construct the lists of targeted industries and targeted occupations, information on the average wages for targeted occupations, education and training available in the Rio Grande Valley and a description of these occupations. Comparisons of Tech Prep's targeted industries and occupations with those of the region's two workforce development boards (WIDs) as well as with Valley Initiative for Development and Advancement (VIDA) are also provided. This information is included because workforce boards and VIDA can sometimes help students pay for post-secondary education and training.

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### TECH PREP RGV'S TARGETED INDUSTRIES LIST

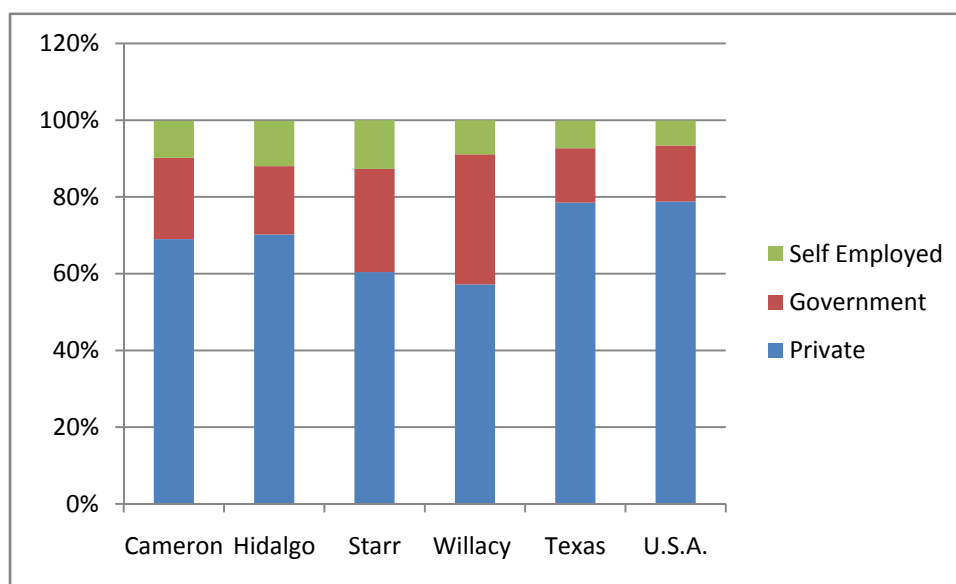
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The process of identifying target industries and target occupations begins with an analysis of the distribution of employment. It is true that the efforts of community leaders through economic development organizations and other agencies could change the employment distribution considerably;

however, **it is this current employment pattern plus the potential for growth in the foreseeable future that educators, students, and students' families must consider when making their plans.** The targeted industries and targeted occupations lists in this report are the result of the combined analysis of the current employment distribution described in Chart 3.1 and Table 3.1 plus the labor market analysis described in Section 2 of this report and the potential for growth in certain occupations as determined by the U.S. Department of Labor (see Tables 5.6 and 5.7 in Section 5 of this report).

**Employment Distribution.** Chart 3.1 shows that the majority of the civilian labor force in the Rio Grande Valley are employed in private industry. A small percentage are self-employed, and the rest are employed by government. Government employment includes cities, counties, local districts such as water districts, state agencies including colleges and universities, and federal agencies such as Immigration and Customs Enforcement, as well as the school districts. Part of the reason for the high rate of public employment is the Valley's location on the border with Mexico, which requires a substantial number of border-protection personnel such as Customs and Border Patrol agents. However, the majority of public employees are teachers, administrators and support personnel working for school districts. Self-employed individuals range from those running a one-person business out of their home to highly paid professionals who may also employ others. Employment in the private sector ranges from Home Health Aides and Cashiers, who earn about \$8.00 an hour and work less than 40 hours a week, to highly paid Chief Executive Officers and Administrators.

**Chart 3.1 Rio Grande Valley Employment by Government, Private Industry and Self-Employment in Percent**



Source: Bureau of Census: 2007-2009 American Community Estimates

Table 3.1, provides a summary picture of the distribution of employment in the Rio Grande Valley as reported by the U.S. Census Bureau's 2007-2009 American Community Survey. **However, please note that Table 3.1 does not include all the civilian labor force in the Rio Grande Valley because it includes only Cameron, Hidalgo and Starr Counties.** (Data for Willacy county are not available.) A brief examination of the data provided in Table 3.1 shows that most people employed in the Rio Grande Valley work in the Health Services and Social Assistance sectors. Other employment sectors of significance, as far as numbers of employees are concerned, are Educational Services, Retail Trade, and Leisure & Hospitality & Tourism.

**Table 3.1 Employment by Industry in Percent**

Industry	Cameron	Hidalgo	Starr	Texas	U.S.A.
Agriculture, Forestry, etc.	2.4	4.0	6.0	2.9	1.8
Construction	7.5	8.9	9.0	9.0	7.3
Manufacturing	5.8	4.3	2.9	9.7	11
Wholesale Trade	3.0	2.8	1.1	3.3	3.0
Retail Trade	12.7	15.0	11.2	11.5	11.5
Transportation, Warehousing, Utilities	5.7	5.0	5.9	5.7	5.1
Information	1.4	1.4	0.5	2.2	2.4
Finance, Insurance & Real Estate	4.1	4.5	2.9	6.9	7.0
Professional, Scientific, Management	7.7	8.4	4.5	10.6	10.5
Education, Health, Social Assistance	28.9	29.1	44.0	20.4	21.8
Arts, Entertainment, Accommodation	9.1	7.3	3.1	8.3	8.9
Other Services	5.7	5.6	4.4	5.2	4.9
Public Administration	5.9	3.8	4.6	4.2	4.7

Source: 2007-2009 American Community Survey Three-Year Estimates

One fact that is evident from these statistics is that many Valley residents are employed in Retail Trade and in Hospitality & Tourism. Unfortunately, many of the jobs in these two industries are in the lower-paying, but rapidly growing, lower end of the service sector. Retail Trade is considered low-paying because, while managers and sales representative who market big ticket items such as appliances and farm equipment can earn a very good living, sales people usually earn minimum wage and cannot depend on always being allowed to work a 40-hour week. In Hospitality & Tourism the pattern is very similar to that of Retail Trade. A few, such as managers and administrative support, may earn a good living, but most of the direct-service delivery employees, such as waiters and housekeeping staff, earn minimum wage.

**Rationale for Selection of Targeted Industries.** As stated earlier, Tech Prep's **targeted industries are those that meet** Tech Prep's criteria for selection. **Tech Prep's two criteria for selection** are as follows: (1) an industry have a comparative advantage and/or be stable, and (2) an industry must have a significant share of the Rio Grande Valley's employment and show a strong and positive growth pattern. Table 3.2 is Tech Prep's list of targeted industries. The following is a brief explanation of why each of these industries has been included in the list.

#### *1. Comparative Advantage*

- Tech Prep's targeted industries include all four of the industries with a *comparative advantage* due to this region's geography and location (see Section 1 for an explanation of *comparative advantage*). The industries with comparative advantage are Agriculture, Retail Trade, Tourism & Transportation, and Distribution & Logistics. Agriculture has a comparative advantage because of the Valley's rich land and water resources. The comparative advantage for the other three is due to the region's location on the U.S.-Mexican border and on the Gulf of Mexico, which promotes both tourism and trade. However, very few of the occupations native to these industries are included in the targeted occupations list because they are low-paying and have little or no potential for advancement.

## 2. *Growth and Stability*

- Health Services is on the targeted industries lists because it is the largest employer in the Valley as well as in the state and the nation as a whole (see Section 5). Health services occupations are also on the list of high-growth occupations and offer some of the highest salaries in the region (see Table 3.4).
- Education, Social Services & Law, Public Safety, and Corrections & Security are on the targeted industries list both because they employ a significant number of people and because their potential for growth and stability is solid. The Valley's high birth rate, poverty rate and location on the U.S.-Mexican border make it unlikely that demand for these occupations will decrease in the foreseeable future.
- The remaining industries transcend any neat categorization because while each has its own segment, these industries also cut across sectors. These industries have a consistent need for new workers due to replacement of retirees and natural growth by other industries. For example, Construction can be regarded as a standalone industry in the building of residential homes, however, most commercial construction activity is driven by growth in other industries, such as expansion of facilities for hospitals, universities, school districts, and other businesses. Business Management & Administration is another example of an industry that can stand on its own, but is also most often driven by the needs of other industries as they grow.

**Table 3.2 Tech Prep of the RGV List of Targeted Industries**

Administrative Support Services
Agriculture – Crop Production
Computer & Technical Services
Construction
Education
Health Services
Homeland Security & Law Enforcement
Hospitality & Tourism
Manufacturing
Retail Trade
Social Services
Transportation, Distribution & Logistics

## **TECH PREP'S LIST OF TARGETED OCCUPATIONS**

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Targeted occupations are drawn from targeted industries. Targeted occupations are those for which Tech Prep of the RGV encourages schools, colleges, and universities to offer education and training opportunities. These are also the occupations that students and their families are encouraged to investigate in order to make informed decisions about students' education and career plans.

**Career Clusters.** Tech Prep's Targeted Occupations List is related to Texas' Career Cluster categories as recommended by AchieveTexas. A goal of AchieveTexas, as stated by the Texas Education Agency, is to make the educational system "seamless" between high school and postsecondary institutions. To achieve this goal, the Texas Education Agency has made Career Clusters an integral part of the high

school curriculum, and colleges have developed related programs to assist students with transition. In the AchieveTexas system, students explore careers, then choose a career cluster, then shape a personalized graduation plan around this career interest. Career Clusters are groupings of occupations/career specialties used as an organizing tool for curriculum design and instruction. Occupations/career specialties are grouped into the Career Clusters based on the fact that they require a set of common knowledge and skills for career success. Table 3.3 provides a list of these Career Clusters and a brief description of each. For more information about Career Clusters, visit either the AchieveTexas website ([www.achievetexas.org/Goals.htm](http://www.achievetexas.org/Goals.htm)) or the Career Clusters Initiative website ([www.careerclusters.org](http://www.careerclusters.org)).

**Table 3.3 The 16 Career Clusters**

<b>Career Cluster</b>	<b>Description</b>
<b>Agriculture, Food &amp; Natural Resources</b>	The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.
<b>Architecture &amp; Construction</b>	Careers in designing, planning, managing, building and maintaining the built environment.
<b>Arts, A/V Technology &amp; Communications</b>	Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.
<b>Business Management &amp; Administration</b>	Business Management and Administration careers encompass planning, organizing, directing and evaluating business functions essential to efficient and productive business operations. Business Management and Administration career opportunities are available in every sector of the economy.
<b>Education &amp; Training</b>	Planning, managing and providing education and training services, and related learning support services.
<b>Finance</b>	Planning, services for financial and investment planning, banking, insurance, and business financial management.
<b>Government &amp; Public Administration</b>	Executing governmental functions to include Governance; National Security; Foreign Service; Planning; Revenue and Taxation; Regulation; and Management and Administration at the local, state, and federal levels.
<b>Health Science</b>	Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
<b>Hospitality &amp; Tourism</b>	Hospitality & Tourism encompasses the management, marketing and operations of restaurants and other foodservices, lodging, attractions, recreation events and travel related services.
<b>Human Services</b>	Preparing individuals for employment in career pathways that relate to families and human needs.
<b>Information Technology</b>	Building Linkages in IT Occupations Framework: For Entry Level, Technical, and Professional Careers Related to the Design, Development, Support and Management of Hardware, Software, Multimedia, and Systems Integration Services.
<b>Law, Public Safety, Corrections &amp; Security</b>	Planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services.
<b>Manufacturing</b>	Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.
<b>Marketing</b>	Planning, managing, and performing marketing activities to reach organizational objectives.
<b>Science, Technology, Engineering &amp; Mathematics</b>	Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.
<b>Transportation, Distribution &amp; Logistics</b>	Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

**Selection of Targeted Occupations.** Once targeted industries have been identified, the next step is to select the target occupations within those industries. It is important to reiterate that not all targeted industries will be represented in the list of targeted occupations.

Within targeted industries there are many occupations that are in high demand, but that do not offer either good pay or potential for advancement. There is a definite difference between a *demand* occupation and a *targeted* occupation.

*Demand* occupations are (as the name suggests) those occupations that have the greatest number of openings in the local economy. *Targeted* occupations are occupations that are in demand and that also pay salaries that offer income sufficient enough to help provide a good quality of life for a family. Some occupations that are in demand pay only minimum wage and therefore do not qualify as targeted occupations even though they are high-growth occupations in terms of the number of jobs available every year.

*If there is a need (demand) for lot of workers in a certain industry, then the occupations within that industry are **demand occupations**. However, just being “in demand” is not enough for an occupation to be targeted.*

***Targeted occupations** are jobs that (1) are “in demand” and (2) pay salaries that are high enough—when one considers not only starting salary, but also potential for advancement—to help provide a good quality of life for a family.*

Table 3.4 contains the listing of Tech Prep’s targeted occupations. Since this report is primarily directed to educators who have to make curriculum decisions and work with students using the Career Cluster concept described earlier in this section, the information in Table 3.4 and all further discussions of targeted occupations are divided first by career cluster. The request to arrange the tables in this manner came from educators who participated in the Tech Prep Labor Market Information Report pre-release meeting in 2009 and was incorporated into the report in 2010.

The average hourly wage information in Table 3.4 is provided to give students and their families, as well as educators, a sense of the compensation associated with each occupation. It is very important to understand that the wages shown are average wages, not entry-level wages. The entry-level wage for an occupation may be considerably lower than the average wage. Also, average wages vary from year to year, depending on the tenure of the individuals working in the occupation being surveyed. The average wages in Table 3.4 are from the May 2010 Metropolitan and Non-Metropolitan Area Occupational and Wage Estimates published by the U.S. Bureau of Labor Statistics (BLS). The BLS collects data annually through surveys completed by employers. The BLS does not collect data on all occupations for every Metropolitan Statistical Area (MSA) every year. (A Metropolitan Statistical Area is a geographic entity defined by the U.S. Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics.) Also, sometimes BLS collects data on a particular occupation just at the state or national level. In Table 3.4, the column labeled “Cameron” is actually the BLS information for the Brownsville-Harlingen MSA, and the column labeled “Hidalgo” is the BLS information for the McAllen-Edinburg-Mission MSA. Also, the table contains information for some occupations for which the data were not collected at the MSA level, or were collected for only one MSA. In those cases, the

*The wages in Table 3.4 are average wages, not entry-level wages. The entry-level wage for an occupation may be considerably lower than the average wage.*



occupations are identified in Table 3.4 by asterisks, as follows:

\* Data not collected for that MSA; using data from the other MSA;

\*\* Data collected only at the state level

\*\*\* Data not collected at all; using previous year's numbers.

**Table 3.4 Tech Prep's Targeted Occupations by Career Cluster, Education/Training and Hourly Wage**

Targeted Occupations by Career Cluster	Education/Training Required	Average Hourly Wage	
		Cameron	Hidalgo
AGRICULTURAL, FOOD AND NATURAL RESOURCES			
Veterinary Technologists & Technicians	2 years	\$16.00*	\$16.00
Welders/Cutters/Solders/Brazers	1 to 2 years	\$14.00	\$14.00*
ARCHITECTURE AND CONSTRUCTION			
Architects	Bachelor’s Degree	\$20.00	\$35.00
Carpenters	1 to 2 years: Marketable Skills Award	\$12.00	\$11.00
Construction Cost Estimators	2 years	\$26.00	\$23.00**
Construction Managers & Superintendents	2 to 4 years	\$30.00	\$26.00
Drafters	2 years + OJT or App	\$14.00	\$15.00
Electricians	HS + OJT or App	\$13.00	\$14.00
Engineers	Bachelor’s Degree	\$38.00	\$32.00
Heating, Air Conditioning/Refrigeration Mechanics and Installers	2 years + OJT	\$12.00	\$15.00
Plumbers, Pipefitters, and Steamers	HS + OJT or App	\$14.00	\$16.00
Welders/Cutters/Solders/Brazers	1 to 2 years	\$14.00	\$14.00*
ARTS, A/V TECHNOLOGY & COMMUNICATIONS			
Digital Imaging Technicians/Graphic Designers	2 years	\$14.00	\$17.00
BUSINESS MANAGEMENT & ADMINISTRATION			
Accountants and Auditors	Bachelor’s Degree	\$25.00	\$23.00
Administrative Support Clerks	High School	\$10.00	\$10.00
Secretaries: Executive/Administrative/Legal/Medical	HS to 2 yrs + OJT	\$18.00	\$19.00
EDUCATION & TRAINING			
Counselors/School	Master’s Degree	\$25.00	\$26.00**
Teachers – Various Areas	Bachelor’s Degree	\$24.00	\$25.00
Teacher Assistants	2 years	\$9.00	\$10.00
FINANCE			
Accountants and Auditors	Bachelor’s Degree	\$25.00	\$23.00
GOVERNMENT & PUBLIC ADMINISTRATION			
No individual occupations; however, many of the best Rio Grande Valley jobs in this sector are in management and administration. Please refer to the section on Business Management & Administration.			
HEALTH SCIENCES			
Biomedical Engineering Technician	2 years	\$17.00*	\$17.00
Cardiovascular Technologists & Technicians	2 years	\$23.00	\$25.00
Dental Assistant	1 to 2 years	\$12.00	\$13.00
Dental Hygienists	2 years	\$27.00	\$31.00
Dental Lab Technicians	2 years	\$15.00**	\$15.00**

Targeted Occupations by Career Cluster	Education/Training Required	Average Hourly Wage	
		Cameron	Hidalgo
Diagnostic Medical Sonographers	2 years	\$30.00	\$29.00
Emergency Medical Technicians & Paramedics	2 years	\$12.00	\$13.00
Licensed Vocational Nurse	2 to 3 years	\$21.00	\$22.00
Medical Assistants	2 to 3 years	\$10.00	\$10.00
Medical Records & Health Information Technicians	2 years	\$13.00	\$13.00*
Medical Transcriptionists	2 years	\$14.00	\$14.00*
Medical/Clinical Laboratory Technicians	2 to 4 years	\$13.00	\$13.00*
Occupational Therapists	Bachelor's Degree	\$35.00	\$43.00
Occupational Therapist Assistants	2 years	\$25.00*	\$25.00
Pharmacy Technicians	1 to 2 years + OJT	\$13.00	\$13.00
Physical Therapy Assistants	2 years	\$35.00	\$38.00
Physician Assistants	Bachelor's Degree	\$59.00	\$43.00
Radiologic Technologists/Technicians	3 years	\$21.00	\$27.00
Registered Nurse	2 to 4 years	\$33.00	\$35.00
Respiratory Therapists	3 years	\$25.00	\$28.00
Surgical Technologists	1 to 2 years	\$19.00	\$19.00
<b>HOSPITALITY &amp; TOURISM</b>			
Chefs and Head Cooks	2 years	\$13.00*	\$13.00
<b>HUMAN SERVICES</b>			
Counselors: Substance Abuse/Behavioral/Mental Health	Master's Degree	\$20.00	\$29.00
Social Workers	Bachelor's Degree	\$20.00	\$20.00
<b>INFORMATION TECHNOLOGY</b>			
Computer Programmer	2 or 4 years	\$24.00	\$29.00
Computer Support Specialists	2 years	\$17.00	\$17.00
Computer Systems Analysts	Bachelor's Degree	\$25.00	\$27.00
<b>LAW, PUBLIC SAFETY, CORRECTIONS &amp; SECURITY</b>			
Correctional Officers; Jailers	HS + OJT	\$15.00	\$14.00
Paralegals and Legal Assistants	2 years	\$21.00	\$19.00
Police/Sheriff/Patrol Officers	HS + OJT; Bachelor's Degree	\$20.00	\$21.00
<b>MANUFACTURING</b>			
Engineers	Bachelor's Degree	\$38.00	\$32.00
Engineering Technicians (Various Types)	2 years	\$18.00	\$18.00
Machinists	2 yrs or OJT or App	\$13.00	\$13.00
Tool and Die Makers	2 yrs or OJT or App	\$21.00	\$21.00*
Welders/Cutters/Solders/Brazers	1 to 2 years	\$14.00	\$14.00*
<b>MARKETING</b>			
No Individual occupations; however, many good Rio Grande Valley opportunities exist in entrepreneurship and sole proprietorship, both of which are encouraged by state initiatives including the Rio Tech Fund/Rio Grande Regional Center for Innovation & Commercialization. Other Rio Grande Valley jobs in this cluster that pay well enough to support a family are in Management & Administration. Please refer to the section on Business Management & Administration.			
<b>SCIENCE, TECHNOLOGY, ENGINEERING &amp; MATHEMATICS</b>			
Chemical and Environmental Technicians	2 years	\$20.00**	\$20.00**
Chemists	Bachelor's Degree	\$35.00	\$35.00**
Drafters	2 years + OJT or App	\$16.00	\$25.00
Engineers	Bachelor's Degree	\$38.00	\$18.00

Targeted Occupations by Career Cluster	Education/Training Required	Average Hourly Wage	
		Cameron	Hidalgo
Engineering Assistants	2 years	\$18.00	\$21.00
Mechatronics Technicians	2 years	\$12.00 - ** *\$14.00	\$10.00 - \$14.00***
<b>TRANSPORTATION, DISTRIBUTION &amp; LOGISTICS</b>			
Automotive Body & Related Repairs	2 years or HS+OJt	\$16.00	\$17.00
Automotive Service Technicians/Mechanics/Related Specialists	2 years	\$15.00	\$15.00

## EDUCATION AND TRAINING FOR TARGETED OCCUPATIONS AVAILABLE AT LOCAL COLLEGES & UNIVERSITIES

Local colleges and universities offer a great variety of education and training programs that will help students prepare for one of the targeted occupations in Table 3.4. Many of the two-year institutions are College Tech Prep programs, as illustrated in Table 3.5. This information is provided for the reader's convenience and has been reviewed by representatives of South Texas College, Texas State Technical College Harlingen, the University of Texas at Brownsville and Texas Southmost College, and the University of Texas-Pan American. **Even though this list is current as of the date of this publication, it is not meant to be an all inclusive list of the relevant programs offered by local colleges and universities.** When the time comes that students are seriously considering options for higher education, then at that time Tech Prep strongly encourages all readers to contact the appropriate post-secondary institution(s) to get the most complete and accurate information regarding any occupation of interest.

**Table 3.5 Education and Training Opportunities for Tech Prep's Targeted Occupations**

Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School	Education & Training Programs Available at Rio Grande Valley Postsecondary Institutions	Whether Tech Prep Option Is Available for High School Students
<b>AGRICULTURE, FOOD, &amp; NATURAL RESOURCES</b>		
<i>One Year or More</i>		
Welders/Cutters/Solders/Brazers	STC	No
	TSTC	No
<i>Two Years or More</i>		
Biomedical Engineering Technicians	TSTC	Yes
Veterinary Technologists & Technicians	None	N/A
<b>ARCHITECTURE &amp; CONSTRUCTION</b>		
<i>One Year or Less plus On the Job Training</i>		
Carpenters (3 semesters)	UTB/TSC	No
Electricians (3 semesters)	STC	No
	UTB/TSC	No
Heating, Air Conditioning/Refrigeration Mechanics and Installers	STC	Yes
	TSTC	Yes
	UTB/TSC	No
Plumbers & Pipefitters	STC (certificate)	No
	TSTC (Registered Apprenticeship)	No
	UTB/TSC (3 semesters)	No
	TSTC	Yes
	UTB/TSC	No

<b>Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School</b>	<b>Education &amp; Training Programs Available at Rio Grande Valley Postsecondary Institutions</b>	<b>Whether Tech Prep Option Is Available for High School Students</b>
<i>One Year or More plus On the Job Training</i>		
Construction Cost Estimators	STC	No
	TSTC	Yes
Welders/Cutters/Solders/Brazers	STC	No
	TSTC	No
<i>Two Years or More plus Experience</i>		
Carpenters	TSTC	Yes
Construction Managers and Superintendents	STC	No
	TSTC	Yes
	Experience	N/A
Drafters	STC	No
	TSTC	Yes
	UTB/TSC	Yes
<i>Bachelor's Degree (4 or more years)</i>		
Architects	UTB/TSC (two-year program that could transfer into a bachelor's program)	No
Construction Managers and Superintendents	None	N/A
Engineers	STC (two-year related AS program that could transfer into a bachelor's program)	No
	TSTC (two-year related AS program that could transfer into a bachelor's program)	No
	UTB/TSC; UTPA	N/A
<b>ARTS, A/V TECHNOLOGY &amp; COMMUNICATIONS</b>		
<i>One or Two Years</i>		
Digital Imaging Technicians/Graphic Designers	STC (two-year related AA program that could transfer into a bachelor's program)	No
	TSTC	Yes
<b>BUSINESS MANAGEMENT &amp; ADMINISTRATION</b>		
<i>High School, One Year or Two Years</i>		
Administrative Support Clerks	STC	Yes
	TSTC	Yes
	UTB/TSC	Yes
<i>Bachelor's Degree (4 or more years) Required for Best Salaries</i>		
Accountants & Auditors	STC (two-year related program but not bachelor's)	Yes
	TSTC (two-year related program but not bachelor's; also Field of Study programs in business and communication that may transfer into bachelor's degree program)	Yes
	UTB/TSC (certificate program articulates into Business Management & Technology degree program)	Yes
	UTB/TSC; UTPA (bachelor's)	N/A

Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School	Education & Training Programs Available at Rio Grande Valley Postsecondary Institutions	Whether Tech Prep Option Is Available for High School Students
<b>EDUCATION &amp; TRAINING</b>		
<i>Two or More Years</i>		
Teacher Assistants	TSTC	Yes
<i>Bachelor's Degree (4 or more years)</i>		
Teachers (Various Areas)	STC (two-year related AAT program can transfer to bachelor's)	No
	UTB/TSC; UTPA (bachelor's)	N/A
<i>Master's Degree</i>		
Counselors—School	UTB/TSC; UTPA	N/A
<b>FINANCE</b>		
<i>Bachelor's Degree (4 or more years) Required for Best Salaries</i>		
Accountants & Auditors	STC (two-year related program but not bachelor's)	Yes
	TSTC (two-year related program but not bachelor's)	Yes
	UTB/TSC (certificate program articulates into Business Management & Technology degree program)	Yes
	UTB/TSC; UTPA (bachelor's)	N/A
<b>GOVERNMENT &amp; PUBLIC ADMINISTRATION</b>		
No individual occupations/programs; however, many of the best Rio Grande Valley jobs in this area are in management or administration. Please refer to the section on Business Management & Administration.		
<b>HEALTH SCIENCE</b>		
<i>One Year or Less</i>		
Dental Assistants	TSTC	No
<i>One Year or More</i>		
Emergency Medical Technicians	STC	No
	TSTC	No
Licensed Vocational Nurses (3 semesters)	STC	No
	TSTC	No
	UTB/TSC	No
<i>Two Years or More</i>		
Biomedical Engineering Technicians	TSTC	Yes
Cardiovascular Technologists & Technicians	None	N/A
Dental Hygienists (5 or 6 semesters)	TSTC	No
Dental Laboratory Technicians (4 or 5 semesters)	TSTC	No
Diagnostic Medical Sonographers	UTB/TSC	Yes
Emergency Medical Technicians & Paramedics	STC	No
	TSTC	No
	UTB/TSC	Yes
Medical Assistants (5 semesters)	STC	No
	TSTC	Yes
Medical/Clinical Laboratory Technicians	UTB/TSC	Yes
Medical Records & Health Information Technicians (5 semesters)	STC	Yes
	TSTC	Yes

Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School	Education & Training Programs Available at Rio Grande Valley Postsecondary Institutions	Whether Tech Prep Option Is Available for High School Students
Medical Transcriptionist (4 semesters)	STC	Yes
	TSTC	Yes
Occupational Therapy Assistants	STC	No
Pharmacy Technicians	STC	No
Physical Therapy Assistants	STC	No
Radiologic Technologists/Technicians	STC	No
	UTB/TSC	Yes
Registered Nurses	STC	No
	TSTC	Yes
	UTB/TSC	No
	UTPA	No
Respiratory Therapists	STC	No
	UTB/TSC	Yes
Surgical Technologists (5 semesters)	TSTC	No
<i>Bachelor's Degree (4 or more years)</i>		
Registered Nurses	UTB/TSC;UTPA	N/A
Occupational Therapists	UTPA	N/A
Physician Assistants	UTPA	N/A
<b>HOSPITALITY &amp; TOURISM</b>		
<i>One or Two Years</i>		
Chefs & Head Cooks	STC	No
	TSTC	Yes
<b>HUMAN SERVICES</b>		
<i>Bachelor's or Master's Degree</i>		
Counselors—Substance Abuse/Behavioral/ Mental Health	UTB/TSC;UTPA	N/A
Social Workers	STC (two-year related AA program can transfer to bachelor's)	No
	UTB/TSC;UTPA	N/A
<b>INFORMATION TECHNOLOGY</b>		
<i>Two or More Years</i>		
Computer Programmers	STC	No
	TSTC	Yes
	UTB/TSC	Yes
Computer Support Specialists	STC	Yes
	TSTC	Yes
	UTB/TSC	Yes
Computer Systems Analysts	TSTC	Yes
	UTB/TSC	Yes
<i>Bachelor's Degree</i>		
Computer Systems Analysts	STC (BAT in Computer & Information Technologies)	No
	UTB/TSC; UTPA	N/A
<b>LAW, PUBLIC SAFETY, CORRECTIONS &amp; SECURITY</b>		
<i>Two Years</i>		
Paralegals and Legal Assistants	STC	Yes
	UTB/TSC	Yes
<i>High School plus OJT or Bachelor's Degree</i>		
Police/Sheriff/Patrol Officers	UTB/TSC; UTPA	N/A

Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School	Education & Training Programs Available at Rio Grande Valley Postsecondary Institutions	Whether Tech Prep Option Is Available for High School Students
<i>High School plus OJT</i>		
Correctional Officers/Jailers	High Schools	N/A
	TSTC	No
	UTB/TSC	Yes
<b>MANUFACTURING</b>		
<i>One to Two Years or OJT or Apprenticeship</i>		
Engineering Technicians (various areas)	TSTC	Yes
	UTB/TSC	Yes
Machinists	STC	Yes
	TSTC	Yes
	UTB/TSC	No
Mechatronics Technicians	STC (certificate program)	Yes
	TSTC	Yes
Tool & Die Makers	STC	Yes
	TSTC	Yes
Welders/Cutters/Solders/Brazers	STC	No
	TSTC	No
<b>MARKETING</b>		
No individual occupations; however, many good opportunities exist in entrepreneurship and sole proprietorship in this area, both of which are encouraged by state initiatives including the Rio Tech Fund/Rio Grande Regional Center for Innovation & Commercialization. Other Rio Grande Valley jobs in this cluster that pay well enough to support a family are in management or administration. Please refer to the section on business management and administration.		
<b>SCIENCE, TECHNOLOGY, ENGINEERING &amp; MATHEMATICS</b>		
<i>Two Years</i>		
Chemical & Environmental Technicians	TSTC	Yes
Drafters	STC	No
	TSTC	Yes
	UTB/TSC	Yes
Engineering Technicians (various areas)	TSTC	Yes
	UTB/TSC	Yes
Mechatronics Technicians	STC (certificate program)	Yes
	TSTC	Yes
<i>Bachelor's Degree</i>		
Chemists	STC (two-year related AS program that could transfer into a bachelor's program)	No
	TSTC (two-year AS and AAS programs; AAS graduates have secured well-paying jobs as chemists)	Yes
	UTB/TSC; UTPA	N/A
Engineers	STC (two-year related AS program that could transfer into a bachelor's program)	No
	TSTC (two-year related AS program that could transfer into a bachelor's program)	No
	UTB/TSC; UTPA	N/A

Occupations Organized by AchieveTexas Career Cluster and Also by Training Time Required after High School	Education & Training Programs Available at Rio Grande Valley Postsecondary Institutions	Whether Tech Prep Option Is Available for High School Students
<b>TRANSPORTATION, DISTRIBUTION &amp; LOGISTICS</b>		
<i>One to Two Years</i>		
Automotive Body & Related Repairs	TSTC	Yes
	UTB/TSC	No
Automotive Service Technicians/Mechanics & Related Specialists	STC	Yes
	TSTC	Yes
	UTB/TSC	No

STC = South Texas College, Hidalgo County

TSTC = Texas State Technical College, Harlingen, Cameron County, Texas

UTB-TSC = University of Texas at Brownsville-Texas Southmost College, Cameron County

UTPA = University of Texas Pan American, Edinburg, Hidalgo County, Texas

## INFORMATION REGARDING SALARY RANGES

Tech Prep's Targeted Occupations List in Table 3.4 shows salary ranges in terms of hourly wages. Some of the Job Identification Matrixes that follows quote hourly rates, others quote yearly wages, and some show both. The illustration below shows steps for salary conversions that educators can use for communicating with students and their families. The supplemental information included in Section 5 may also be helpful in discussing targeted occupations and related salaries with students and their families.

**Figure 3.1 How to Compute Salary Conversions—  
Annual, Weekly, and Hourly Salary Rates**

Part A. How to Compute an Annual Salary When Given an Hourly Salary			
<i>Steps to Be Taken</i>	<i>Example</i>		
1. Compute the weekly salary by multiplying the hourly wage by the number of hours in an average work week (40 hours).	Hourly salary	X No. of Hours	= Weekly salary
	\$14.43	X 40	= \$577.20
2. Compute the annual salary by multiplying the weekly salary by the number of weeks in a year (52 weeks)	Weekly salary	X No. of Weeks	= Annual Salary
	\$577.20	X 52	= \$30,014.40
Part B. How to Compute an Hourly Salary When Given an Annual Salary			
<i>Steps to Be Taken</i>	<i>Example</i>		
1. Compute the weekly salary by dividing the annual salary by the number of weeks in a year (52 weeks)	Annual salary	÷ No. of Weeks	= Weekly salary
	\$22,000.00	÷ 52	= \$423.08
2. Compute the hourly salary by dividing the weekly salary by the number of hours in an average work week (40 hour)	Weekly salary	÷ No. of Hours	= Hourly Salary
	\$423.08	÷ 40	= \$10.58



## COLLEGE TECH PREP PROGRAM INFORMATION

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*The Law Governing College Tech Prep Programs.* Tech Prep programs are governed by both federal law (Carl D. Perkins Career and Technical Education Improvement Act of 2006, plus other laws governing programs offered in public institutions of secondary and post-secondary education) and state law (Texas Education Code Chapter 61, Subchapter T, and other laws applicable to Texas' public education institutions).

*College Tech Prep Encourages Students to Pursue Further Education and Rewarding Careers.* Students pursuing College Tech Prep programs of study begin acquiring work-related skills AND earning college credit while they are still in high school. Highly versatile, challenging, hands-on, and responsive to current trends in local industry, College Tech Prep programs blend the rigorous academic courses needed for success in college with the work-related career and technical education courses that begin to prepare students for careers. After high school graduation, Tech Prep students can continue their education in a community or technical college, receiving further technical training, certification, or an associate degree that can lead directly to rewarding work, prepare students for continuing education, or both. Many agreements are in place that allow students who graduate from colleges' certificate and associate degree programs to continue their education into baccalaureate and graduate programs.

*College Tech Prep Makes Good Sense.* Times have changed. More than ever, for today's youth to be successful, they must be properly prepared—prepared to make wise decisions and, often, prepared with specialized technical skills and training. Tech Prep students have the opportunity to explore career options early. In this hands-on, challenging environment students discover their own interests and skills and experience practical, real-world ways to pursue their goals in a wide variety of high-skill, high-wage technical careers. Through their high school experiences, students learn important social skills and a positive work ethic, and they gain the motivation and confidence to be successful in their future chosen careers. Because College Tech Prep programs are offered at local colleges and lead to good jobs in the Rio Grande Valley, students can stay close to home through high school, college, and into their local world of work—an important benefit for their families and the community.

*Benefits of Participating in College Tech Prep Programs.* Participating in College Tech Prep programs provides many benefits, including the following:

- Students and their families can save time and money on college by getting a head start on college while students are in high school.
- The academic and career technical dual and concurrent-enrollment courses and articulated courses included in Tech Prep programs of study can help satisfy Distinguished Achievement Program advanced measures. To learn more, see Texas Education Code Section 74.54(d)(3) at this link: <http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074e.html>
- Students who qualify can earn graduation honors as Tech Prep Texas Scholars and become eligible to compete for the Dr. Lauro F. Cavazos Tech Prep Scholarships. See:
  - <http://www.techpreprgv.com/students/texasscholars.html>
  - <http://www.techpreprgv.com/students/scholarships.html>
- Graduating as a Tech Prep Texas Scholar can help a student qualify for other financial incentives offered by the state of Texas.

*College Tech Prep Has Proven Results.* Research shows that Tech Prep high school students have higher attendance rates, higher graduation rates, and lower dropout rates; these students also go on to college at higher rates than their non-Tech Prep counterparts. To learn more, review the performance data for Rio Grande Valley Tech Prep students included in Tech Prep's Annual Report for 2010. Tech Prep's annual report can be viewed online at <http://www.techpreprgv.com/downloads.shtml>.)

*How College Tech Prep Works.* College Tech Prep works for students by providing the life goals, clear education pathways, academic training, technical expertise, and social skills needed to successfully identify, and prepare to enter, high-skill, high-wage careers. By reaching students early, Tech Prep offers important information, understanding, and real-world feedback about personal strengths, talents, and goals so that students are informed and prepared to make wise choices.

*College Tech Prep Saves Students and Their Families Time and Money.* Because Tech Prep students can get college credit for coursework they finish in high school, they have the opportunity to reach their educational and career goals in a much shorter time. Students who plan carefully and use their elective choices wisely can graduate from high school with a significant number of college credit hours, perhaps having even completed the requirements for a post-secondary certificate or associate degree.

There are technical distinctions between articulated and dual-credit courses, and parents and students need to understand the advantages and disadvantages of both. (Both types of courses can be, and are, included in College Tech Prep programs. Contact the Tech Prep of the RGV offices for additional information.) With the rising costs of tuition, fees, and books, participating in College Tech Prep programs in high school can be an excellent way for students to save time and money on the long-term cost of a college education.

*Students Can Go as Far as They Want!* Whether students are interested in going on to a university for further education, a community college for additional coursework, a certificate or an associate degree, or directly into the workforce, College Tech Prep programs offer numerous ways for them to follow their chosen path and reach their goals. Even for students who want to wind up with doctorate degrees, beginning through a Tech Prep program of study can be a great way to start!

*College Tech Prep Graduation Plans.* College Tech-Prep programs operate through six- or eight-year graduation plans that are collaboratively developed by school district and college partners with input of employers and universities. All of these plans lead to two-year associate of degrees. Many also provide exit points at which students can qualify for certificates, and many programs also provide the opportunity to continue into baccalaureate programs. The format of a Tech-Prep program of study six-year graduation plan is illustrated in Figure 3.2.

To see the Tech Prep programs of study that are currently available in the Rio Grande Valley, visit the Tech Prep website (<http://www.techpreprgv.com/educators/articulation.html>).

**Figure 3.2 College Tech Prep Plan for Program of Study**

Subject Area	Four Years of High School				Two Years of College (Based on the College Curriculum, with Credit Earned through Academic or Career Technical Dual/Concurrent Enrollment plus Advanced Technical Credit or Locally Articulated Courses)			
	Grade 9	Grade 10	Grade 11	Grade 12	Year 1— First Semester	Year 1— Second Semester	Year 2— First Semester	Year 2— Second Semester
English (4 credits)	<p>This side of the plan shows the high school courses, year by year. These courses emphasize academic rigor, according to the Recommended High School Program or the Distinguished Achievement Program.</p> <p>Students earn college credit for high school courses through academic dual/concurrent enrollment, AP courses, technical dual enrollment courses, locally articulated courses, and Advanced Technical Credit (ATC), statewide-articulated courses, as well as contract-instruction courses offered by special agreements made between school districts and colleges.</p>					<p>This side of the plan shows the college curriculum along with the college courses for which high school students have qualified for college credits by making good choices and performing well in their high school coursework.</p> <p>In the actual graduation plans for the various programs (available for viewing through links on the Tech Prep of the RGV website) notations are included to identify those courses for which high school students can qualify for college credits.</p>		
Mathematics (4 credits)								
Science (4 credits)								
Social Studies (4 credits)								
Foreign Language (2 or 3 credits—3 credits for the Distinguished Achievement Program [DAP])								
Physical Education (1 credit)								
Fine Arts (1 credit)								
Speech (0.5 credit)								
Electives (5.5 or 4.5 credits—4.5 for DAP)—the career technical courses incorporated into Tech Prep programs of study become part of students' electives in their high school graduation plans)								

Six-year Tech Prep plans can become eight-year graduation plans when students transition into the baccalaureate options available through universities both inside and outside of this region. To learn more about opportunities for transferring from a Tech Prep college programs into baccalaureate programs, contact the Tech Prep of the RGV offices.

*Relationship Between College Tech Prep Programs and Targeted Occupations.* The College Tech Prep programs offered by South Texas College, Texas State Technical College Harlingen, and the University of Texas at Brownsville and Texas Southmost College can help prepare students to enter one or more of the jobs listed in the targeted occupations list that appears in Table 3.4. Table 3.5—shows these relationships.

## COMPARISON OF TECH PREP'S TARGETED INDUSTRIES AND OCCUPATIONS WITH THOSE OF THE WORK INVESTMENT BOARDS AND VIDA

Table 3.6 contains a list of targeted industries identified in the 2011 update of Tech Prep of the RGV's labor market report as well as comparison with the targeted industries identified by this region's two workforce development boards (WIDs) and the Valley Initiative for Development and Advancement (VIDA). The comparison is provided for two reasons: (1) to identify any significant differences

between Tech Prep’s analysis and that of three other important agencies in the Valley; and (2) to identify any similarities that might alert students to possible sources of assistance for continuing education after high school. As illustrated in Table 3.6, there are few significant differences between Tech Prep’s targeted industries and those of the other three agencies. Some of the differences have to do with the populations that these organizations serve. Workforce boards and VIDA are targeting jobs for which adults and older youth can prepare in a relatively short period of time. Tech Prep of the RGV and its educator partners are working with young people and their families on the long-term education-and career planning and preparation that is required for these young peoples’ lives as adults. When not only the targeted industries, but also the targeted occupations for workforce boards and/or VIDA are similar to Tech Prep’s lists, students who are preparing to graduate from high school and transition into higher education may be alerted to contact one of the other agencies to discuss the possibility of any support for continuing education or training that may be available through those organizations.

To learn more about VIDA, visit them on the web at <http://www.vidacareers.org>, or contact their offices at 956.973.8600 or 1.800.478.1770. The workforce development districts’ targeted industries lists are intended to demonstrate the most critical labor shortages or skill needs in local businesses in key industries, or industry clusters that drive the local economy. To obtain additional information about studies conducted by workforce boards, visit their websites or contact the boards’ labor market information specialists at their offices, as follows:

Workforce Solutions Cameron	<a href="http://www.cameronworks.org/">http://www.cameronworks.org/</a>	956.548.6700
Workforce Solutions	<a href="http://www.wfsolutions.com">http://www.wfsolutions.com</a>	956.928.5000

**Table 3.6 Comparison of Tech Prep’s Targeted Industries with the Two Workforce Solutions Boards and VIDA**

<b>Tech Prep of the RGV</b>	<b>Workforce Solutions Cameron</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy)</b>	<b>Valley Initiative for Development and Advancement (VIDA)</b>
Administrative Support Services	Administrative Support Services	Business and Professional Services	Business Services
Agriculture – Crop Production		Alternative Energy	
Computer & Technical Services	Computer & Technical Services		Computer & Technical Services / Technology
Construction	Construction	Construction – Skilled Trades	Construction
Education	Education	Education	Education
	Financial Services		
Health Services	Health Services	Healthcare	Health Services / Allied Health
Homeland Security & Law Enforcement	Homeland Security & Law Enforcement	Criminal Justice / Homeland Security	Homeland Security & Law Enforcement
Hospitality & Tourism	Hospitality & Tourism		
Manufacturing	Advanced Technology & Manufacturing	Advanced Manufacturing, Logistics, and Related	Manufacturing
Retail Trade			
Social Services			Social Services
			Specialized Trades
Transportation, Distribution & Logistics	Transportation, Distribution & Logistics		Transportation, Distribution & Logistics

Table 3.7 provides a comparison of Tech Prep’s targeted occupations with those of Workforce Solutions Cameron, Workforce Solutions, and VIDA. These lists share some commonalities, but they are not identical. The differences in the lists have to do primarily with the nature of the target audiences for whom the lists are intended. Workforce boards and VIDA are targeting jobs for which adults and older youth can prepare in a relatively short period of time. Tech Prep of RGV and its educator partners are working with youngsters on the long-term education-and-career planning required for success as adults. For students who will be graduating from high school and transitioning into higher education in this region, workforce boards and VIDA may sometimes offer assistance for continuing education. In some situations, assistance for continuing education and training might also be available for students’ family members through one of these agencies. For additional information, contact the workforce boards or VIDA directly.

**Table 3.7 Comparison of Targeted Occupations Lists**

<b>Tech Prep 2011</b>	<b>Workforce Solutions (Cameron) 2011</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy) 2011</b>	<b>Valley Initiative for Development &amp; Advancement (VIDA) 2011</b>
<b>Agriculture, Food &amp; Natural Resources</b>			
Biomedical Engineering Technicians			Biomedical Engineering Technicians
Veterinary Technologists & Technicians			
Welders/Cutters/Solders & Brazers	Welders/Cutters/Solders & Brazers	Welders/Cutters/Solders & Brazers	Welding Technicians with AAS Degree
<b>Architecture &amp; Construction</b>			
Architects			
			Building Construction Technician
Carpenters		Carpenters	Carpenters
	Construction & Building Inspectors (Energy Assessment Auditors)	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	
Construction Cost Estimators			
Construction Managers & Superintendents			
Drafters			Drafters
Electricians	Electricians	Electricians	Electrician Apprenticeships
Engineers			
Heating, Air Conditioning/Refrigeration Mechanics/Installers	Heating, Air Conditioning/Refrigeration Mechanics/Installers	Heating, Air Conditioning/Refrigeration Mechanics/Installers	Heating, Ventilation, Air Conditioning/Refrigeration Mechanics/Installers
	Insulation Workers, Floor, Ceiling and Wall (Foam Insulation)		
		Operating Engineers and Other Construction Equipment Operators	

<b>Tech Prep 2011</b>	<b>Workforce Solutions (Cameron) 2011</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy) 2011</b>	<b>Valley Initiative for Development &amp; Advancement (VIDA) 2011</b>
Plumbers & Pipefitters	Plumbers, Pipefitters & Steamers	Plumbers, Pipefitters & Steamers	
Welders/Cutters/Solders & Brazers	Welders/Cutters/Solders & Brazers	Welders/Cutters/Solders & Brazers	Welding Technicians with AAS Degree
<b>Arts, A/V Technology &amp; Communications</b>			
Digital Imaging Technicians/Graphic Designers			Digital Imaging Technicians with AAS Degree
	Telecommunication Line Installer/Repair		
			Telecommunications Technicians with AAS Degree
<b>Business Management &amp; Administration</b>			
Accountants & Auditors	Accountants & Auditors	Accountants & Auditors	
		Bookkeeping, Accounting, and Auditing Clerks	Accounting Clerks/Techs with AAS Degree
	Administrative Services Manger		
Administrative Support Clerks	Administrative Support Clerks		
	Business Operations Specialists	First-Line Supervisors/Managers of non-Retail Sales Workers	
	Customer Service Representatives	First-Line Supervisors/Managers of Office & Administrative Workers	Marketing
	Managers, General Operations	General & Operations Managers	Management, Office Management
	Receptionists & Information Clerks	Billing and Posting Clerks and Machine Operators	
Secretaries: Executive/Administrative/Legal/Medical	Secretaries: Executive and Administrative Assistants	Executive Secretaries and Administrative Assistants	Secretaries: Legal/Medical/Office Specialist with AAS Degree
		Customer Service Representatives	
<b>Education &amp; Training</b>			
Counselors—School		Child, Family, and School Social Workers	
Teachers—Various Areas	Teachers – Secondary, Elementary, and Preschool	School Teachers – Preschool, Kinder, Elementary, Middle School, Secondary, Vocational, Special Education, Vocational Ed Teachers, and Secondary School	Teachers

<b>Tech Prep 2011</b>	<b>Workforce Solutions (Cameron) 2011</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy) 2011</b>	<b>Valley Initiative for Development &amp; Advancement (VIDA) 2011</b>
	Child Care Workers	Vocational Education Teachers, Secondary School	Child Care & Development Teachers-Elementary AAS
Teacher Assistants	Teacher Assistants	Teacher Assistants	Teacher Assistants with AAS Degree-
<b>Finance</b>			
Accountants & Auditors	Accountants & Auditors	Accountants & Auditors	
	Financial Managers		
<b>Government &amp; Public Administration</b>			
No individual occupations; however, many of the best Rio Grande Valley jobs in this area are in management or administration. Please refer to the section on Business Management & Administration.			
<b>Health Science</b>			
Biomedical Engineering Technician			Biomedical Engineering Technicians
Cardiovascular Technologists & Technicians	Cardiovascular Technologists & Technicians		
Dental Assistants			Dental Assistants
Dental Hygienists			Dental Hygienist
Dental Lab Technicians			Dental Lab Technicians
Diagnostic Medical Sonographers			Diagnostic Medical Sonographers
Emergency Medical Technicians & Paramedics	Emergency Medical Technicians	Emergency Medical Technicians and Paramedics	Emergency Medical Technicians
	Home Health Aides		
Licensed Vocational Nurses	Licensed Vocational Nurse	Licensed Practical and Licensed Vocational Nurse	Licensed Vocational Nurse
	Managers-Medical & Health Sciences	Medical & Health Services Managers	
Medical Assistants	Medical Assistants		Medical Assistants
	Medical and Public Health Social Workers		
Medical/Clinical Laboratory Technicians			Medical/Clinical Laboratory Technicians
Medical Records & Health Information Technicians	Medical Records & Health Information Technicians	Medical Records & Health Information Technicians	Medical Records & Health Information Technicians, Medical Coding Specialists
Medical Transcriptionists		Medical Secretaries	Medical Transcriptionists
Occupational Therapists		Secretaries, Except Legal, Medical, and Executive	
Occupational Therapy Assistants			Occupational Therapy Assistant
	Nursing Aides, Orderlies & Attendants		
	Personal Home Health Aides		

<b>Tech Prep 2011</b>	<b>Workforce Solutions (Cameron) 2011</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy) 2011</b>	<b>Valley Initiative for Development &amp; Advancement (VIDA) 2011</b>
Pharmacy Technicians	Pharmacy Technicians	Pharmacy Technicians	Pharmacy Technicians AAS
Physical Therapy Assistants		Physical Therapy Assistants	Physical Therapy Assistants
Physician Assistants			
Radiologic Technologists and Technicians	Radiologic Technologists and Technicians	Radiologic Technologists and Technicians	Radiologic Technologists and Technicians
Registered Nurses	Registered Nurses	Registered Nurses	Registered Nurses BSN & A.D.N.
Respiratory Therapists		Respiratory Therapists	Respiratory Therapists
Surgical Technologists			Surgical Technologists
<b>Hospitality &amp; Tourism</b>			
Chefs and Head Cooks	Chefs and Head Cooks		
<b>Human Services</b>			
Counselors—Substance Abuse/Behavioral/Mental Health			
Social Workers	Child Family and School Social Workers		Social Workers with AAS Degrees
	Social and Human Service Assistants		
<b>Information Technology</b>			
Computer Programmers			Computer Science – Software Development
Computer Support Specialists	Computer Support Specialists	Computer Support Specialists	Computer Support Specialists
			Computer Specialties; Web Development; Webmasters; Multimedia Specialists & Geographic Information Systems
Computer Systems Analysts			Computer Systems Management
			Computer Network and Security Technology
	Network & Computer Systems Administrators		Network Specialist
<b>Law, Public Safety, Corrections &amp; Security</b>			
Correctional Officers; Jailers		Correctional Officers; Jailers	Correctional Officers; Jailers
Paralegals & Legal Assistants			Paralegals & Legal Assistants
Police/Sheriff/Patrol Officers	Police/Sheriff/Patrol Officers	Police/Sheriff/Patrol Officers	Police/Sheriff/Patrol Officers
		First-Line Supervisors/Managers of Police & Detectives	
<b>Manufacturing</b>			
Engineers			
			Precision Manufacturing Technicians



<b>Tech Prep 2011</b>	<b>Workforce Solutions (Cameron) 2011</b>	<b>Workforce Solutions (Hidalgo, Starr &amp; Willacy) 2011</b>	<b>Valley Initiative for Development &amp; Advancement (VIDA) 2011</b>
Engineering Technicians (Various Types)			
		First-Line Supervisors/Managers of Production & Operating Workers	
Machinists			Machinists
	Maintenance & Repair Workers, General	Maintenance & Repair Workers, General	
Mechatronics Technicians			Mechatronics Technicians
Tool and Die Makers			Tool and Die Makers
Welders/Cutters/Solders/Brazers	Welders/Cutters/Solders/Brazers	Welders/Cutters/Solders/Brazers	Welders/Cutters/Solders/Brazers
<b>Marketing</b>			
No individual occupations; however, many good opportunities exist in entrepreneurship and sole proprietorship in this area, both of which are encouraged by state initiatives including the Rio Tech Fund/Rio Grande Regional Center for Innovation & Commercialization. Other Rio Grande Valley jobs in this cluster that pay well enough to support a family are in management or administration. Please refer to the section on Business Management & Administration.			
<b>Science, Technology, Engineering &amp; Mathematics</b>			
Chemical & Environmental Technicians			Chemical & Environmental Technicians
Chemists			
Drafters			Computer Aided Drafters – Architectural, Civil Drafting
Engineers			
Engineering Technicians	Engineering Technicians		
Mechatronics Technicians			Mechatronics Technicians
<b>Transportation, Distribution &amp; Logistics</b>			
			Aviation
Automotive Body & Related Repairs		Automotive Service Technicians and Mechanics	Automotive Body & Related Repairs
Automotive Service Technicians, Mechanics & Related Specialists		Bus & Truck Mechanics; Diesel Engine Specialists	Automotive Service Technicians, Mechanics & Related Specialists
		Shipping, Receiving, and Traffic Clerks	Import/Export, Logistic
	Truck Drivers-Heavy Tractor Trailers		Truck Drivers CDL

## **JOB IDENTIFICATION MATRIX**

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The job identification matrixes that follow provide a summary of information about each particular job in a format suitable for educators to use in working with students, parents, and family members to help them make good education and career decisions. There is one matrix for each of the targeted occupations included in Table 3.4. Each matrix contains information about the job itself, skills and preparation needed, Rio Grande Valley employment opportunities and salary potential, places to get the education and training necessary, and Tech Prep programmatic connections.

*How to Obtain Additional Information:* More detailed information about each of these occupations can be found in the Occupational Outlook Handbook that is provided online by the U.S. Department of Labor at the web address shown below. In this handbook it is possible to search according to the name of the occupation and gain a great deal of useful information. The web address for the Department of Labor's Occupational Outlook Handbook is as follows: <http://www.bls.gov/oco>.

# **JOB IDENTIFICATION MATRIX—ACCOUNTANTS & AUDITORS**

## **WHAT CAN I DO?**

You could begin as an entry-level accountant or auditor at an accounting firm or work in a related occupation; for example, you might begin work as being an appraiser, a budget officer, a loan officer, a financial analyst or manager, a bank officer, an IRS or FBI agent, a stock broker, or a purchasing agent. You could also teach accounting at the high school or college level.

## **WHAT CAN I BECOME?**

You could become a Certified Public Accountant (CPA) and own your own business or be a partner in a firm. You might also become a leader in another, related profession.

## **WHAT SKILLS DO I NEED?**

- Mathematics: Using mathematics to solve problems.
- Information Organization: Structuring or classifying multiple pieces of information.
- Management of Financial Resources: Determining how money will be spent and accounting for expenditures.
- Judgment and Decision-Making: Weighing the relative costs and benefits of a potential action.
- Reading Comprehension: Understanding what you read so that you can make decisions and help solve problems either before or after they occur.
- Problem Identification: Identifying the nature of problems.
- Information Gathering: Knowing how to find information and to identify essential information.
- Identifying Consequences: Determining the long-term outcomes of a change in operations.
- Communication: Helping coworkers and clients understand decisions that are made or need to be made, and to understand actions that are taken or that need to be taken.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Bachelor's degree in accounting. After you've worked for awhile, you'll want to consider returning to school to earn an MBA and also sitting for the CPA exam. To be eligible to sit for the CPA exam, you must have 150 college hours with 30 hours in accounting.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics (which helps develop your critical thinking and problem-solving skills) and English (which helps with reading comprehension and communication) all four years of high school. Take other business-related courses offered by your school, and participate in student clubs to develop your communication and leadership skills. Begin college in high school with Tech Prep, in a program related to accounting and business.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In a public accounting firm, you will begin earning \$32,000 to \$35,000 a year, depending on grades and interview skills. Long-term, you could earn \$45,000 a year, \$75,000 a year, or even more. For example, the salary for a staff accountant at one school district is \$45,076 for a 226-day calendar.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are hundreds of new jobs for accountants and auditors in the Valley every year. There is far more demand than supply of experienced accountants.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Accounting firms, banks, corporations, school districts, colleges and universities, government offices.

# **JOB IDENTIFICATION MATRIX—ADMINISTRATIVE SUPPORT CLERKS, VARIOUS TYPES**

## **WHAT CAN I DO?**

Begin as a general office clerk, a receptionist, a secretary, or an administrative support staff.

## **WHAT CAN I BECOME?**

You can become an Administrative Assistant, an Executive Secretary, a Legal or Medical Secretary, an Office Manager, Small-Business Owner, or a related occupation. Many people have begun careers as administrative support staff and then moved on to professional positions in which they had support staff working for them!

## **WHAT SKILLS DO I NEED?**

- Service Orientation: Actively looking for ways to help people.
- Active Listening: Listening to what other people are saying and asking questions as appropriate.
- Speaking: Talking to others in a way that communicates clearly and effectively conveys information.
- Computer Skills: Word processing, spreadsheets, presentation graphics, simple desktop publishing.
- Problem Identification: Identifying the nature of problems.
- Resources and Information: Knowing how to find and organize resources and information, including designing forms to keep an office organized.
- Interpersonal: working in teams, teaching new skills to others, serving clients and customers in ways that satisfy them, exercising leadership, negotiating, and working well with people from diverse backgrounds; customer-service skills.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Preparation required varies from industry to industry, ranging from a high school diploma or its equivalent to a postsecondary certificate and/or an associate degree.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics (which helps develop your critical thinking and problem-solving skills) and English (which helps with reading comprehension and communication) all four years of high school. Take business and secretarial courses offered by your school, and participate in student clubs and competitions to help develop your leadership and communication skills as well as technical skills. Begin college in high school with Tech Prep in a program related to office administration and business.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

The salary depends on the industry. Your starting salary might be around \$18,000 to \$20,000 per year. With experience, your yearly earnings might be \$30,000 per year—or even more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are thousands of these jobs available in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

The Hospitality industry has a tremendous need for administrative support staff; however, every business that has an office needs administrative support professionals to run it. You could research an industry, select the field that interests you, and enter that field through this profession.

# **JOB IDENTIFICATION MATRIX—ARCHITECTS**

## **WHAT CAN I DO?**

You can begin as an architect and ultimately become a licensed Registered Architect. Architects design buildings that people or organizations want and need. The architect has to consider the appearance of buildings and other structures, and also be responsible for making buildings functional, safe, and economical.

## **WHAT CAN I BECOME?**

You can work for an architectural firm or go into business for yourself as an owner. If you own your own business, include the cost of liability insurance, which will be needed for this profession, in your business plan. Your earnings will be significantly greater if you become a Licensed Architect, but doing so will take ten years. (See Educational Experiences below.) You could also, with appropriate education, teach architecture.

## **WHAT SKILLS DO I NEED?**

Architects must be able to communicate their ideas visually to their clients. Artistic and drawing ability, visual orientation, and the ability to conceptualize and understand spatial relationships are all important elements of this communication process. Good verbal communication and listening skills, the ability to work independently or as part of a team, and creativity are important qualities for anyone interested in becoming an architect. Computer literacy also is required for writing specifications, for two- and three-dimensional drafting, and for financial management. Knowledge of Computer-Aided Drafting (CAD) is essential. Most schools now teach students CAD programs and methods that adhere to the National CAD Standards.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

A five-year baccalaureate degree, once standard preparation for a career as an architect, is being phased out and will be gone in the near future. The path is now a four year Bachelor's degree PLUS a mandatory two-year Master's degree, both in either Architecture or Environmental Design. To become a licensed Registered Architect, you must complete a three-year internship working under the direct supervision of a Registered Architect, then complete a minimum six-month license-application process, then complete the licensing exam, which will require a year for completion (the exam, which takes several days to complete, is given in two parts, with one-half of the exam given every six months.) If you want to work in the Valley, you should also acquire the skills needed to establish and manage your own business, including handling litigation if you are sued.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics, English, and science all four years of high school. It is also essential that you take art. Work to develop excellent communication skills (listening, speaking, presentation skills), and take architecture-related courses such as drafting and computer applications. Also take courses related to business ownership, business management, and accounting. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$30,000 or more to begin with and, with experience, could earn a maximum of \$40,000 per year prior to becoming licensed. Licensed Architects earn around \$60,000 per year average. People who own their own businesses can enjoy tremendous profits or face tremendous difficulties, depending on the local economic climate, the architectural specialization, and the client "following."

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a need for architects in this region, but the number of annual job openings is small. If you want to be an architect and live and work in the Valley, be prepared to set up and manage your own business.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Although there are a few architectural firms large enough to hire other architects, many of this region's architects are self-employed.

# **JOB IDENTIFICATION MATRIX—AUTOMOTIVE BODY AND RELATED REPAIRERS**

## **WHAT CAN I DO?**

Automotive body repairers use special equipment to restore damaged metal frames and body sections. Repairers chain or clamp frames and sections to alignment machines that use hydraulic pressure to align damaged components. “Unibody” vehicles—designs built without frames—must be restored to precise factory specifications for the vehicle to operate correctly. To do so, repairers use benchmark systems to make accurate measurements of how much each section is out of alignment, and hydraulic machinery to return the vehicle to its original shape. These workers paint vehicles, estimate costs to repair vehicles, and perform other duties required to keep the bodies of vehicles in first-class condition.

## **WHAT CAN I BECOME?**

You can work as an employee in a car dealership or automotive repair business, open your own business, or work for an insurance company as a damage estimator or insurance adjuster.

## **WHAT SKILLS DO I NEED?**

You must have good reading ability and good mathematics and computer skills. Restoring unibody automobiles to their original form requires body repairers to follow instructions and diagrams in technical manuals in order to make precise three-dimensional measurements of the position of one body section relative to another. You also need strong interpersonal communication skills, critical-thinking skills, and good work ethics.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Plan to complete a formal training program in automotive body repair or refinishing in high school and at a two-year college. Expect to continue your education through on-the-job training, supplemented with short-term training sessions given by vehicle, parts, and equipment manufacturers, when available. Training is necessary because advances in technology have greatly changed the structure, components, and materials used in automobiles. As a result, proficiency in new repair techniques is necessary. Certification by the National Institute for Automotive Service Excellence (ASE) is recommended to help you get the best job possible. The industry is also beginning to request I-CAR (Inter-Industry Training on Auto Collision Repair) training.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics and English in all four years of high school, along with computer courses. Take career and technology courses such as computer applications and, if the courses are available, automotive body repair courses offered by your school. Also take courses related to business ownership, business management, and accounting. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You could earn \$20,000 or more per year at the beginning of your career. As you gain experience, earnings will increase so that you could earn \$30,000 or more per year.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are hundreds of jobs for automotive body repairers in this region. You might also consider preparing to own your own business.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Car dealerships, auto body repair shops, and insurance companies.

# **JOB IDENTIFICATION MATRIX—AUTOMOTIVE SERVICE TECHNICIANS / MECHANICS / RELATED SPECIALTIES**

## **WHAT CAN I DO?**

Automotive mechanics and service technicians inspect, maintain, and repair automobiles and light trucks, such as vans and pickups, with gasoline engines. Service technicians now have jobs that are so “high-tech” that the term “mechanic” is falling into disuse. Today, integrated electronic systems and complex computers run vehicles and measure their performance while on the road. Technicians must have an increasingly broad base of knowledge about how vehicles’ complex components work and interact, as well as the ability to work with electronic diagnostic equipment and computer-based technical reference materials. The ability to diagnose the source of a problem quickly and accurately requires good reasoning ability and a thorough knowledge of automobiles. Many technicians consider diagnosing hard-to-find troubles one of their most challenging and satisfying duties.

## **WHAT CAN I BECOME?**

You can begin as an employee of a car dealership, automotive repair shop, business, school, or other agency and eventually supervise a department or a shop. You might also have your own business.

## **WHAT SKILLS DO I NEED?**

You need strong communication and analytical skills, mechanical aptitude, and knowledge of how automobiles work. You will be reading technical manuals and applying critical-thinking and problem-solving skills. You will use computer hardware and software, and you will be required to locate and utilize information in web-based resources such as technical manuals, manufacturers’ service information, technical service bulletins, and other databases that allow technicians to keep current on problem spots and to learn new procedures. You will use a variety of tools, and you must have strong work ethics, customer-service skills, and the ability to work in teams.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Most employers prefer to hire workers who have successfully completed an automotive service technology training program. Students who complete Automotive Youth Education Service (AYES) programs in high school will be prepared to continue into college programs, and some high school completers may qualify for entry-level technician positions. The Accrediting Commission of Career Schools and Colleges of Technology (ACCSCCT) provide ASE certification for schools. ASE, a nationally recognized, voluntary standard, signifies that the program meets uniform standards for instructional facilities, equipment, staff credentials, and curriculum.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in automotive repair, electronics, physics, chemistry, English, computers, and mathematics provide a good educational background for this career. Also take courses related to business ownership, business management, and accounting, and get a head start on college through Tech Prep. Experience working on motor vehicles as a hobby is also valuable.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You could earn \$20,000 to \$30,000 per year at the beginning of your career. As you gain experience, earnings will increase so that you could earn over \$30,000 per year, or you might own your own business.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are hundreds of jobs for service technicians and mechanics in this region.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Automobile repair shops, new and used-car dealers, auto and home supply stores, schools, colleges, local governments that operate automobile fleets, and stores that have automobile-repair shops.

# **JOB IDENTIFICATION MATRIX—BIOMEDICAL ENGINEERING TECHNICIANS**

## **WHAT CAN I DO?**

As a Biomedical Technician, you maintain, adjust, calibrate and repair electronic, electromechanical and hydraulic equipment. You use various tools including multimeters, specialized software and computers designed to communicate with specific pieces of hardware. You work on medical equipment such as defibrillators, heart monitors, medical imaging equipment (x-rays, CAT scanners, and ultrasound equipment), voice-controlled operating tables and electric wheelchairs. You must maintain careful, detailed logs of all maintenance and repairs you perform on each type of equipment you work on.

## **WHAT CAN I BECOME?**

With additional training and education, you advance to a career as a biomedical engineer who designs and develops medical equipment and instruments or adapts computers to medical science.

## **WHAT SKILLS DO I NEED?**

- Ability to read and understand technical manuals
- Good motor skills and acute vision
- Enjoy problem-solving and disassembling machines
- Detail-oriented
- Be able to work with minimal supervision

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

- Colleges and universities offer formal training in both 2- and 4-year programs leading to an associate or bachelor's degree
- May also train in manufacturer training classes, or through on-the-job training
- Certification is voluntary and can be obtained through the International Certification Commission and the Association for the Advancement of Medical Instrumentation

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in health, biology, mathematics, computers, and physics are helpful. Courses in electronics will also help to prepare you for this field.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Biomedical Technicians nationwide were \$37,232 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Higher than average

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Six local hospitals want to hire these workers. They may also find employment in large clinics and other settings that utilize biomedical equipment.



# JOB IDENTIFICATION MATRIX—CARDIOVASCULAR TECHNOLOGISTS AND TECHNICIANS

## WHAT CAN I DO?

Cardiovascular technologists and technicians assist physicians in diagnosing and treating cardiac (heart) and peripheral vascular (blood vessel) ailments. Cardiovascular technologists may specialize in any of three areas of practice: invasive cardiology, echocardiography, and vascular technology. Cardiovascular technicians who specialize in electrocardiograms (EKGs), stress testing, and Holter monitors are known as *cardiographic technicians*, or *EKG technicians*. Cardiovascular technologists specializing in invasive procedures are called *cardiology technologists*. Those who assist physicians in the diagnosis of disorders affecting the circulation are known as *vascular technologists* or *vascular sonographers*.

## WHAT CAN I BECOME?

You can become specialized in the area of medical technology practice that is of most interest to you.

## WHAT SKILLS DO I NEED?

You must be reliable, have mechanical aptitude, and be able to follow detailed instructions. You'll need to be computer-literate and have a pleasant, relaxed manner for putting patients at ease.

## WHAT EDUCATIONAL EXPERIENCE DO I NEED?

The majority of technologists complete a 2-year junior or community college program, but 4-year programs are increasingly available. Graduates of accredited programs are eligible to obtain professional certification in cardiac catheterization, echocardiography, vascular ultrasound, and cardiographic techniques from Cardiovascular Credentialing International. Cardiac sonographers and vascular technologists also may obtain certification from the American Registry of Diagnostic Medical Sonographers.

## WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?

Take courses in mathematics, science, and health occupations. Take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Take advantage of any related certification programs offered by your school, such as Certified Nurse Assistant (CNA).

## HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?

Median annual earnings of cardiovascular technologists and technicians were \$38,690 in May 2004. The middle 50 percent earned between \$27,890 and \$50,130. The lowest 10 percent earned less than \$21,790, and the highest 10 percent earned more than \$59,000. Median annual earnings of cardiovascular technologists and technicians in May 2004 were \$36,890 in offices of physicians and \$38,150 in general medical and surgical hospitals.

## WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?

Employment of cardiovascular technologists and technicians is expected to [grow much faster than the average](#) for all occupations through the year 2014. Growth will occur as the population ages, because older people have a higher incidence of heart problems and use more diagnostic imaging.

## WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?

About 3 out of 4 of these jobs are in hospitals (private and government), primarily in cardiology departments. The remaining jobs are mostly in offices of physicians, including cardiologists or in medical and diagnostic laboratories, including diagnostic imaging centers.

# **JOB IDENTIFICATION MATRIX—CARPENTERS**

## **WHAT CAN I DO?**

Carpenters are the largest group of building trade workers. Using tools such as saws, hammers, drills, screwdrivers, and sanders, carpenters cut, fit, and assemble wood and other building materials to construct buildings, bridges, boats, and other structures. Most carpenters work in construction. They build, remodel, or repair buildings and other structures. Carpenters employed by a general building contractor might frame walls and partitions, hang kitchen cabinets, and install paneling and tile ceilings. Rough or outside carpenters set up scaffolds, ladders, platforms, and safety barricades at construction sites. Finish or inside carpenters install doors, trim, and molding. They also build stairs and lay floors. Some carpenters specialize in installing hardwood floors. Maintenance carpenters keep buildings in good repair. Other carpenters build furniture or cabinets.

## **WHAT CAN I BECOME?**

Carpenters are exposed to the entire construction process and may have the opportunity to advance to carpentry supervisor or general construction supervisor positions. Others may become independent contractors. Supervisors and contractors need good communication skills to deal with clients and subcontractors, should be able to identify and estimate the quantity of materials needed to complete a job, and should be able to accurately estimate how long a job will take to complete and at what cost.

## **WHAT SKILLS DO I NEED?**

Carpenters need to have good math skills in order to measure and mark building materials. They must also know how to read blueprints and be familiar with local building code requirements. They should know about the qualities of the different woods and materials, as well as other materials such as plastic, fiberglass, drywall, sheet metal studs, and roofing. Other necessary skills include manual dexterity, eye-hand coordination, and the physical fitness to climb, lift, and meet the other physical demands of this occupation, including a good sense of balance. The ability to communicate in both English and Spanish is very helpful.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Carpenters learn their trade through formal and informal training programs. To become a skilled carpenter usually takes between 3 and 4 years of both classroom and on-the-job training. While there are a number of different ways to obtain this training, in general, the more formalized the process, the more skilled you will become, and the more in demand by employers. After high school, there are a number of different ways to obtain the necessary training. You might obtain a job with a contractor who will then provide on-the-job training. Entry-level workers generally start as helpers, assisting more experienced workers. You should also consider completing a construction-related college program.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take classes in English, Spanish, algebra, geometry, physics, mechanical drawing, blueprint reading, and general shop. Participate in student clubs to develop your leadership and communication skills. Start college in high school through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Your starting salary will probably be around \$12 an hour (\$24,960 a year). Depending on where you work, with experience you can earn significantly more money than that. You might also own your own business.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a lot of construction in the Valley; so the demand for carpenters will always be there.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Home-improvement companies such as Home Depot, builders, and General Contractors (contact Associated General Contractors of America for additional information).

# **JOB IDENTIFICATION MATRIX—CHEFS AND HEAD COOKS**

## **WHAT CAN I DO?**

*Chefs and head cooks* prepare food and, depending on the place of employment, also coordinate the work of the kitchen staff and direct the preparation of meals. They determine serving sizes, plan menus, order food supplies, and oversee kitchen operations to ensure uniform quality and presentation of meals. Chefs tend to be more highly skilled and better trained than cooks.

## **WHAT CAN I BECOME?**

*You can become an executive chef who* is in charge of all food service operations and also may supervise the many kitchens of a hotel, restaurant group, or corporate dining operation. A *chef de cuisine* reports to an executive chef and is responsible for the daily operations of a single kitchen. A *sous chef*, or sub chef, is the second-in-command and runs the kitchen in the absence of the chef. You may also compete and test for certification as a master chef. Many chefs earn fame both for themselves and for their kitchens because of the quality and distinctive nature of the food they serve. You could also become a caterer or open your own business.

## **WHAT SKILLS DO I NEED?**

You need to work well as part of a team, have a keen sense of taste and smell, and work efficiently to turn out meals rapidly. Personal cleanliness is essential because you will be required to obtain a health certificate indicating that you are free from communicable diseases. Knowledge of a foreign language can be an asset because it may improve communication with other restaurant staff, vendors, and the restaurant's clientele.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Some chefs and cooks may start their training in high school or post-high school vocational programs. People who have had courses in commercial food preparation may start in a cook or chef job without spending a lot of time in lower-skilled kitchen jobs. Their education may give them an advantage when looking for jobs in better restaurants. Some vocational programs in high schools may offer training, but employers usually prefer training given by trade schools, vocational centers, colleges, professional associations, or trade unions. Postsecondary courses range from a few months to 2 years or more. Degree-granting programs are open only to high school graduates. Chefs also may compete and test for certification as master chefs. Although certification is not required to enter the field, it can be a measure of accomplishment and lead to further advancement and higher-paying positions. The U.S. Armed Forces also are a good source of training and experience.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take courses in mathematics, science, and communications. Take high school courses in fields related to this industry. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley, you can earn around \$11.00 an hour, which translates to a little over \$22,000 a year. With experience, you can earn even more. Out of the Valley, over time, you can earn \$40,000 a year or more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Because of this region's hospitality industry, the demand for workers with good skills and postsecondary education is high.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Hotels, full-service restaurants, hospitals, and businesses related to the hospitality industry.

# **JOB IDENTIFICATION MATRIX—CHEMICAL AND ENVIRONMENTAL TECHNICIANS**

## **WHAT CAN I DO?**

Chemical technicians work with chemists and chemical engineers, developing and using chemicals and related products and equipment. Generally, there are two types of chemical technicians: research and development technicians who work in experimental laboratories and process control technicians who work in manufacturing or other industrial plants. Environmental technicians perform laboratory and field tests to monitor environmental resources and determine the contaminants and sources of pollution in the environment. They may collect samples for testing or be involved in abating, controlling, or remediating sources of environmental pollution. Some are responsible for waste management operations, control and management of hazardous materials inventory, or general activities involving regulatory compliance.

## **WHAT CAN I BECOME?**

You can become a chemist, chemical engineer, an environmental scientist, a laboratory supervisor, or some other sort of leader in the chemical/environmental industry. If you begin your career with an associate of applied science degree, you may need to continue your education and earn a bachelor's degree to move into some of these related careers.

## **WHAT SKILLS DO I NEED?**

A solid background in applied basic chemistry, physics, and math is vital. Technicians should have strong computer skills. Communication skills also are important: technicians often are required to report their findings both orally and in writing. Because teamwork is common, technicians should be able to work well with others. Organizational ability, an eye for detail, and skills in interpreting scientific results are important as well. A high mechanical aptitude, attention to detail, and analytical thinking are all important characteristics of technicians. Ultimately, technicians are trouble-shooters, putting their problem-solving skills to work in the laboratory or chemical process.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You need to take as many high school science and math courses as possible. The laboratory-oriented science courses offered in career and technology programs can help prepare you for these careers. Science courses taken beyond high school, in an associate's or bachelor's degree program, should be laboratory oriented, with an emphasis on bench skills.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take as many mathematics and science courses—especially chemistry—as you can. Take advantage of dual-credit opportunities offered by your school, and get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Chemical and environmental technicians can expect to earn an average of \$35,000 - \$45,000 annually when they begin their careers and earn up to \$60,000 - \$80,000 or more as their experience grows.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are some good jobs for these technicians in the Valley; however, finding a job as a chemical/environmental technician may require you to move to another part of Texas, such as Houston or Beaumont.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Government offices such as cities, counties, water boards, and the U.S. Department of Agriculture.

# **JOB IDENTIFICATION MATRIX—CHEMISTS**

## **WHAT CAN I DO?**

Chemists work with materials scientists in searching for and using new knowledge about chemicals. Chemical research has led to the discovery and development of new and improved synthetic fibers, paints, adhesives, drugs, cosmetics, electronic components, lubricants, and thousands of other products. Chemists and materials scientists also develop processes such as improved oil refining and petrochemical processing that save energy and reduce pollution. Research on the chemistry of living things spurs advances in medicine, agriculture, food processing, and other fields.

## **WHAT CAN I BECOME?**

You can become a chemical engineer, a materials scientist, a laboratory supervisor, or some other sort of leader in the chemical/environmental industry. If you begin your career with an associate of applied science degree, you may need to continue your education and earn a bachelor's degree to move into some of these related careers.

## **WHAT SKILLS DO I NEED?**

Students planning careers as chemists should like science and mathematics, should like working with their hands building scientific apparatus and performing laboratory experiments, and should like computer modeling. Perseverance, curiosity, and the ability to concentrate on detail and to work both independently and in teams are essential.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Chemists are required to have baccalaureate degrees.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take as many mathematics and science courses—especially chemistry—as you can. Take advantage of dual-credit opportunities offered by your school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

As a chemist, you can earn \$30,000 to \$50,000 a year, or even more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are some good jobs for these technicians in the Valley; however, finding a job as a chemist may require you to move to another part of Texas, such as Houston or Beaumont.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Government offices such as cities, counties, water boards, and the U.S. Department of Agriculture.

# **JOB IDENTIFICATION MATRIX—COMPUTER PROGRAMMERS**

## **WHAT CAN I DO?**

Computer programmers write, test, and maintain the detailed instructions, called programs, which computers must follow to perform their functions. Programmers also conceive, design, and test logical structures for solving problems by computer. Computer programs tell the computer what to do—which information to identify and access, how to process it, and what equipment to use. Programs vary widely depending on the type of information to be accessed or generated. Programmers write programs according to the specifications determined primarily by computer software engineers and systems analysts. After the design process is complete, it is the job of the programmer to convert that design into a logical series of instructions that the computer can follow.

## **WHAT CAN I BECOME?**

You can begin as a programmer and then upgrade your skills to become a computer software engineer or a computer systems analyst. You can begin with an entry-level job and grow into a management position. You can own your own business and work from your home, providing services through Internet to anybody in the world.

## **WHAT SKILLS DO I NEED?**

Required skills vary from job to job; the demand for various skills generally is driven by changes in technology. Employers are seeking persons familiar with programming languages that involve graphic user interface and systems programming. Employers also prefer applicants who have general business skills and experience related to the operations of the firm. You must be good at thinking logically and creatively. You also need excellent communication skills (especially listening, but also communicating verbally and in writing), strong reading skills, the ability to identify and organize information, and critical-thinking and problem-solving skills.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

An associate degree is the entry-level degree required for computer programmers. If you begin your work career with an associate degree, you may be called on to upgrade that degree to higher levels as your career progresses. In high school, take mathematics, science, and courses that help you develop your communications skills and logical thinking abilities. Take general business courses and computer programming courses offered by your school, and get a head start on college through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Learn all you can about computers by working with them at your school, at home, at the library, and at college libraries when you have access to them. Develop your skills with programming related to graphic user interface, systems programming, and electronic game design. When the opportunity is available, you may improve your employment prospects by participating in a college work-study program or by undertaking an internship. Also, take advantage of the opportunity to participate in any computer-certification courses offered by your high school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley you can earn \$15 to \$16 an hour (\$31,000 or more a year) with an associate degree and \$23 to \$25 an hour (\$47,000 or more) a year with a bachelor's degree. As your career progresses, if your experience broadens and you continue your education, you can earn \$60,000 a year or even more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a small demand for computer programmers in the Valley, although there is a need for computer programmers on both sides of the U.S.-Mexico border.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Manufacturing companies, hospitals, school districts, businesses, and government offices.

# **JOB IDENTIFICATION MATRIX—COMPUTER SUPPORT SPECIALISTS**

## **WHAT CAN I DO?**

*Computer support specialists* provide technical assistance, support, and advice to customers and other users. These specialists include *technical support specialists* and *help-desk technicians*. These individuals are troubleshooters who interpret problems and provide technical support for hardware, software, and systems. They answer telephone calls, analyze problems by using automated diagnostic programs, and resolve recurring difficulties. These individuals also manage and support large and small computer networks.

## **WHAT CAN I BECOME?**

You can work for a school district, a hospital, a government office, or an independent firm that provides customer support on a contract basis to clients. You might become a department manager and supervisor or the manager of a computer network for the organization by which you are employed. You might even own your own business.

## **WHAT SKILLS DO I NEED?**

You need to be good with computers, and you must have problem-solving skills and the ability to work well with others. You need strong analytical and troubleshooting skills—and the ability to work well under pressure—because helping others to solve their problems is a vital part of these jobs. The constant interaction with other computer personnel, customers, and employees requires computer support specialists to communicate effectively on paper, via e-mail, and in person. Strong writing skills are useful in preparing manuals for employees and customers. You must be good at thinking logically and creatively. You also need excellent communication skills (especially listening, but also communicating verbally and in writing), strong reading skills, the ability to identify and organize information, and critical-thinking skills.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

An associate degree is the entry-level requirement, and you may be called on to upgrade to higher levels as your career progresses. Industry certifications such as A+, MCP (Microsoft Certified Professional) and MCSE (Microsoft Certified Software Engineer) are becoming increasingly important. There is usually a fee to take preparatory courses and certification exams, which can be taken during school or after entering the workforce. If your high school or college offers certification programs, it is to your advantage to participate. In high school, take mathematics, science, general business and computer-support-related courses. Also take courses that help you develop your communications skills, and get a head start on college through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Learn all you can about computers by working with them at your school, at home, at the library, and at college libraries when you have access to them. Take advantage of any in-house work-study programs offered by your school, such as classes in which students help support computer networks at their schools. Also, participate in any computer-certification courses offered by your high school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley you can earn \$15 to \$16 an hour, which translates to \$31,000 a year or more. As your career progresses, if your experience broadens and you continue your education, you can earn \$60,000 a year or more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a tremendous demand for computer support specialists in this region because most large businesses—whether private-sector, education, or government—utilize computers and computer networks to get their jobs done.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Schools, government offices, banks, other businesses, and hospitals all hire these workers.

# **JOB IDENTIFICATION MATRIX—COMPUTER SYSTEMS ANALYSTS**

## **WHAT CAN I DO?**

Computer systems analysts solve computer problems and apply computer technology to meet the individual needs of an organization. They help an organization to realize the maximum benefit from its investment in equipment, personnel, and business processes. Systems analysts may plan and develop new computer systems or devise ways to apply existing systems' resources to additional operations. They may design new systems, including both hardware and software, or add a new software application to harness more of the computer's power. Most systems analysts work with specific types of systems—for example, business, accounting, or financial systems, or scientific and engineering systems—that vary with the kind of organization.

## **WHAT CAN I BECOME?**

You can move into management for your organization. You can become specialized in areas such as working with databases, object-oriented programming languages, computer networks, and client-server applications such as development and multimedia and internet technology. You can also become specialized in the area of getting computers using different operating systems to communicate with each other. You can become specialized in other areas. You might also start your own consulting business, working with people all over the world through the communications capability provided by internet.

## **WHAT SKILLS DO I NEED?**

You will need to be skilled at working with computer hardware and software and a variety of computer systems and networks. You also need excellent communication skills (especially listening, but also communicating verbally and in writing), strong reading skills, the ability to identify and organize information, and critical-thinking and problem-solving skills. You need the ability to communicate well both verbally and in writing, and you need strong troubleshooting skills. You need to be able to write computer programs, test systems, and identify problems. You will need to work well individually, with a minimum of supervision, and also in teams. Ultimately, you may need the ability to supervise others. As your experience grows, you will need to have the critical-thinking skills that allow you to develop implementation plans and present them to groups and management in a way that gains support for your ideas.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need a minimum of a bachelor's degree in computer science to become a systems analyst. In high school, take all the mathematics and science available to you, and take courses that help to develop your communications and presentation skills and logical thinking abilities. Take general business courses and computer programming courses, and get a head start on college through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Join computer clubs and other student clubs that help you develop professionalism, communication skills, leadership skills, and presentation skills. Participate in computer-certification courses/programs at your school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$23 to \$31 an hour (\$47,000 a year or more) as a computer systems analyst. As your experience grows, you can earn \$60,000 a year or even more.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a small demand for systems analysts in the Valley, although there are some jobs on both sides of the U.S.-Mexico border.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Manufacturing companies, hospitals, school districts, businesses, and government offices.



# **JOB IDENTIFICATION MATRIX—CONSTRUCTION COST ESTIMATORS**

## **WHAT CAN I DO?**

Construction Cost Estimators (also known as Production Estimators) are responsible for developing the cost information and projections needed to make a bid for a contract and determining whether a proposed new product or job will be profitable. These individuals analyze blueprints, specifications, proposals, and other documentation to prepare time, cost, and labor estimates and perform related functions. Cost estimators develop the cost information that business owners or managers need to make a bid for a contract or to decide whether a proposed new product will be profitable. They also determine which endeavors are making a profit. Estimators compile and analyze data on all of the factors that can influence costs—such as materials, labor, location, and special machinery requirements, including computer hardware and software. Job duties vary widely depending on the type and size of the project. A cost estimator working for a general contractor, for example, estimates the costs of all of the items that the contractor must provide. Although subcontractors estimate their costs as part of their own bidding process, the general contractor's cost estimator often analyzes bids made by subcontractors as well. The estimator must make decisions concerning equipment needs, the sequence of operations, the size of the crew required, and physical constraints at the site. Allowances for wasted materials, inclement weather, shipping delays, and other factors that may increase costs also must be incorporated in the estimate.

## **WHAT CAN I BECOME?**

You can begin in one position and work your way up to another by acquiring additional education and experience. You could ultimately become a salaried or self-employed manager responsible for overseeing construction work and workers. You could work for a general contracting company or large business or government agency as a construction supervisor. You might also own your own contracting business. To get more specific information about this and related occupations, contact the Rio Grande Valley Chapter of the Associated General Contractors of America, Inc. (<http://www.rgvagc.org>).

## **WHAT SKILLS DO I NEED?**

You need a strong background in mathematics, and building science, plus related work experience in the construction industry. You also need to be able to utilize computers and software and the tools used in the construction industry. An understanding of blueprints, engineering, architectural, and other construction drawings is crucial, and excellent oral and written communication skills are also important. Leadership skills and the ability to converse fluently in both English and Spanish are helpful.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

A two-year degree plus experience could help you become a Construction Cost Estimator. In high school, take mathematics, English, Spanish, science, communication, and computers. Take courses in blueprint reading and other construction-related topics if available. Get a head start on college through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Join student clubs and get part-time jobs to develop your work-related skills and leadership characteristics.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Construction Cost Estimators can earn \$25,000 to \$35,000 a year, and they move up quickly.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Because of the construction going on in the Rio Grande Valley, the demand for these workers is high.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

General Contractors throughout the region (contact Associated General Contractors of America for additional information).

# **JOB IDENTIFICATION MATRIX—CONSTRUCTION MANAGERS AND CONSTRUCTION SUPERINTENDENTS**

## **WHAT CAN I DO?**

*Construction Managers* plan, direct, and coordinate a wide variety of construction projects, including the building of all types of residential, commercial, and industrial structures, roads, bridges, wastewater treatment plants, and schools and hospitals. These individuals might oversee the entire project or just part of a project. Although they usually play no direct role in the actual construction of a structure, they typically schedule and coordinate all design and construction processes, including the selection, hiring, and oversight of specialty trade contractors. *Construction Superintendents* report to construction project managers and are responsible for supervising workers' activities on building projects.

## **WHAT CAN I BECOME?**

You can begin in an entry-level position in the construction industry and work your way up, first as a superintendent and then as a manager, by acquiring additional education and experience. You could work for a general contracting company or large business or government agency as a construction supervisor. You could ultimately become a salaried or self-employed manager responsible for overseeing construction work and workers—or own your own contracting business. To get more specific information about these occupations and the opportunities they offer, contact the Rio Grande Valley Chapter of the Associated General Contractors of America, Inc. (<http://www.rgvagc.org>).

## **WHAT SKILLS DO I NEED?**

You need a strong background in mathematics, and building science, plus related work experience in the construction industry. You also need to be able to utilize computers and software and the tools used in the construction industry. An understanding of blueprints, engineering, architectural, and other construction drawings is crucial, and excellent oral and written communication skills are also important. Leadership skills and the ability to converse fluently in both English and Spanish are helpful.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Industry experience in construction—for example, working as a carpenter, mason, plumber, or electrician, is essential. Employers are also placing a growing importance on postsecondary education. A two-year degree plus experience can get you a job as a Construction Superintendent. To become a Construction Manager, you will need a bachelor's degree in construction science or a related field. In high school, take mathematics, English, Spanish, science, communication, and computers. Take courses in blueprint reading and other construction-related topics if available. Get a head start on college through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Join student clubs and get part-time jobs to develop your work-related skills and leadership characteristics.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Construction Project Managers can earn \$20 to \$31 an hour (\$40,000 a year or more). Construction Supervisors can earn \$25,000 to \$35,000 a year, and they move up quickly.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Because of the construction going on in the Rio Grande Valley, the demand for these workers is high.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

General Contractors throughout the region (contact Associated General Contractors of America for additional information).

# **JOB IDENTIFICATION MATRIX—CORRECTIONAL OFFICERS, JAILERS**

## **WHAT CAN I DO?**

Correctional officers/jailers are responsible for overseeing individuals who have been arrested and are awaiting trial or who have been convicted of a crime and sentenced to serve time in a jail, reformatory, or penitentiary. These individuals maintain security and inmate accountability to prevent disturbances, assaults, and escapes. They have no law enforcement responsibilities outside the institution where they work. Most correctional officers are employed in state and federal prisons. Others oversee individuals being held by the U.S. Immigration and Naturalization Service pending release or deportation, or work for correctional institutions that are run by private for-profit organizations. Although both jails and prisons can be dangerous places to work, prison populations are more stable than jail populations, and correctional officers in prisons know the security and custodial requirements of the prisoners with whom they are dealing. Regardless of the setting, correctional officers maintain order within the institution and enforce rules and regulations.

## **WHAT CAN I BECOME?**

You can assume progressively greater responsibility in your place of employment and be promoted to supervisory positions of greater responsibility.

## **WHAT SKILLS DO I NEED?**

You must be at least 18 to 21 years of age and a U.S. citizen; have a high school education or its equivalent (federal positions require more education); meet experience requirements as applicable; and have no felony convictions. You must be in good health and will usually be required to meet formal standards of physical fitness, eyesight, and hearing. Good judgment and the ability to think and act quickly are indispensable. You need excellent communication skills and the ability to work well with a variety of people. You will probably be screened for drug abuse, be subject to a background check, and be required to pass a written examination.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Although some jobs require only a high school diploma or its equivalent, federal positions require more education, and your prospects for being promoted will be enhanced if you have postsecondary education.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Develop your academic skills and participate in student clubs that will help to develop your leadership and communication skills. Stay physically fit, develop strong character (honesty, integrity, dependability) and participate in criminal justice classes if your school offers them. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley, you will earn about \$11 an hour (about \$22,000 a year) when you begin your career, then move up from there.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are many jobs for correctional officers and jailers in the Rio Grande Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Cities, counties, and state and federal government agencies. Public and private prisons. Companies that contract for management of public prisons.

# **JOB IDENTIFICATION MATRIX—COUNSELORS (SCHOOL, SUBSTANCE ABUSE, BEHAVIORAL, MENTAL HEALTH)**

## **WHAT CAN I DO?**

Counselors assist people with personal, family, educational, mental health, and career decisions and problems. Their duties depend on the individuals they serve and on the settings in which they work. *School counselors* provide individuals and groups with career and educational counseling. They work with all students, including those with academic and social development problems and those with special needs. They advocate for students and work with other individuals and organizations to promote the academic, career, personal, and social development of children and youths. School counselors help students evaluate their abilities, interests, talents, and personality characteristics in order to develop realistic academic and career goals. *Substance abuse, behavioral, and mental health counselors* help their clients to understand and deal with substance abuse, social, behavioral, and personal problems.

## **WHAT CAN I BECOME?**

You can become a counselor at a school or a college, work for a hospital or a public or private mental health agency, and you can obtain Licensed Professional Counselor (LPC) certification. You can become a supervisor or administrator, move into research, consulting, or college teaching or go into private or group practice.

## **WHAT SKILLS DO I NEED?**

You should have a strong desire to help others and should possess the ability to inspire respect, trust, and confidence. You should be able to work independently or as part of a team. Counselors must follow the code of ethics associated with their respective certifications and licenses.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must obtain a bachelor's degree and then a master's degree. If you want to work in a school, experience working as a classroom teacher is required before you can become a school counselor.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Develop excellent skills in mathematics, English, Spanish, science, and communications. Participate in student clubs to develop your leadership skills. Participate in teaching-related courses if your school offers them. Be a volunteer for your school's counselor or social worker. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

If you work for a school district, you will earn \$40,000 or more annual salary on a contract basis requiring you to work about 11 months each year. The average counselor salary rate is \$24 per hour in the public schools of this region. Experienced counselors will earn significantly more than that. Salaries will vary if you work in a private practice or at a university or college.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong need for counselors in a variety of places in this region.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

School districts, colleges, universities, mental health organizations, hospitals, and other organizations.

# **JOB IDENTIFICATION MATRIX—DENTAL ASSISTANTS**

## **WHAT CAN I DO?**

Dental assistants become a “second pair of hands” for a dentist, performing a variety of patient care, office, and laboratory duties. They work chairside as dentists examine and treat patients. They make patients as comfortable as possible in the dental chair, prepare them for treatment, and obtain their dental records. Assistants hand instruments and materials to dentists and keep patients’ mouths dry and clear by using suction or other devices. Assistants also sterilize and disinfect instruments and equipment, prepare trays of instruments for dental procedures, instruct patients on postoperative and general oral health care, and perform other duties as assigned. Most dental assistants work at the front desk as needed, scheduling appointments, taking payments, filing insurance claims, and so forth. Dental assistants who graduate from accredited programs and who have passed the certifying examination also take radiographs (x-rays) of patients.

## **WHAT CAN I BECOME?**

You might become an office manager, dental-assisting instructor, or dental product sales representative. You could also go back to school and become a dental hygienist. For many, this entry-level occupation provides basic training and experience and serves as a stepping-stone to more highly skilled and higher paying jobs.

## **WHAT SKILLS DO I NEED?**

You need to be reliable, work well with others, and have good manual dexterity. You need to care about and want to help people and be interested in working in the field of dentistry. You need excellent communication skills and the patience to work well with individuals who come to the dentist for help.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Dental assistants must now pass a certification examination. The Commission on Dental Accreditation within the American Dental Association (ADA) approves dental-assisting training programs, and there is only one accredited 1-year program available in the Valley, at Texas State Technical College. Del Mar College also has an accredited program, but this program is not offered in the Valley. Admission requirements include having a high school diploma or its equivalent, as well as science, computer-related courses, and other requirements. A number of private schools offer shorter courses, but these programs are not accredited by the Commission on Dental Accreditation.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics, science, and communications courses. Take computer courses that will help develop your manual dexterity. Take the health-occupations classes offered in your school, and participate in student clubs to develop your leadership and communication skills. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley, you can earn from \$9 to \$13 an hour (\$18,000 to \$27,000 a year) as a dental assistant.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a great demand for dental assistants in the Valley; in fact, there are more job opportunities than there are qualified applicants to fill them. The U.S. Department of Labor predicts that both dental assisting and dental hygiene will be in the top 20 in-demand jobs through 2020.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Large and small dental offices throughout the Valley.

# **JOB IDENTIFICATION MATRIX—DENTAL HYGIENISTS**

## **WHAT CAN I DO?**

Dental hygienists remove soft and hard deposits from teeth, teach patients how to practice good oral hygiene, and provide other preventive dental care. Hygienists examine patients' teeth and gums, recording the presence of diseases or abnormalities. They remove calculus, stains, and plaque from teeth; perform root planing as a periodontal therapy; take and develop dental x rays; and apply cavity-preventive agents such as fluorides and pit and fissure sealants. Dental hygienists also help patients develop and maintain good oral and overall health by providing education in oral self-care, nutrition, and smoking cessation. For example, they may inform patients how to select toothbrushes and show them how to brush and floss their teeth. Flexible scheduling is a distinctive feature of this job. Full-time, part-time, evening, and weekend schedules are widely available. Dentists frequently hire hygienists to work only 2 or 3 days a week, so hygienists may hold jobs in more than one dental office.

## **WHAT CAN I BECOME?**

You can work in only one dental office, or you can become an entrepreneur who works for several different dentists and functions much like an independent business person. You have the opportunity to develop a schedule that suits you while earning plenty of money to support your family. Dental hygienists may also work in public health settings and long-term care facilities, or become sales or educational representatives for oral health and pharmaceutical companies.

## **WHAT SKILLS DO I NEED?**

You need to work well with others and have good manual dexterity because dental hygienists use dental instruments within a patient's mouth, with little room for error. You also need to like people and be interested in helping them. You should also have an interest in working in the field of oral health care.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You should take high school courses in biology, chemistry, and mathematics. Also take health science courses if they are offered by your school. Become involved in service clubs and in student clubs that develop your interpersonal communication and leadership skills. You will also be required to complete a college program, which will require meeting the entrance requirements. Be sure the college program you select has been accredited by the American Dental Association because you will have to pass a certification exam and obtain a license.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take health-related courses that your school offers, and take advantage of dual-enrollment opportunities if they are offered by your school. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$25 to \$30 an hour (\$40,000 to \$60,000 a year, depending on the number of hours you work) as a dental hygienist.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand for dental hygienists in the Valley is great and is predicted to continue to be great in the future. The U.S. Department of Labor predicts that both dental assisting and dental hygiene will be in the top 20 in-demand jobs through 2020.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Large and small dental offices throughout the Valley.

# **JOB IDENTIFICATION MATRIX—DENTAL LABORATORY TECHNOLOGISTS**

## **WHAT CAN I DO?**

Dental technology is the art and science of making and repairing dental appliances such as dentures, dental crowns, bridges, implants and braces. As a Dental Laboratory Technician, you are similar to a pharmacist in that you fill prescriptions from a dentist. You use materials such as gold, silver, stainless steel, porcelain, and plastic to make the appliance as specified by the dentist's prescription. You can specialize in one of five areas: orthodontic appliances, crowns and bridges, complete dentures, partial dentures or ceramics.

## **WHAT CAN I BECOME?**

You can become a supervisor or a manager. You might also teach or take a job with dental suppliers in such areas as product development, marketing, and sales. However, for most, the most lucrative avenue for advancement is to open your own dental lab.

## **WHAT SKILLS DO I NEED?**

You need a high degree of manual dexterity. You also need good vision and the ability to recognize very fine color shadings and variations in shape. You should have artistic aptitude for detailed and precise work.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need to take the post-secondary training that is offered in 2-year college programs. Also, the National Board of Certification offers certification in the five specialty areas of dental laboratory technology mentioned above.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in art, metal and woodshop, drafting, and the sciences are helpful. Take any health occupations courses that your school offers, and take business courses that would help to prepare you if you decide to own your own business.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Information just for the Rio Grande Valley is not available; however, average annual earnings of Dental Laboratory Technologists nationwide were \$14.93 per hour (\$31,054 per year) in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are only a few jobs for Dental Laboratory Technologists in the Valley at this time. As this region's health industry continues to grow, that may change in the future.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

There are a few jobs for Dental Laboratory Technologists in the Valley; however, you might either have to open your own business or else plan to work outside of this region if this becomes your career.

# **JOB IDENTIFICATION MATRIX—DIAGNOSTIC MEDICAL SONOGRAPHERS**

## **WHAT CAN I DO?**

Diagnostic imaging embraces several procedures that aid in diagnosing ailments. Besides the familiar x-ray, another common diagnostic imaging method is magnetic resonance imaging, which uses giant magnets that create radio waves, rather than radiation, to form an image. Not all imaging technologies use ionizing radiation or radio waves, however. Sonography, or ultrasonography, is the use of sound waves to generate an image for the assessment and diagnosis of various medical conditions. Sonography usually is associated with obstetrics and the use of ultrasound imaging during pregnancy, but this technology has many other applications in the diagnosis and treatment of medical conditions. As a Medical Sonographer, you operate the equipment, which collects reflected echoes and forms an image that may be videotaped, transmitted or photographed for interpretation and diagnosis by a physician. You explain the procedure to the patient and perform the exam, keep patient records and adjust the maintain equipment. You may also prepare work schedules, evaluate equipment purchases, or manage a sonography or diagnostic imaging department.

## **WHAT CAN I BECOME?**

You may become a specialist in sonography of various areas of the body or become a Vascular Technologist or Echocardiographer.

## **WHAT SKILLS DO I NEED?**

You need to be proficient in mathematics and science. You also need good communication and interpersonal skills to explain technical procedures and results to patients. You should be interested in working in a health care setting and helping people, and you need to be able to follow orders and work under close supervision.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You should begin by taking all of the mathematics, science (especially biology, physics, anatomy and physiology), and communications courses available at your school, then move on to a two-year college program in radiologic technology. Once you enter your profession, you will continue training on-the-job at your place of employment. No state licensure exam exists; however, the American Registry for Diagnostic Medical Sonography (ARDMS) certifies competency through registration, which requires passing exams on physical principles and instrumentation and in a specialty such as abdominal sonography or obstetric sonography.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Participate in your school's health science occupations courses if offered. Participate in a student club such as Health Occupations Students of America and take advantage of opportunities to develop your leadership and communication skills. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Medical Sonographers in the Valley were \$31.49 per hour (\$65,500 per year) in 2004. Entry-level salaries begin at \$20.00 to \$26.00 an hour (\$33,600 or more per year).

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a tremendous need for these workers in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals want to hire people for these jobs, and there are also employment opportunities with large clinics and some government agencies.



# **JOB IDENTIFICATION MATRIX—DIGITAL IMAGING TECHNICIANS / GRAPHIC DESIGNERS**

## **WHAT CAN I DO?**

Graphic designers plan, analyze, and create visual solutions to communications problems. They decide the most effective way of getting a message across in print, electronic, and film media using a variety of methods such as color, type, illustration, photography, animation, and various print and layout techniques. An increasing number of graphic designers also are developing material for Internet Web pages, interactive media, and multimedia projects. Digital imaging technicians manipulate sound, still images, 3D images, animations and digital video on computers. They can become desktop publishers, multimedia developers and producers, graphic artists, advertising specialists, commercial computer artists, educational software developers, electronic game developers, book publishers, web designers, and technical product representatives.

## **WHAT CAN I BECOME?**

You can work for a large company and, once you develop your skills, advance into positions with more responsibility. You could become a publications coordinator or even open your own business—and if you have your own business, you might become engaged in e-commerce and do business through the World Wide Web.

## **WHAT SKILLS DO I NEED?**

You need to be creative, good at art, and able to use computer graphics and design software. You will have to continually keep up to date with the development of new and updated software, on your own or through formal training programs. You must be creative and able to communicate your ideas in writing, visually, and verbally. Because consumer tastes can change quickly, you need to be well read, open to new ideas and influences, and quick to react to changing trends. Problem-solving skills, paying attention to details, and the ability to work independently and under pressure also are important traits. You need the self-discipline to start projects on your own, to budget your time, and to meet deadlines and production schedules. Good business sense and sales ability also are important, especially for those who freelance or run their own business.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You might begin with an associate degree, and then continue your education to become more promotable and expand the range of employment opportunities available to you. In high school, take courses in mathematics, science, computers, communication, and art. It will also be helpful to take courses in business and marketing.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Participate in skills-related clubs your school offers to develop your technical experience and interpersonal communication and leadership/self-management skills. Get a head start on college by participating in Tech Prep programs offered by your school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Information for the Valley is not available; however, the average salary statewide is \$14.93 per hour, or about \$31,000 a year.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There will always be some job openings in the Valley for people with these skills.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Newspapers, design companies, and businesses large enough to have their own graphic design departments (such as hospitals)

# **JOB IDENTIFICATION MATRIX—DRAFTERS**

## **WHAT CAN I DO?**

Drafters prepare technical drawings and plans used by production and construction workers to build everything from manufactured products such as toys, toasters, industrial machinery, and spacecraft to structures such as houses, office buildings, and oil and gas pipelines. Drafters' drawings provide visual guidelines; show the technical details of the products and structures; and specify dimensions, materials, and procedures. Drafters fill in technical details using drawings, rough sketches, specifications, codes, and calculations previously made by engineers, surveyors, architects, or scientists. For example, drafters use their knowledge of standardized building techniques to draw in the details of a structure. Some use their knowledge of engineering and manufacturing theory and standards to draw the parts of a machine to determine design elements, such as the numbers and kinds of fasteners needed to assemble the machine. Drafters use technical handbooks, tables, calculators, and computers to complete their work.

## **WHAT CAN I BECOME?**

You can become a Lead Drafter or Supervisor

## **WHAT SKILLS DO I NEED?**

You need to be proficient in basic math, writing and reading and have good mechanical and problem solving abilities. You need to have a good imagination. You need to be able to work in teams and should have strong interpersonal communication skills. You need to be a creative thinker and a problem solver, and you need to be able to think through problems and find solutions to them. You need to have strong work ethics and be an excellent proofreader.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need a 2-year college degree and in high school, should take these courses if your school offers them: Geometry, trigonometry, drafting courses of all sorts, and science courses such as physics.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Participate in student clubs that will develop your communication and leadership skills and sharpen your technical skills. Take advantage of dual-enrollment opportunities in both academic and technical areas, and get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Your earnings will depend on your specialty and the skills you bring to your work. You might begin work at a wage rate between \$19 and \$25 an hour (\$39,000 or more per year). State reports provide information that makes this appear to be a lucrative field. Median hourly earnings of Electrical and Electronic Drafters range from \$27.07 an hour in Hidalgo/Starr/Willacy Counties to \$19.86 in Cameron County. For Mechanical Drafters, the median hourly earnings are \$18.48 for Hidalgo/Starr/Willacy Counties and \$27.37 in Cameron County. For Architectural Drafters (except Landscape and Naval), the median wage rate in Hidalgo/Starr/Willacy Counties is \$24.94 and in Cameron County is \$34.53.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There will always be job opportunities for good drafters in the Rio Grande Valley. Many types of firms employ drafters, including engineering firms, architectural firms, and others.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Some of the companies who hire drafters in the Rio Grande Valley include Tyco Flow Control, ITD Precision, United Launch Alliance, and Trico Products.

# **JOB IDENTIFICATION MATRIX—ELECTRICIANS**

## **WHAT CAN I DO?**

Electricians install, connect, test, and maintain electrical systems for a variety of purposes, including climate control, security, and communications. They also may install and maintain the electronic controls for machines in business and industry. Electricians generally specialize in construction or maintenance work, although a growing number do both. Electricians specializing in construction work primarily install wiring systems into new homes, businesses, and factories, but they also rewire or upgrade existing electrical systems as needed. Electricians specializing in maintenance work primarily maintain and upgrade existing electrical systems and repair electrical equipment. Electricians work with blueprints when they install electrical systems. Blueprints indicate the locations of circuits, outlets, load centers, panel boards, and other equipment. Electricians must follow the National Electrical Code and comply with state and local building codes when they install these systems. Regulations vary depending on the setting and require various types of installation procedures.

## **WHAT CAN I BECOME?**

You can become a Lead Electrician and/or Supervisor. If you work in the construction industry, you might become a supervisor or construction manager.

## **WHAT SKILLS DO I NEED?**

You need excellent mathematics, writing and reading skills, along with strong analytical and problem-solving abilities. You need to be able to communicate well with people, and you need to be able to work as an individual and in teams. You also need good manual dexterity, eye-hand coordination, physical fitness, and a good sense of balance. The ability to solve arithmetic problems quickly and accurately also is required. Good color vision is needed because workers frequently must identify electrical wires by color. Being bilingual in English and Spanish is strongly recommended.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need a high school diploma plus post-secondary education through a technical college program and/or an apprenticeship (apprenticeship programs in the Valley are sponsored by the International Brotherhood of Electrical Workers, or IBEW). You will have to be licensed by the state of Texas and participate in necessary programs to maintain your license (see <http://www.license.state.tx.us/electricians/elec.htm>.)

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics courses, especially geometry and trigonometry. Depending on your school's course offerings, also take classes in blueprint reading, electrical code requirements, safety and first aid practices, and communications systems, and other courses related to electricity and electronics. Get a head start on postsecondary education through dual-enrollment courses and Tech Prep opportunities at your school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley, you can expect to earn from \$13 to \$15 an hour (\$27,000 or more a year). However, if you start working right after high school, you may begin by earning minimum wage. The greater your level of education and experience, the greater your salary will be.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a continuing need for electricians here. If you have good skills, you will probably be able to find a job.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Asphalt Products, Gibbs Texas Die Casting, Trico Products, as well as construction companies, schools, colleges and universities, and hospitals.

# **JOB IDENTIFICATION MATRIX—EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS**

## **WHAT CAN I DO?**

As an Emergency Medical Technician you are the first on the scene in an emergency and must determine the condition of the victims, how seriously they are hurt and whether they have any pre-existing medical problems. You follow strict rules and guidelines in giving emergency care, and when necessary, transport the patient. You also carry out emergency treatment for more complicated problems under the direction of medical doctors by radio preceding or during transport.

## **WHAT CAN I BECOME?**

With additional experience, can become a supervisor, operations manager, or director of emergency services.

## **WHAT SKILLS DO I NEED?**

- Sufficient strength and stamina for rigorous physical exertion
- Emotional stability to cope with stressful situations and suffering patients
- Ability to follow directions and work as a team member

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

- A valid driver's license and a certificate from an accredited training program, or an associate degree from a community college, technical college, or university
- All emergency medical personnel must pass a state certification exam, with the exception of dispatchers. EMS personnel in Texas can train in any of 5 areas: emergency medical dispatcher, emergency care attendant (ECA), EMT-basic (EMT-B), EMT-Intermediate (EMT-I), and EMT-paramedic (EMT-P).

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, psychology, and first aid are helpful. Take advantage, too, of health-science related courses offered by your school. Participate in student clubs to develop your leadership and communication skills, and take advantage of any related certification opportunities offered. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings for Emergency Medical Technicians in the valley were \$23,490 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand for these workers is high.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Five hospitals want to hire these individuals. You will also find these workers in fire departments operated by government agencies.

# **JOB IDENTIFICATION MATRIX—ENGINEERS**

## **WHAT CAN I DO?**

Engineers apply the principles of science and mathematics to develop economical solutions to technical problems. Their work is the link between perceived social needs and commercial applications. Engineers consider many factors when developing a new product. For example, in developing an industrial robot, engineers precisely specify the functional requirements; design and test the robot's components; integrate the components to produce the final design; and evaluate the design's overall effectiveness, cost, reliability, and safety. This process applies to the development of many different products, such as chemicals, computers, gas turbines, helicopters, and toys. In addition to design and development, many engineers work in testing, production, or maintenance. These engineers supervise production in factories, determine the causes of component failure, and test manufactured products to maintain quality. They also estimate the time and cost to complete projects. Some move into engineering management or into sales. In sales, an engineering background enables them to discuss technical aspects and assist in product planning, installation, and use. Supervisory engineers are responsible for major components or entire projects.

## **WHAT CAN I BECOME?**

You can become a Senior Engineer, Supervisor, Manager or Director.

## **WHAT SKILLS DO I NEED?**

You need to be excellent in advanced mathematics, writing and reading. You must also be computer literate and skilled in using engineering software programs and systems. You will need strong analytical and problem-solving abilities.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

High School Diploma and a 4-year engineering or engineering technology degree from an accredited college or university.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take high school technical courses in pre-engineering and participate in job shadowing and other opportunities with local engineering and manufacturing firms. Take geometry, trigonometry, and advanced mathematics classes. Take science classes, including physics, principles of technology, and other courses. Take advantage of any engineering-related courses offered by your school's career and technology programs, and participate in student clubs and competitions to enhance your leadership, communication, and technical skills. Get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Engineers in the Valley will earn about \$30 an hour (over \$60,000 a year).

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are jobs for engineers in the Rio Grande Valley. Many engineers work in the construction and transportation, telecommunications, and utilities industries.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Tyco Flow Control, Asphalt Products, Fox Valley Molding, United Launch Alliance, Progressive Molded Products Inc., and Trico Products.

# **JOB IDENTIFICATION MATRIX—ENGINEERING TECHNICIANS (PROCESS, QUALITY CONTROL, OTHER AREAS)**

## **WHAT CAN I DO?**

Engineering technicians use the principles and theories of science, engineering, and mathematics to solve technical problems in research and development, manufacturing, sales, construction, inspection, and maintenance. Their work is more limited in scope and application-oriented than that of scientists and engineers. Many engineering technicians assist engineers and scientists, especially in research and development. Others work in quality control, inspecting products and processes, conducting tests, or collecting data. In manufacturing, they may assist in product design, development, or production. Rio Grande Valley manufacturing employers want to hire Process Technicians and Quality Control Technicians. Many workers who repair or maintain various types of electrical, electronic, or mechanical equipment are called Industrial Maintenance Technicians or Electrical Maintenance Technicians.

## **WHAT CAN I BECOME?**

You can become a Lead Technician or Technician Supervisor.

## **WHAT SKILLS DO I NEED?**

You need to be good at advanced mathematics, writing and reading. You also need to be computer literate and skilled in using engineering software. Strong analytical and problem solving abilities are essential. You need the ability to work independently and also as a team member.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

High School Diploma and a 2-year engineering or engineering technology degree from an accredited college or university.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take High school technical courses in electronics, pre-engineering, and mechatronics-related fields. Participate in job shadowing and internships with local manufacturing firms. Take geometry, trigonometry, and advanced mathematics classes as well as science classes. Participate in career and technology programs related to engineering, such as engineering graphics, computer graphics, and electronics. Participate in student clubs and competitions, which will develop your leadership and communication skills. Begin college in high school through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$13 to \$20 an hour in the Valley (\$27,000 or more a year) at the beginning of your career.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are good job possibilities for engineering technicians in the Valley—on both sides of the U.S./Mexico border—although there are also many jobs outside of this region. Manufacturing employers in this region are seeking process technicians, quality control technicians, and industrial/electrical maintenance mechanics—a field that engineering technician studies could prepare you to enter.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Tyco Flow Controls, Fox Valley Molding, United Launch Alliance, Progressive Molded Products Inc., Trico Products, and other companies.

# **JOB IDENTIFICATION MATRIX—HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS AND INSTALLERS**

## **WHAT CAN I DO?**

Heating and air-conditioning systems control the temperature, humidity, and the total air quality in residential, commercial, industrial, and other buildings. Refrigeration systems make it possible to store and transport food, medicine, and other perishable items. Heating, air-conditioning, and refrigeration mechanics and installers—also called technicians—install, maintain, and repair such systems. Because heating, ventilation, air-conditioning, and refrigeration systems often are referred to as HVAC systems; these workers also may be called HVAC technicians. Technicians must be able to maintain, diagnose, and correct problems throughout the entire system. To do this, they adjust system controls to recommended settings and test the performance of the entire system using special tools and test equipment. Technicians follow blueprints or other specifications to install systems. After putting the equipment in place, they install other components, connect electrical wiring and controls, and check the unit for proper operation. They perform maintenance and make service calls to keep equipment functioning properly.

## **WHAT CAN I BECOME?**

You might become a supervisor or service manager or move into areas such as sales and marketing. You might also become a building superintendent, cost estimator, or, with the necessary certification, a teacher. You might also start your own business.

## **WHAT SKILLS DO I NEED?**

You should plan to complete a two-year degree program, and there are state certification tests that you must pass. Math and reading skills are essential. You also need good work ethics, and you need to work well both independently and as a member of a team. You need excellent communication skills and strong critical-thinking and problem-solving skills.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Take English, Spanish, communications, reading, mathematics, and science. Also take classes offered by your school, if available, in such areas as the use and care of tools, safety practices, blueprint reading, and the theory and design of heating, ventilation, air-conditioning, and refrigeration systems. Courses in computer applications and digital control systems will also be helpful. Take advantage of dual-enrollment course offerings, and get a head start on high school through Tech Prep.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Participate in student clubs and competitions that will strengthen your technical and leadership skills. If you believe you might be interested in owning your own business, courses in business and marketing will also be helpful.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn from \$10 to \$12 an hour (\$20,800 or more a year) in this field when you begin your career. As your skills grow, earnings will increase.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a tremendous need for skilled HVAC technicians here in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Construction companies, schools, colleges, universities, and large businesses such as hospitals, as well as city and county government offices.

# **JOB IDENTIFICATION MATRIX—LICENSED PRACTICAL / VOCATIONAL NURSES**

## **WHAT CAN I DO?**

Licensed Vocational Nurses provide basic bedside care and take vital signs such as temperature, blood pressure, pulse, and respiration. You also prepare and give injections and enemas, monitor catheters, apply dressings, treat bedsores, and give alcohol rubs and massages. You monitor your patients and report adverse reactions to medications or treatments. You collect samples for testing, perform routine laboratory tests, feed patients and record food and fluid intake and output and assist patients with bathing, dressing, and personal hygiene.

## **WHAT CAN I BECOME?**

A supervisor or charge nurse overseeing the work of other LVNs and nursing aides. Some LVNs choose to become registered nurses through numerous LVN-to-RN training programs.

## **WHAT SKILLS DO I NEED?**

You will need a caring, sympathetic nature and the emotional stability to deal with the sick and injured. You also need keen observational, decision-making and communication skills and the ability to work well under pressure. You need to be able to follow orders and work under close supervision by an RN or physician.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must complete a state-approved practical nursing program. Most programs last about one year and include both classroom study and supervised patient care. You will also need to pass a state licensing exam for vocational nursing.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, nutrition, psychology, and behavioral sciences are helpful. Take advantage of any health-occupations-related courses and clubs offered by your school. Secure Certified Nurse Assistant (CNA) certification if your school offers that program, and get a head start on college by participating in Tech Prep programs at your school.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Licensed Vocational Nurses in the Valley were \$34,920 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Very high; there are always shortages; so there will often be additional benefits, such as sign-on bonuses and shift differential pay.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

All the hospitals in this region want to hire nurses. These sought-after workers can also find employment in doctors' offices, clinics, nursing homes, and government agencies.



# **JOB IDENTIFICATION MATRIX—MACHINISTS**

## **WHAT CAN I DO?**

Machinists use machine tools, such as lathes, milling machines, and machining centers, to produce precision metal parts. Although they may produce large quantities of one part, precision machinists often produce small batches or one-of-a-kind items. They use their knowledge of the working properties of metals and their skill with machine tools to plan and carry out the operations needed to make machined products that meet precise specifications. Before they machine a part, machinists must carefully plan and prepare the operation, requiring them to review electronic or written blueprints or specifications and calculate where to cut or bore into the workpiece (the piece of steel, aluminum, titanium, plastic, silicon or any other material that is being shaped), how fast to feed the workpiece into the machine, and how much material to remove. They then select tools and materials for the job, plan the sequence of cutting and finishing operations, and mark the workpiece to show where cuts should be made. After this layout work is completed, machinists perform the necessary machining operations. The temperature of the workpiece is a key concern because most metals expand when heated; machinists must adjust the size of their cuts relative to the temperature.

## **WHAT CAN I BECOME?**

You could earn certification through the National Institute of Metalworking Standards (NIMS). With experience, you could become a computer-numeric-control (CNC) programmer, a tool and die maker, or a mold maker, or you could be promoted to a supervisory or administrative position. You might also open your own shop.

## **WHAT SKILLS DO I NEED?**

You need to be proficient in mathematics, writing and reading, and you need excellent computer skills. You need a working knowledge of basic hand tools and measuring devices as well as good mechanical and problem-solving abilities. You need strong work ethics and the ability to work well both independently and in teams.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need to complete a college program in machining technology. NIMS certification would be helpful. There are also apprenticeship programs that you can enter to continue growing in the field.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics classes such as geometry and trigonometry, and take science classes such as physics and principles of technology. If your high school offers machining technology courses on the campus or through dual-enrollment arrangements with a college, take those courses. It will also be helpful to take classes such as computer-aided design, computer graphics, and computer-controls classes. Strengthen your technical and interpersonal/leadership skills by participating in student clubs and competitions, and get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You could begin by earning \$11 or \$12 an hour (\$22,880 or more a year), then move up from there with experience. If you qualify for an apprenticeship program, you could be paid an excellent salary while continuing to upgrade your professional skills.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong, ongoing need for machinists in the Rio Grande Valley. The demand is also strong outside of this region.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Tyco Flow Controls, Asphalt Products, Fox Valley Molding, Gibbs Texas Die Casting, ITD Precision, United Launch Alliance, Lorentson, Mesa Precision, Progressive Molded Products Inc., and Trico Products all hire machinists here in the Valley.

# **JOB IDENTIFICATION MATRIX—MECHATRONICS TECHNICIANS**

## **WHAT CAN I DO?**

You can work in a new and exciting interdisciplinary field dealing with the integration of mechanical and electronic components coordinated by a control system. You will work in a multidisciplinary environment that has you combine applications from electronics, machining, computer science, and automation/robotics. You might even work from home, calibrating substations for companies and working from a laptop computer workstation. You will be able to work right here in the Rio Grande Valley, earning good money, although there are also opportunities in other parts of the state and the nation.

## **WHAT CAN I BECOME?**

You can become a technician who works in an office or uses a laptop to “telecommute,” working from home or a location in the field. You can eventually become a Lead Technician or Technician Supervisor.

## **WHAT SKILLS DO I NEED?**

You need to be good at advanced mathematics, writing and reading. You also need to be computer literate and skilled in using engineering software. Strong analytical and problem solving abilities are essential. You need the ability to work independently and also as a team member.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

High School Diploma and a 2-year engineering or engineering technology degree from an accredited college or university.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take high school technical courses in electronics, pre-engineering, machining technology, and mechatronics-related fields. Participate in job shadowing and internships with local manufacturing firms. Take geometry, trigonometry, and advanced mathematics classes as well as science classes. Participate in career and technology programs related to engineering and manufacturing, such as engineering graphics, computer graphics, metalworking skills, and electronics. Participate in student clubs and competitions, which will develop your leadership and communication skills. Begin college in high school through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You will be able to earn \$10 to \$14 an hour (\$20,800 to \$29,120) at the beginning of your career here in the Valley. If you do a good job, you will earn more as you gain experience.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are good job possibilities for mechatronics technicians in the Valley—on both sides of the U.S./Mexico border—although there are also many jobs outside of this region.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

AEP/American Electric Power, AT&T, Verizon, Brownsville Public Utilities Board, and Chevron Oil Company are all Rio Grande Valley companies that hire mechatronics technicians.

# **JOB IDENTIFICATION MATRIX—MEDICAL ASSISTANTS**

## **WHAT CAN I DO?**

Medical assistants perform administrative and clinical tasks to keep the offices of physicians, podiatrists, chiropractors, and other health practitioners running smoothly. (They should not be confused with physician assistants, who examine, diagnose, and treat patients under the direct supervision of a physician.) The duties of medical assistants vary from office to office, depending on the location and size of the practice and the practitioner's specialty. Medical assistants perform many administrative duties, including answering telephones, greeting patients, updating and filing patients' medical records, filling out insurance forms, handling correspondence, scheduling appointments, arranging for hospital admission and laboratory services, and handling billing and bookkeeping. Depending on the office, they may also perform clinical duties or instruct patients about medications and special diets. They may also prepare and administer medications as directed by a physician, authorize drug refills as directed, telephone prescriptions to a pharmacy, and perform other duties as assigned.

## **WHAT CAN I BECOME?**

Depending on the office, you might be able to advance to office manager or qualify for a variety of administrative support occupations. With additional education, you might teach medical assisting or enter other health occupations, such as nursing and medical technology.

## **WHAT SKILLS DO I NEED?**

You will be dealing with the public; so you must be neat and well groomed and have a courteous, pleasant manner. You must be able to put patients at ease and explain physicians' instructions. You must also respect the confidential nature of medical information. Clinical duties require a reasonable level of manual dexterity and visual acuity. The ability to communicate in both English and Spanish will be of tremendous assistance as you communicate with the patients served by your office.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Most physicians will prefer that you complete a post-secondary training program. In high school, you should take mathematics and science courses (especially biology and anatomy and physiology), as well as any health-occupations-related courses offered by your school. The American Association of Medical Assistants also recommends courses in typing, bookkeeping, computers and other office skills courses.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Take advantage of any related certification programs offered by your school, such as Certified Nurse Assistant (CNA).

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You will probably earn around \$10 an hour (\$20,800 a year) when you begin your career in the Valley. With experience, your earnings will increase. According to the Bureau of Labor Statistics the average hourly rate for Medical Assistants for the whole state of Texas is \$18.00 an hour or about \$37,000 a year.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong health industry in the Valley, and the demand for medical assistants is excellent. Texas Workforce Solutions in their projections for demand occupations in the Rio Grande Valley ranks Medical Assistants as the fastest growing occupation.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Hospitals, doctors' offices, and clinics, as well as government offices.

# **JOB IDENTIFICATION MATRIX—MEDICAL RECORDS AND HEALTH INFORMATION TECHNICIANS**

## **WHAT CAN I DO?**

The health information technician focuses on health care data and the management of health care information resources. This profession addresses the nature, structure and translation of data into usable forms of information for the advancement of health and health care of individuals and populations. Health information technicians collect, integrate, and analyze primary and secondary health care data, disseminate information and manage information resources related to research, planning, provision and evaluation of health care services.

## **WHAT CAN I BECOME?**

Health information technicians are trained for a variety of opportunities including, but not limited to, the following: utilization management technicians, medical statistic specialists, release of information technicians, health record analysts, quality assurance abstractors, and health record consultants. Experienced health information technicians usually advance in one of two ways-by specializing or managing. Many senior technicians specialize in coding. Most coding and registry skills are learned on the job.

## **WHAT SKILLS DO I NEED?**

Excellent knowledge of medical terminology is essential. You also need strong communication skills and work ethics, ability to utilize computer applications, and the ability to work well both independently and in teams. You need the ability to locate and organize information, and you must respect the confidential nature of patients' health care information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Most employers prefer to hire Registered Health Information Technicians (RHIT), who must pass a written examination offered by the American Health Information Management Association (AHIMA). To take the examination, a person must graduate from a 2-year associate degree program accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). Technicians trained in non-CAHIIM-accredited programs or trained on the job are not eligible to take the examination. National credentials can also be obtained in the field of coding through the American Health Information Management Association (AHIMA). After passing the certification exam, individuals must maintain their credential through continuing education requirements.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics as well as science courses (biology, chemistry, anatomy and physiology), health, medical terminology and computer science courses. Take health-occupations courses and participate in student clubs if they are offered by your school. Get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

In the Valley, you will probably earn between \$9 and \$11 an hour (\$18,720 or more a year), and your earnings will increase as your experience grows. With national credentials, your starting hourly wage will increase to approximately \$12 to \$14 an hour, depending on the facility.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong demand for medical records specialists/health information technicians in the Valley, and that demand will continue to grow as the region's health industry expands.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Doctors' offices, clinics, hospitals, and government offices with health departments.

# **JOB IDENTIFICATION MATRIX-MEDICAL TRANSCRIPTIONISTS**

## **WHAT CAN I DO?**

A Medical Transcriptionist is also known as a Medical Information Specialist. If you enter this field, you will listen to dictated recordings made by physicians and other health care professionals and transcribe them into medical reports, correspondence, and other administrative material. You must understand medical terminology, anatomy and physiology, diagnostic procedures, pharmacology, and treatment assessments. You must also translate medical jargon and abbreviations into their expanded forms. Medical information specialists are vital members of the health care team who work very closely with physicians, nurses, and other health care providers. They are the patient data experts on which patient care practitioners rely. This is the ideal profession for individuals who are interested in working in the medical field; yet do not want to work directly in patient care.

## **WHAT CAN I BECOME?**

You will become a medical language specialist who interprets and transcribes reports dictated by physicians and other health care professionals. The reports you will provide are the communication tools for documenting health care and facilitating health care delivery. You might initially be employed as a medical transcription clerk or medical transcriptionist, but you can advance to a supervisory position, home-based work, editing, consulting, or teaching. With additional education or training, you could also become a medical coder, medical records and health information technician, and or a medical record and health information administrator.

## **WHAT SKILLS DO I NEED?**

To become a medical information specialist/transcriptionist, you need to understand medical terminology, anatomy and physiology, pathophysiology and must have good English grammar and punctuation skills. You also need to be proficient with personal computers and word processing software as well as possessing good listening skills. You need good work ethics and the ability to work well independently as well as in teams.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Employers prefer transcriptionists who have completed postsecondary training in medical transcription. Completion of a 1-year certificate is highly recommended. To ensure that medical transcriptionists meet professional standards of excellence, the American Association for Medical Transcription (AAMT) issues two national credentials. Individuals can earn credentials through a combination of education and experience, and finally, performance on a national exam. Upon successfully passing the AAMT exam for either the CMT or RMT, individuals must maintain their credential through continuing education requirements.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in English, chemistry, biology, anatomy and physiology, and computer science are useful. Take health-occupations courses and participate in student clubs if they are offered by your school. Get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Medical Transcriptionists in the Valley were \$20,592 in 2004. Average annual earnings of beginning medical transcriptionists in the Valley range from \$19,000 to \$23,500, as most are paid by line count and not by the hour.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand for these workers is growing in the Valley as medical facilities continue to increase.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals want to hire these individuals, and they can also find employment in doctors' offices and clinics, as well as, in some cases, attorneys' offices and insurance companies.

# **JOB IDENTIFICATION MATRIX—MEDICAL / CLINICAL LABORATORY TECHNICIANS**

## **WHAT CAN I DO?**

As a Medical Lab Technician, you will use sophisticated instruments such as microscopes, electronic counters and automated analyzers to test blood, tissue, and body fluids. These tests are vital in the detection, diagnosis, and treatment of diseases. You will do most routine laboratory testing. You may prepare specimens and operate machines that automatically analyze samples. You may follow detailed instructions to do tests by hand then record the test results on computers. Some technicians run all types of tests, while others will specialize.

## **WHAT CAN I BECOME?**

With additional training and education, you can advance to career as a Medical Technologist. Medical Technologists perform a full range of laboratory tests and can become teachers, supervisors, or researchers in areas of scientific exploration.

## **WHAT SKILLS DO I NEED?**

You need good motor skills and acute vision. You should enjoy problem-solving and be detail-oriented and exacting. You need to be able to work well under pressure and can follow procedures. You need to be a caring individual who takes pride in his or her work because the accuracy of medical tests can affect people's lives. You also need a respect for the confidential nature of individuals' health information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Colleges and universities offer formal training in both 2- and 4-year programs leading to an associate or bachelor's degree. You might also train in hospitals. National certification is offered by the Registry of the American Society for Clinical Pathology, and those who pass the exam may use the initials MLT (ASCP) after their names.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in biology, chemistry, mathematics, and computer science are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Medical Lab Technicians in the Valley were \$26,062 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is always a demand for Medical Lab Technicians in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals want to hire Medical Lab Technicians. These individuals may also find employment in clinics and laboratories, as well as in government offices.

# **JOB IDENTIFICATION MATRIX—OCCUPATIONAL THERAPISTS & OCCUPATIONAL THERAPY ASSISTANTS**

## **WHAT CAN I DO?**

Occupational Therapists help individuals whose ability to cope with the activities of daily living are impaired by physical illness or injury, congenital or developmental disability or the aging process. Your goal as a therapist is to help your patients regain their independence and good health. Occupational Therapy Assistants work with the occupational therapist to help treat the patient. These individuals may assist the patient with exercise, work with artificial limbs, provide therapeutic massage or perform other activities as directed by the Occupational Therapist.

## **WHAT CAN I BECOME?**

Occupational Therapy Assistants can become Occupational Therapists with additional training and education. Therapists themselves can advance to supervisory or management roles in hospitals, nursing homes, and outpatient care centers, or go into private practice.

## **WHAT SKILLS DO I NEED?**

You need patience and strong interpersonal communication skills. Ingenuity and imagination in adapting activities to individual needs is an advantage. Those working in home health care must be able to adapt to a variety of settings. You must respect the confidential nature of health information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

For *Occupational Therapists*, currently a bachelor's degree is the minimum requirement for becoming an occupational therapist; beginning in 2007, a master's degree or higher will be the minimum educational requirement. Occupational therapy course work includes the physical, biological, and behavioral sciences and the application of occupational theory and skills. The completion of 6 months of supervised fieldwork is required. Occupational therapists must take and pass the national certifying exam given by the American Occupational Therapy Certification Board; to become licensed, you must pass the exam administered by the Executive Council of Physical Therapy and Occupational Therapy Examiners

For *Occupational Therapy Assistants*, a 2-year associate degree or completion of a certificate program is required. Therapy Assistants must take and pass the national exam administered by the American Occupational Therapy Certification Board and then pass the state licensure exam.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, physics, health, art, and the social sciences are recommended. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Median annual earnings of Occupational Therapists in the Valley were \$67,540 in 2004. Occupational Therapy Assistants could earn \$40,000 or more a year.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a high demand for both Occupational Therapists and Occupational Therapy Assistants.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals want to hire these individuals. They may also find work in large medical offices or in some government agencies.

# **JOB IDENTIFICATION MATRIX—PARALEGALS AND LEGAL ASSISTANTS**

## **WHAT CAN I DO?**

While lawyers assume ultimate responsibility for legal work, they often delegate many of their tasks to paralegals. Although they perform many of the same tasks as [lawyers](#), paralegals are prohibited from carrying out duties that are considered to be the practice of law, such as setting legal fees, giving legal advice, and presenting cases in court. Paralegals help lawyers prepare for closings, hearings, trials, and corporate meetings. They may also help draft contracts, mortgages, separation agreements, wills, and instruments of trust. They may assist in preparing tax returns and planning estates, coordinate the activities of other law office employees, and maintain financial office records. Duties differ widely according to the types of organizations in which paralegals are employed.

## **WHAT CAN I BECOME?**

Paralegals usually are given more responsibilities and require less supervision as they gain work experience. Experienced paralegals who work in large law firms, corporate legal departments, or government agencies may supervise and delegate assignments to other paralegals and clerical staff. Advancement opportunities also include promotion to managerial and other law-related positions within the firm or corporate legal department. You might also continue your education and become an attorney or a teacher in a college program.

## **WHAT SKILLS DO I NEED?**

You need an excellent command of the English language and English grammar, along with strong interpersonal communication skills and excellent critical-thinking, problem-solving, and analytical skills. Keyboarding skills, skills in research, including internet research, and the ability to use a variety of software applications (word processing, spreadsheets, databases, and presentation graphics) are all essential. You must be able to locate and organize information and understand and interact with a variety of systems. You need good work ethics, the ability to work well independently and in teams, and respect for the confidential nature of the legal information. You must also be courteous and professional and uphold the ethical standards of the legal profession.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

The most common way to become a paralegal is through a 2-year associate degree program. The other common method of entry, mainly for those who already have a college degree, is through a program that leads to a certification in paralegal studies. A small number of schools also offer bachelor's and master's degrees in paralegal studies. Some employers train paralegals on the job, hiring college graduates with no legal experience or promoting experienced legal secretaries. Earning a voluntary Certified Legal Assistant (CLA) certificate from the National Association of Legal Assistants (NALA), may offer labor market advantages.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take English courses, develop a strong command of English grammar, and develop critical-thinking skills by taking mathematics and other courses that require the application of logical thought processes. Take law-related courses if your school offers them, participate in student clubs to develop your leadership and communication skills, and get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

With a two-year degree, you could earn \$16 to \$18 an hour (\$33,000 or more a year) in the Valley.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a good demand for legal assistants in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Law firms, government offices, and related businesses such as insurance companies.



# **JOB IDENTIFICATION MATRIX—PHARMACY TECHNICIANS**

## **WHAT CAN I DO?**

Pharmacy Technicians help licensed pharmacists provide medication and other health care products to patients. Once a prescription is received, you must verify that the information on the prescription is complete and accurate. To fill the prescription, you must retrieve, count, pour, weigh, measure, and sometimes mix the medication. You then prepare the prescription labels, select the type of prescription container and affix the prescription and auxiliary labels to the container. In addition to pricing and filing the prescription, you may open and maintain patient profiles, prepare insurance claim forms and stock and take inventory of prescription and over-the-counter medications.

## **WHAT CAN I BECOME?**

A pharmacist or manager of a pharmacy with additional education, training and experience.

## **WHAT SKILLS DO I NEED?**

You need strong mathematics, spelling and reading skills. You must be alert, observant, organized, and responsible. You also need to be detail-oriented, for if you make an error in your work, it could have an adverse effect on someone's health. You must have strong interpersonal and communication skills and be able to follow instructions and work as part of a team.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You need a high school diploma/GED, and you could obtain formal training in a 2-year program leading to a diploma, certificate, or associate degree. You may also train in some hospitals, proprietary schools and the Armed Forces. The Pharmacy Technician Certification Board administers the National Pharmacy Technician Certification Exam, which is voluntary, but is becoming more and more a requirement for employers as reliance on pharmacy technicians grows.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in biology, chemistry, English, and health education would be beneficial. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Pharmacy Technicians in the Valley were \$21,569 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

Higher than average.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Seven hospitals hire Pharmacy Technicians. These individuals can also find work in large independent pharmacies and in pharmacies operated by large businesses.

# **JOB IDENTIFICATION MATRIX—PHYSICAL THERAPY ASSISTANTS**

## **WHAT CAN I DO?**

As a Physical Therapist Assistant you perform a variety of tasks under the direction and supervision of a physical therapist. You carry out treatment plans for patients by performing such tasks as training patients in exercises, giving massages or administering electrical stimulations, helping patients relearn daily living skills or how to use special equipment and prostheses. You record the patient's responses to treatment and report the outcome of each treatment to the physical therapist.

## **WHAT CAN I BECOME?**

With additional education and training, you can become a Physical Therapist.

## **WHAT SKILLS DO I NEED?**

You need a moderate degree of strength for physical exertion. You also need to be patient and have strong interpersonal communication skills. You need the ability to follow directions and work as a team member, and you need to respect the confidential nature of health information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

At a minimum, you need a high school diploma or GED. It is better to obtain a 2-year associate degree from a community college or university. Physical therapist assistants must be licensed in Texas; to become licensed, they must pass a national exam administered by Executive Council of Physical and Occupational Therapy Examiners.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, psychology, anatomy and physiology, and first aid are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earning of Physical Therapist Assistants in the Valley was \$39,520 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a high demand for Physical Therapist Assistants.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals hire Physical Therapist Assistants, as well as nursing care facilities, rehabilitation clinics, and other medical facilities.

# **JOB IDENTIFICATION MATRIX—PHYSICIAN ASSISTANTS**

## **WHAT CAN I DO?**

Physician assistants (PAs) practice medicine under the supervision of physicians and surgeons. They should not be confused with medical assistants, who perform routine clinical and clerical tasks. PAs are formally trained to provide diagnostic, therapeutic, and preventive health care services, as delegated by a physician. Working as members of the health care team, they take medical histories, examine and treat patients, order and interpret laboratory tests and x-rays, and make diagnoses. They also treat minor injuries, by suturing, splinting, and casting. PAs record progress notes, instruct and counsel patients, and order or carry out therapy. In Texas, they are also allowed to prescribe medications.

## **WHAT CAN I BECOME?**

Some PAs pursue additional education in a specialty such as surgery, neonatology, or emergency medicine. PA postgraduate educational programs are available in areas such as internal medicine, rural primary care, emergency medicine, surgery, pediatrics, neonatology, and occupational medicine. Candidates must be graduates of an accredited program and be certified by the NCCPA. As they attain greater clinical knowledge and experience, PAs can advance to added responsibilities and higher earnings. However, by the very nature of the profession, clinically practicing PAs always are supervised by physicians.

## **WHAT SKILLS DO I NEED?**

Physician assistants need leadership skills, self-confidence, and emotional stability. They must be willing to continue studying throughout their career to keep up with medical advances.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Becoming a PA requires completion of a four-year degree and then passing a Physician Assistant National Certifying Examination, administered by the National Commission on Certification of Physician Assistants (NCCPA) and open only to graduates of accredited PA education programs. Only those successfully completing the examination may use the credential "Physician Assistant-Certified." In order to remain certified, PAs must complete 100 hours of continuing medical education every 2 years. Every 6 years, they must pass a recertification examination or complete an alternative program combining learning experiences and a take-home examination.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, psychology, anatomy and physiology, and first aid are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Physicians' Assistants can earn \$38 to \$45 an hour (over \$70,000 a year) in the Rio Grande Valley.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The Valley has a strong and growing health care industry; job opportunities for Physicians' Assistants are good.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Hospitals and doctors' offices are the primary employers of Physicians' Assistants. Many PAs work in primary care specialties, such as general internal medicine, pediatrics, and family medicine. Other specialty areas include general and thoracic surgery, emergency medicine, orthopedics, and geriatrics.

# **JOB IDENTIFICATION MATRIX—PLUMBERS, PIPEFITTERS, AND STEAMERS**

## **WHAT CAN I DO?**

Most people are familiar with plumbers, who come to their home to unclog a drain or install an appliance. In addition to these activities, however, pipelayers, plumbers, pipefitters, and steamfitters install, maintain, and repair many different types of pipe systems. Although pipelaying, plumbing, pipefitting, and steamfitting sometimes are considered a single trade, workers generally specialize in one of five areas. *Pipelayers* lay clay, concrete, plastic, or cast-iron pipe for drains, sewers, water mains, and oil or gas lines and perform related tasks. *Plumbers* install and repair the water, waste disposal, drainage, and gas systems in homes and commercial and industrial buildings and install related appliances, fixtures, and equipment. *Pipefitters* install and repair both high- and low-pressure pipe systems used in manufacturing, in the generation of electricity, and in the heating and cooling of buildings, as well as automatic controls that are increasingly being used to regulate these systems. *Steamfitters* install pipe systems that move liquids or gases under high pressure. *Sprinklerfitters* install automatic fire sprinkler systems in buildings.

## **WHAT CAN I BECOME?**

With additional training and experience, you could become a supervisor for a mechanical or plumbing contractor. You could become a certified Master Plumber and train others in apprenticeship programs. You might also own your own business or move into closely related areas such as construction management or building inspection.

## **WHAT SKILLS DO I NEED?**

You must be in good physical condition, and you will need a high school diploma or GED. Strong analytical ability, communications skills, problem-solving skills, and manual dexterity are important.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Texas requires you to be licensed (see <http://www.tsbpe.state.tx.us/compact-exans.html>). You can get the education and training you need through the apprenticeship program offered by the Rio Grande Valley Independent Plumbers Alliance (RGV-IPA) in partnership with Texas State Technical College Harlingen. This program is tuition free and provides some tools required for classroom lab. Apprentices are required to purchase their own personal tools (sponsors have tool-purchase plans available through payroll deductions for apprentices). During training, you will earn a percentage of the average Journeyman's wages (current \$6.55 per hour—50% of the Journeyman average wage). After you completing the sponsored program and earning a license, you will have priority consideration for employment. You must be at least age 18 to enter into a sponsored apprenticeship program.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Secondary or postsecondary courses in shop, plumbing, general mathematics, drafting, blueprint reading, computers, and physics are good preparation. Take advantage of related career and technology courses offered by your high school, and participate in student clubs to develop your leadership and communication skills. If you think you might want to own your business someday, courses in business and marketing will be helpful.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$11 to \$17 an hour (\$30,000 or more) in the Valley.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a currently a need for plumbers, and the demand is expected to increase in the future.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

You could work for a large construction firm, for an independent plumbing company, for a school district, college, or university, or for a government office, or in a local hospital.

# **JOB IDENTIFICATION MATRIX—POLICE/SHERIFF PATROL OFFICERS**

## **WHAT CAN I DO?**

People depend on police officers and detectives to protect their lives and property. Law enforcement officers, some of whom are state or federal special agents or inspectors, perform these duties in a variety of ways, depending on the size and type of their organization. In most jurisdictions, they are expected to exercise authority when necessary, whether on or off duty. *Uniformed police officers* have general law enforcement duties, including maintaining regular patrols and responding to calls for service. They may direct traffic at the scene of an accident, investigate a burglary, or give first aid to an accident victim. *Sheriffs and deputy sheriffs* enforce the law on the county level. Sheriffs are usually elected to their posts and perform duties similar to those of a local or county police chief. Deputy sheriffs have law enforcement duties similar to those of officers in urban police departments. Police and sheriffs' deputies who provide security in courts are sometimes called bailiffs.

## **WHAT CAN I BECOME?**

You can move into positions of increasing responsibility and become a detective or specialize in one type of police work, such as working with juveniles. Promotions to corporal, sergeant, lieutenant, and captain usually are made according to a candidate's position on a promotion list, as determined by scores on a written examination and on-the-job performance. You could also continue your education and move into other positions or teach.

## **WHAT SKILLS DO I NEED?**

You should enjoy working with people and meeting the public, and you must be a U.S. citizen and of legal age. You will be required to meet rigorous physical and personal qualifications. Physical examinations for entrance into law enforcement often include tests of vision, hearing, strength, and agility. Eligibility for appointment usually depends on performance in competitive written examinations and previous education and experience. Personal characteristics such as honesty, sound judgment, integrity, and a sense of responsibility are especially important, and you may be interviewed by senior officers and/or have your character traits and background investigated. In some agencies, candidates are interviewed by a psychiatrist or a psychologist or given a personality test. Most applicants are subjected to lie detector examinations or drug testing. Some agencies subject sworn personnel to random drug testing as a condition of continuing employment.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must have at least a high school education, and some departments require a year or two of college coursework. Federal and state agencies typically require a college degree. Certification exams may be required.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Mathematics, English and Spanish, science, and social studies courses are important. Develop your academic skills and participate in student clubs that will help to develop your leadership and communication skills. Stay physically fit, develop strong character (honesty, integrity, dependability) and participate in criminal justice classes if your school offers them. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You have the potential to earn \$18 to \$20 an hour (\$37,000 or so a year) in this field.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong demand for these workers in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Cities, counties, colleges, school districts, and other government offices.

# **JOB IDENTIFICATION MATRIX—RADIOLOGIC TECHNOLOGISTS / TECHNICIANS**

## **WHAT CAN I DO?**

Radiologic Technologists take x-rays and administer nonradioactive materials into patients' bloodstreams for diagnostic purposes. Some specialize in diagnostic imaging technologies such as computerized tomography (CT) and magnetic resonance imaging (MRI). As a radiologic technologist or radiographer, you prepare patients for exams and operate the equipment to radiograph the appropriate parts of the body. You also make the exposure, remove the film and develop it. You keep patient records and adjust and maintain the equipment.

## **WHAT CAN I BECOME?**

You can be promoted to supervisor, chief radiologic technologist, department administrator or director.

## **WHAT SKILLS DO I NEED?**

You must have sensitivity to patients' physical and psychological needs. You also need mechanical ability and manual dexterity to operate complicated equipment. You must be detail-oriented, able to follow instructions, and able to work as part of a team.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You will need a high school diploma/GED and then complete a formal training program ranging from 1 to 4 years that leads to a certificate, associate degree, or bachelor's degree. You may also train in some hospitals and the Armed Forces. The Joint Review on Education in Radiologic Technology accredits most formal training programs for the field. Certification, which is voluntary, is offered by the American Registry of Radiologic Technologists.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in mathematics, physics, chemistry, biology, anatomy and physiology, and medical terminology are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Median annual earnings of Radiologic Technologists in the Valley were \$38,260 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong demand for these highly skilled workers.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Ten hospitals as well as large medical clinics and laboratories and some government offices.

# **JOB IDENTIFICATION MATRIX—REGISTERED NURSES**

## **WHAT CAN I DO?**

Nursing is the largest of all health care occupations. Registered Nurses held about 2-4 million jobs in 2004. If you become a nurse, you will perform duties that include treating patients, educating patients and the public about various medical conditions, providing advice and emotional support to patients' families. RNs record patients' medical histories and symptoms; help to perform diagnostic tests and analyze results, operate medical machinery, administer treatment and medications, and help with patient follow-up and rehabilitation.

## **WHAT CAN I BECOME?**

Begin as an RN and move into a position as a supervisor or lead person or a nurse practitioner. Nurse practitioners are often considered a primary health care practitioner and works independently or in collaboration with MDs.

## **WHAT SKILLS DO I NEED?**

You need to be caring, sympathetic, and responsible. You must be detail-oriented, and you will need to have the emotional stability to deal with human suffering and emergencies. It is important that you have critical-thinking skills, problem-solving skills, and good judgment. You also need interpersonal characteristics such as honesty, integrity, and the ability to work well independently and in teams. You may also need the ability to supervise work done by others. The ability to communicate in both English and Spanish is desirable, and you must respect the confidential nature of patients' health information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must graduate from an approved school of nursing with one of these degrees: Bachelor of Science degree in Nursing, Associate degree in Nursing, or Diploma from an approved nursing program. You must also pass a state licensing exam to obtain a nursing license.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Courses in biology, chemistry, nutrition, anatomy and physiology, medical terminology, psychology and the behavioral sciences are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Take advantage of any certification programs offered by your school, such as Certified Nurse Assistant (CNA).

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings of Registered Nurses in the Valley were \$67,730 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand for nurses is very high.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Doctors' offices, clinics, and all of the hospitals in the Valley. Hospitals often will help with education costs and offer sign-on bonuses for new employees. Some hospitals have their own RN training programs.

# **JOB IDENTIFICATION MATRIX—RESPIRATORY THERAPISTS**

## **WHAT CAN I DO?**

Respiratory Therapists evaluate, treat and care for patients with breathing or other cardiopulmonary disorders. Practicing under the direction of a physician, you take primary responsibility for all respiratory care, therapeutic treatments and diagnostic procedures, including the supervision of respiratory therapy technicians. You evaluate and treat all types of patients, from premature infants whose lungs are not fully developed to elderly people whose lungs are diseased. You provide temporary relief to patients with chronic asthma or emphysema as well as emergency care to victims of heart attack, stroke, drowning or shock.

## **WHAT CAN I BECOME?**

A supervisor or manager in a respiratory therapy department. Therapists in home health care and equipment rental firms may become branch managers. Others advance by moving into teaching positions.

## **WHAT SKILLS DO I NEED?**

You must have sensitivity to patients' physical and psychological needs. You also need to be detail-oriented and proficient with computers and medical equipment used by Respiratory Therapists. You must be able to follow instructions and work as part of a team, and you must respect the confidential nature of health information.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Colleges and universities offer formal training in both 2- and 4-year programs leading to an associate or bachelor's degrees. You may also train in medical schools and the Armed Forces. The National Board of Respiratory Care offers certification and registration to graduates of accredited programs; graduates from accredited entry-level programs in respiratory therapy may take the Certified Respiratory Therapist (CRT) exam.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in health, biology, mathematics, chemistry, anatomy and physiology, medical terminology, and physics are useful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Take advantage of any related certification programs offered by your school, such as Certified Nurse Assistant (CNA).

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings for Respiratory Therapists in Texas were \$43,030 in 2004.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand for these workers in the Valley is higher than average for similar professions.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Twelve hospitals want to hire Respiratory Therapists, and they may also find work in large clinics and other medical facilities.



# **JOB IDENTIFICATION MATRIX—SECRETARIES (EXECUTIVE / ADMINISTRATIVE / LEGAL / MEDICAL)**

## **WHAT CAN I DO?**

Office automation and organizational restructuring have led executive and administrative secretaries and administrative assistants to assume responsibilities once reserved for managerial and professional staff. Many of these individuals now provide training and orientation for new staff, conduct research on the Internet, and operate and troubleshoot new office technologies. In spite of these changes, core responsibilities remain much the same: Performing and coordinating an office's administrative activities and storing, retrieving, and integrating information for dissemination to staff and clients. These workers are responsible for a variety of administrative and clerical duties necessary to run an organization efficiently. Some secretaries and administrative assistants, such as legal and medical secretaries, perform highly specialized work requiring knowledge of technical terminology and procedures.

## **WHAT CAN I BECOME?**

You may begin your career as an entry-level secretary and be promoted to an executive or administrative secretarial positions. Depending on where you work, you might also become a clerical supervisor, an office manager, or a trainer. Secretarial and administrative support experience also can lead to jobs such as instructor or sales representative with manufacturers of software or computer equipment. With additional training, many legal secretaries become paralegals.

## **WHAT SKILLS DO I NEED?**

You must be proficient in keyboarding and good at spelling, punctuation, grammar, and oral and written communication. You also need good customer service and interpersonal skills, as well as critical-thinking and problem-solving skills. Discretion, good judgment, organizational or management ability, initiative, and the ability to work independently are especially important for higher level administrative positions. The ability to communicate in both English and Spanish is an asset.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Secretaries and administrative assistants acquire skills in various ways. Training ranges from high school vocational education programs that teach office skills and keyboarding to 1- and 2-year programs offered by local colleges. Many temporary placement agencies also provide formal training in computer and office skills. However, many skills tend to be acquired through on-the-job instruction by other employees or by equipment and software vendors. Specialized training programs are available for students planning to become medical or legal secretaries or administrative technology specialists, and certification programs are available.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics (which helps develop your critical thinking and problem-solving skills) and English (which helps with reading comprehension and communication) all four years of high school. Take business and secretarial courses offered by your school, and participate in student clubs and competitions to help develop your leadership and communication skills as well as technical skills. Begin college in high school with Tech Prep in a program related to office administration and business.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn from \$13 to \$15 an hour (\$27,000 or more a year).

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There will always be jobs for these workers because they keep work flowing in a variety of offices.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Colleges and universities, school districts, local government offices, and all sorts of businesses and offices.

# **JOB IDENTIFICATION MATRIX—SOCIAL WORKERS**

## **WHAT CAN I DO?**

Social work is a profession for those with a strong desire to help improve people's lives. Social workers help people function the best way they can in their environment, deal with their relationships, and solve personal and family problems. Social workers often see clients who face a life-threatening disease or a social problem, such as inadequate housing, unemployment, a serious illness, a disability, or substance abuse. Social workers also assist families that have serious domestic conflicts, sometimes involving child or spousal abuse. Social workers often provide social services in health-related settings that now are governed by managed care organizations. To contain costs, these organizations emphasize short-term intervention, ambulatory and community-based care, and greater decentralization of services. Most social workers specialize. Although some conduct research or are involved in planning or policy development, most social workers prefer an area of practice in which they interact with clients.

## **WHAT CAN I BECOME?**

Advancement to supervisor, program manager, assistant director, or executive director of a social service agency or department is possible, but usually requires an advanced degree and related work experience. Other career options for social workers include teaching, research, and consulting. Some of these workers also help formulate government policies by analyzing and advocating policy positions in government agencies, in research institutions, and on legislators' staffs. Some social workers go into private practice.

## **WHAT SKILLS DO I NEED?**

You must be emotionally mature, objective, and sensitive to people and their problems. You must be able to handle responsibility, work independently, and maintain good working relationships with clients and coworkers. Strong communications skills (in both English and Spanish) and professional ethics are also important.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

While a bachelor's degree is the minimum requirement, a master's degree in social work or a related field has become the standard for many positions. The state of Texas requires that you have a license (see <http://www.dshs.state.tx.us/socialwork/default.shtm>).

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Develop excellent skills in mathematics, English, Spanish, science, and communications. Participate in student clubs to develop your leadership skills. Participate in health- and teaching-related courses if your school offers them. Be a volunteer worker for your school's counselor or social worker. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn from \$15 to \$17 an hour (\$31,000 or more a year).

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a strong demand for social workers in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Hospitals and health care agencies, social-assistance agencies, school districts, colleges, and universities, and state and local government agencies.

# **JOB IDENTIFICATION MATRIX—SURGICAL TECHNOLOGISTS**

## **WHAT CAN I DO?**

As a Surgical Technologist you perform a variety of tasks before, during, and after surgery. You work closely with the surgeon or surgeons, helping them on with their gloves and gowns, placing instruments, supplies and equipment on sterile tables and stands, passing instruments and supplies, assisting in the retraction of tissues, cutting sutures and operating special equipment. You prepare the patient for surgery and maintain surgical instruments and specimens. After surgery, you may help transfer patients to the recovery room and clean and restock the O.R.

## **WHAT CAN I BECOME?**

You can advance by specializing in a particular area of surgery. With additional training, you can advance to first assistants, who specialize in closing and treating wounds. Some surgical technologists manage central supply departments in hospitals or work for insurance companies, sterile supply services or equipment companies.

## **WHAT SKILLS DO I NEED?**

You need good manual dexterity to handle instruments quickly. You need to be conscientious, orderly and emotionally stable to handle the demands of the operating room. You need to work well under pressure and be familiar with operating procedures.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Surgical Technologists receive their training in formal programs offered by community and technical colleges, vocational schools, universities, hospitals, and the military. Training programs that last from 9 to 24 months and lead to a certificate, diploma, or associate degree; such programs include classroom education and supervised clinical experience. The Liaison Council on Certification for the Surgical Technologist awards the voluntary designation Certified Surgical Technologist (CST) to those who pass a national certification examination. Entry into a formal program requires that you pass a drug test and a criminal background check.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in biology, chemistry, medical terminology, and anatomy and physiology are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Take advantage of any related certification programs offered by your school, such as Certified Nurse Assistant (CNA).

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

Average annual earnings for Surgical Technologists in the Valley were \$37,000 in 2007.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a high demand for Surgical Technologists.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Hospitals in this region want to hire Surgical Technologists. These individuals may also go to work in large clinics that need their special expertise.

# **JOB IDENTIFICATION MATRIX—TEACHER ASSISTANTS**

## **WHAT CAN I DO?**

Teacher Assistants provide instructional and clerical support for classroom teachers. Teacher Assistants tutor and assist children in learning class material using the teacher's lesson plans, providing students with individualized attention. Teacher assistants may perform a variety of other duties to support instruction, such as supervising students in the cafeteria, schoolyard, hallways, and on field trips; recording grades; setting up equipment; and helping prepare materials for instruction. Teacher Assistants may also be called teacher aides, instructional aides, or paraprofessionals. Graduates of the Teacher Assistant Program may also qualify to become "teachers" within various early childhood centers across the valley.

## **WHAT CAN I BECOME?**

Advancement for Teacher Assistants—usually in the form of higher earnings or increased responsibility—comes primarily with experience or additional education. Some school districts provide time away from the job or tuition reimbursement so that Teacher Assistants can earn their bachelor's degree and pursue licensed teaching positions. In return for tuition reimbursement, you may also have the opportunity to move into other support staff positions in a school district. Many teacher assistants, who have their own children, enjoy the school work day and work year that allow them to be home when their children are not in school.

## **WHAT SKILLS DO I NEED?**

You should enjoy working with children from a wide range of cultural backgrounds, and be able to handle classroom situations with fairness and patience. You must also demonstrate initiative and a willingness to follow a teacher's directions. You must have good writing skills and be able to communicate effectively with students, teachers, administrators, and parents. The ability to communicate in both English and Spanish is an asset. You also need good organizational skills and the ability to work both independently and as a team member. Computer skills are also very helpful.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must meet one of these requirements: hold a 2-year or higher degree, have a minimum of 2 years of college, or pass a rigorous State or local assessment. Some schools may require previous experience in working with children, a valid driver's license, and a background check. There are Associate-degree and Certificate programs in the Valley that will prepare you to enter this career.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Participate in student clubs and competitions, which will develop your leadership and communication skills. Take teacher-preparation courses in high school. Begin college in high school through Tech Prep. "Ready, Set, Teach" or similar classes are excellent Career and Technical Education (CTE) courses that will help you get started.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You will earn about \$8.50 an hour at the beginning of your career. If you do a good job, your salary will increase with experience. Most school districts have health and other insurance packages for teacher assistants that can prove to be very beneficial. Figures are based on a 10 month school year.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a high demand for Teacher Assistants throughout the Rio Grande Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

School districts throughout this region are eager to hire individuals who qualify as Teacher Assistants. Local early childhood centers also are eager to hire qualified individuals.

# **JOB IDENTIFICATION MATRIX—TEACHERS (VARIOUS AREAS)**

## **WHAT CAN I DO?**

Teachers act as facilitators or coaches, using interactive discussions and “hands-on” approaches to help students learn and apply concepts in subjects such as science, mathematics, or English. They utilize “props” or “manipulatives” to help children understand abstract concepts, solve problems, and develop critical thought processes. As the children get older, the teachers use more sophisticated materials, such as science apparatus, cameras, or computers. To encourage collaboration in solving problems, students are increasingly working in groups to discuss and solve problems together. Preparing students for the future workforce is a major stimulus generating changes in education. To be prepared, students must be able to interact with others, adapt to new technology, and think through problems logically. Teachers provide the tools and the environment for their students to develop these skills.

## **WHAT CAN I BECOME?**

You can specialize in a particular teaching area, such as career and technology, special education, or early childhood education. Some teachers may become departmental “lead teachers” for their districts. With additional preparation, you may also become a school librarian, reading specialist, instructional coordinator, or guidance counselor. Teachers may become administrators or supervisors, although the number of these positions is limited and competition can be intense.

## **WHAT SKILLS DO I NEED?**

In addition to being knowledgeable about the subject(s) you teach, you must have the ability to communicate, inspire trust and confidence, and motivate students, as well as understand the students’ educational and emotional needs. Teachers must be able to recognize and respond to individual and cultural differences in students and employ different teaching methods that will result in higher student achievement. You must be organized, dependable, patient, and creative. You must also be able to work cooperatively and communicate effectively with other teachers, support staff, parents, and members of the community.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

You must have a bachelor’s or higher degree and teaching certification appropriate for your area of teaching (see <http://www.sbec.state.tx.us/SBECOnline>). If you have a baccalaureate, non-teaching degree you can prepare to become a teacher through an alternative certification program. You can also complete an associate degree as a Teacher Assistant and then move into a baccalaureate program to earn teaching certification.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Develop excellent skills in mathematics, English, Spanish, science, and communications. Participate in student clubs to develop your leadership skills. Participate in teaching-related courses if your school offers them. Get a head start on college through Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

An entry-level teacher will earn approximately \$36,000 a year or more, depending on the district for contracts that require them to work 10 or 11 months each year. Experienced teachers will earn significantly more than the entry-level \$36,000 annual salary. The average teacher salary in this region is \$24 per hour.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

The demand is very high, especially in “shortage” areas such as special education and technology education.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

School districts, charter schools, private schools, and other organizations such as prisons and juvenile detention centers.

# **JOB IDENTIFICATION MATRIX—TOOL AND DIE MAKERS**

## **WHAT CAN I DO?**

Tool and die makers are among the most highly skilled workers in manufacturing. These workers produce tools, dies, and special guiding and holding devices that enable machines to manufacture a variety of products we use daily—from clothing and furniture to heavy equipment and parts for aircraft. Toolmakers craft precision tools and machines that are used to cut, shape, and form metal and other materials. They also produce jigs and fixtures (devices that hold metal while it is bored, stamped, or drilled) and gauges and other measuring devices. Die makers construct metal forms (dies) that are used to shape metal in stamping and forging operations. They also make metal molds for diecasting and for molding plastics, ceramics, and composite materials. Some tool and die makers craft prototypes of parts, and then, working with engineers and designers, determine how best to manufacture the part. In addition to developing, designing, and producing new tools and dies, these workers also may repair worn or damaged tools, dies, gauges, jigs, and fixtures.

## **WHAT CAN I BECOME?**

You can become a Lead person or Supervisor.

## **WHAT SKILLS DO I NEED?**

Strong computer skills and proficient in basic math, writing and reading.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

High School Diploma and 2-year technical degree from an accredited technical college or trade school and a multi-year apprenticeship.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics classes such as geometry and trigonometry, and take science classes such as physics and principles of technology. If your high school offers machining technology courses on the campus or through dual-enrollment arrangements with a college, take those courses. It will also be helpful to take classes such as computer-aided design, computer graphics, and computer-controls classes. Strengthen your technical and interpersonal/leadership skills by participating in student clubs and competitions, and get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn from \$15 to \$18 an hour (\$31,000 a year or more) at the entry level in this field. Earnings will increase with experience.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There is a need for Tool and Die makers in the Valley. Employers want to hire more of these workers than can be found here. There is also a demand for these workers outside of the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Tyco Flow Controls, Fox Valley Molding, Gibbs Texas Die Casting, ITD Precision, Lorentson, Mesa Precision, Progressive Molded Products Inc., and Trico Products.

# **JOB IDENTIFICATION MATRIX—VETERINARY TECHNOLOGISTS AND TECHNICIANS**

## **WHAT CAN I DO?**

Veterinary technologists and technicians typically conduct clinical work in a private practice under the supervision of a veterinarian—often performing various medical tests along with treating and diagnosing medical conditions and diseases in animals. While most of these duties are performed in a laboratory setting, many are not. Veterinary technologists and technicians assisting small-animal practitioners usually care for companion animals, such as cats and dogs, but can perform a variety of duties with mice, rats, sheep, pigs, cattle, monkeys, birds, fish, and frogs. Very few veterinary technologists work in mixed animal practices where they care for both small companion animals and larger, nondomestic animals.

## **WHAT CAN I BECOME?**

Technologists and technicians usually begin work as trainees in routine positions under the direct supervision of a veterinarian. As they gain experience, technologists and technicians take on more responsibility and carry out more assignments under only general veterinary supervision. Some eventually may become supervisors.

## **WHAT SKILLS DO I NEED?**

People who love animals get satisfaction from working with and helping them. However, some of the work may be unpleasant, physically and emotionally demanding, and sometimes dangerous. You need to be physically strong enough to clean cages and lift, hold, or restrain animals, risking exposure to bites or scratches. These workers must take precautions when treating animals with germicides or insecticides. You need excellent interpersonal communication skills and the duty to remain calm and professional in stressful situations. You must be detail-oriented and have the ability to work well in a team setting.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

Most entry-level veterinary technicians have a 2-year degree, usually an associate's degree, from an accredited community college program in veterinary technology in which courses are taught in clinical and laboratory settings using live animals. About 15 colleges offer veterinary technology programs that are longer and that culminate in a 4-year bachelor's degree in veterinary technology. Approximately 5 schools offer distance learning. Employers recommend American Association for Laboratory Animal Science (AALAS) certification for those seeking employment in a research facility.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

High school courses in biology, chemistry, medical terminology, and anatomy and physiology are helpful. You should also take advantage of health-related courses if they are offered by your school, as well as dual-enrollment and Tech Prep opportunities. Participating in student clubs and competitions will help you develop your communications and leadership skills, qualities that are important for career advancement. Consider volunteering to work at a local animal shelter or veterinarian's office.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn about \$13 an hour (\$27,000 a year) in this field.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are jobs for veterinary technologists in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Veterinarians' offices and animal hospitals, boarding kennels, animal shelters, stables, grooming salons, zoos, and local, state, and federal agencies.

# **JOB IDENTIFICATION MATRIX—WELDERS / CUTTERS / SOLDERERS / BRAZERS**

## **WHAT CAN I DO?**

Welding is the most common way of permanently joining metal parts. In this process, heat is applied to metal pieces, melting and fusing them to form a permanent bond. Because of its strength, welding is used in shipbuilding, automobile manufacturing and repair, aerospace applications, and thousands of other manufacturing activities. Welding also is used to join beams when constructing buildings, bridges, and other structures, and to join pipes in pipelines, power plants, and refineries. Welders use many types of welding equipment set up in a variety of positions, such as flat, vertical, horizontal, and overhead. They may perform manual welding, in which the work is entirely controlled by the welder, or semiautomatic welding, in which the welder uses machinery, such as a wire feeder, to perform welding tasks. There are about 100 different types of welding. Arc welding is the most common type.

## **WHAT CAN I BECOME?**

You can become a Lead person or Supervisor.

## **WHAT SKILLS DO I NEED?**

Welding, soldering, and brazing workers need good eyesight, hand-eye coordination, and manual dexterity. You need to be able to concentrate on detailed work for long periods and be able to bend, stoop, and work in awkward positions. You also need to be proficient in math, writing and reading; and you need good mechanical and problem-solving abilities.

## **WHAT EDUCATIONAL EXPERIENCE DO I NEED?**

High School Diploma or GED plus one or two years of post-secondary training. Certification may be required.

## **WHAT ELSE CAN I DO IN HIGH SCHOOL TO PREPARE FOR THIS JOB?**

Take mathematics classes such as geometry and trigonometry, and take science classes such as physics and principles of technology. If your high school offers welding-related courses on the campus or through dual-enrollment arrangements with a college, take those courses. It will also be helpful to strengthen your technical and interpersonal/leadership skills by participating in student clubs and competitions, and to get a head start on college by participating in Tech Prep.

## **HOW MUCH COULD I POTENTIALLY EARN AT THIS JOB?**

You can earn \$10 to \$20 an hour (\$20,800 to \$41,600 a year) at the beginning of your career. There is also plenty of overtime available. Fresh out of high school, you might be paid minimum wage. Earnings will increase as your experience increases.

## **WHAT IS THE DEMAND FOR THIS JOB IN THE VALLEY?**

There are many job openings for welders in the Valley.

## **WHO IN THE VALLEY HIRES PEOPLE WHO DO THIS JOB?**

Keppel Amfels, A. D. Welding (these companies are located in Port Brownsville), Tri City Steel Fabrication Inc., Southern Steel Fabricators Inc., Palmer Steel Inc., Reynolds Manufacturing, Precision Steel Inc., and Strong Structural Steel Inc.



## **SECTION 4: ECONOMIC DEVELOPMENT AND EDUCATION**

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### **HOW EDUCATORS INFLUENCE THE VALLEY'S ECONOMIC DEVELOPMENT**

Jobs with higher salaries go to the individuals who have pursued higher education and emerged computer-literate and technically skilled with a strong academic foundation. Educators who guide their students to gain technical skills throughout high school and college are building the 21<sup>st</sup> century's knowledge-economy labor pool. Teachers and counselors may realize that the skills they teach enhance their graduates' future employability and salaries. Yet few educators consider their own significant contribution to the region's economic vitality.

Forward-looking educators—those who help students grasp the importance of developing academic and technical skills—greatly influence the economic future of the Rio Grande Valley. That is because the educational level of the workforce is the make-or-break element for attracting new employers to the Rio Grande Valley.

“An undertrained or underdeveloped workforce is a deterrent to promoting our region to new and expanding businesses,” said Bill Martin, CEO of the Harlingen Economic Development Corporation (HEDC). The vital importance of developing a skilled workforce has prompted the HEDC, for example, to work closely with Tech Prep of the RGV and regional educators to identify and develop the skills that pave the way for individual success and greater community prosperity.

### **HOW ECONOMIC DEVELOPMENT WORKS**

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Businesses considering opening a Rio Grande Valley location have a checklist of features they must satisfy before locating their new service center, manufacturing plant, or retail store here. These prospective employers ask for hard data on labor force size, wage rates, major employers, training programs and education demographics. On the plus side, the Rio Grande Valley offers a relatively lower cost of living, a younger workforce, and dynamic educational facilities that include the University of Texas at Brownsville and Texas Southmost College, the University of Texas-Pan American, South Texas College and Texas State Technical College Harlingen. With a combined enrollment of over 333,164, the region's colleges promise an educated and ambitious workforce. Prospects find that existing businesses already employ skilled workers in healthcare, environmental, engineering, and information technology. The negative side of the regional picture includes perceptions regarding educational attainment, due to older immigrants.

Prospects typically ask how many students are in the school system, how many of them graduate from high school, and how many go on to community or technical colleges or universities.

The average Valley wage is lower than the national average, and the average educational attainment is lower as well. The two are directly related: better educations bring better salaries. The way to attract more well-paid jobs—raising incomes and the economic vitality of the region—is to develop a skilled workforce. But the “chicken and the egg” dilemma comes into play. If there are no jobs for people with advanced technical skills in fields such as healthcare, manufacturing, and information technology,

these people leave, creating the infamous “brain drain.” Yet prospective employers are reluctant to relocate if the region cannot offer them skilled employees.

Valley economic development councils and corporations frequently offer incentives to relocating companies to reduce the costs of starting at a new location. The incentives can include waiving property taxes for a period, providing assistance with financing or providing cash incentives as new benchmarks in employment or investment are reached. EDCs and their communities do this because they believe the salaries earned will bring more money, new money, into the region. More appliances, cars, homes and restaurant meals will be purchased by the gainfully employed. More sales and property taxes will come into local government coffers. Yet no amount of incentives can compensate for an otherwise poor business-location decision (i.e., where the labor pool cannot supply the type of workers sought).

While EDCs tend to focus on a single city’s assets, a new regional economic development marketing organization is working to sell the border counties as a whole, combining the strengths of the component cities and counties. The Rio South Texas Economic Council, a regional economic development entity created in 2008, has focused on emerging industries that the Valley as a region can pursue, such as manufacturing of medical products and renewable energy. That brings regional workforce issues to the fore. Tech Prep, which operates in 32 school districts of the Rio South, is positioned, if not funded, to capitalize on current successes and serve as a catalyst for raising the skill levels of the home-grown workforce.

## **THE PIVOTAL ROLES OF EDUCATORS AND TECH PREP IN WORKFORCE DEVELOPMENT**

Tech Prep maintains that every student should leave high school college-and-career ready, that is, equipped with directed technical skills and capable of learning more. Future workers moving through the education “pipeline” in public schools form a potential talent pool of skilled labor that has been labeled “intellectual capital.” According to Dr. Cesar Maldonado, P.E., president of Texas State Technical College and former Tech Prep Board Chair, intellectual capital is created “by the education system and its alignment with workforce needs.” His research showed that students in the College Tech Prep Program of four- and six-year career plans completed high school and also transitioned to two-year colleges at statistically significant higher rates than students not in the Tech Prep program. Given that College Tech Prep is currently implemented in 32 independent school districts and at five local colleges and universities, the increase in the young, technically-skilled workforce has likewise been significant and broad in scope.

Tech Prep fosters a highly literate workforce by serving as the intermediary between schools and businesses, two elements that rarely interact. Businesses complain to each other that graduates of Valley school systems are often unprepared to move into entry-level jobs. Yet local school districts and regional education centers rarely receive information, feedback, or guidance on real-world needs. Tech Prep has facilitated connections between employers and educators through various initiatives, under the guidance of its private-sector-led Board of Directors. Educators receive guidance in developing the curriculum that teaches in-demand skills. Tech Prep manages collaborative partnership initiatives such

as job-shadowing, student internships, Education & Career EXPO, and the Academic Leadership Alliance Summer Educator Externships (ALA), all of which provide Tech Prep students with additional information and motivation for choosing well-paid, skilled careers.

In ALA, a partnership with the McAllen Economic Development Corporation and Region One Education Service Center, Tech Prep matches educators with progressive employers who want to open lines of communication and actively impact the quality of students who graduate into the workforce after their post-secondary education. High school teachers and counselors extern with these businesses and get real-world experience about the challenges of the 21<sup>st</sup> century workplace. The educators develop lessons plans and presentations based on their immersion in the private workforce. In the process, they introduce their students to interesting career fields along with the skills required for success: computer competencies, problem-solving, math, written and oral reports, customer service attitudes, and much more. The Brownsville Chamber of Commerce, the McAllen EDC, the Harlingen Area Chamber of Commerce, and the Harlingen EDC have underwritten the popular ALA programs with great success. The strong and continuing business-education interaction, in fact, serves as a selling point to prospects.

The Harlingen EDC has stretched beyond simple ALA involvement and has translated its concern about skills development and workforce quality into year-round funding support of Tech Prep. As a Tech Prep partner, HEDC is working to expand proven programs. The HEDC expects its investment to pay off with an increase in the pool of young adults who can move into high-skills, high-wage jobs. The steps to that goal include increasing enrollment in the College Tech Prep Program within Harlingen CISD and at TSTC Harlingen. Their funding also increases the number of HCISD students who participate in Job Shadowing and EXPO. HEDC also helps underwrite the Labor Market Information Report. That compendium of hard data, besides being a valuable reference for students and counselors, is a crucial tool in new business recruitment. The LMI lists the current salaries for 50 targeted career fields along with the current and projected employment in those occupations. The data shows employers what they must pay to keep good people and avoid constant turnover. The employers, in turn, expect those individuals to have the skills to get the jobs done correctly and earn their salaries.

## **SUMMARY**

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When high school and college graduates have in-demand technical and academic skills, economic development organizations and their communities benefit. Existing and prospective businesses seek out those literate employees who will help their firms grow. The technically skilled graduates are positioned to secure well-paying jobs and to pursue 21<sup>st</sup> century careers in the Valley near their families. This chain of successes can be traced back to the efforts of schools, Tech Prep, local businesses, and other partners that collaborated to make education relevant to students by presenting proven career pathways and sufficient information to make career decisions.

## PROFILES OF FOUR HARLINGEN EMPLOYERS

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**Favelle Favco** Harlingen is the only U.S. manufacturing location of Favelle Favco, the Malaysia-based marine and construction tower crane maker. The international company's cranes have helped build nine of the world's ten tallest buildings. In Harlingen, production centers on complex crane control systems for Favelle Favco's 30- and 40-ton telescopic cranes. In addition, the facility sources and distributes spare parts for cranes operating at U.S. ports and major construction sites.

- **Electronics Engineer:** Designs and develops control systems for operating massive cranes by drawing on knowledge of integrated mechanical and electronic engineering, computer systems and control design. Position requires B.S. in Mechatronics and extensive experience working with cranes.
- **Draftsman:** Uses Computer-Aided Design (CAD) and engineering software to create detailed plans for machine controls. Position requires Associate Degree in Mechanical Design and experience with multiple CAD programs.
- **Electrical Fitter:** Interprets electric schematic drawings and fabricates control assemblies. The position requires a licensed electrician. Electricians complete four-year apprenticeship programs consisting of class work and on-the-job training and practice before becoming licensed.

**Outlook:** For skilled technicians and engineers, a niche market exists serving national and international clients.



### **Harlingen VA Outpatient Clinic and VA Health Care Center**

The Veterans Administration's Texas Valley Coastal Bend Health Care System provides medical care to military veterans. Patients receive treatment in primary care, medical specialties, outpatient surgeries, lab procedures, and therapy services. Once the VA Health Care Center is fully operational, in conjunction with the Harlingen and McAllen VA Outpatient Clinics and in addition to the Rio Grande Valley Veteran Inpatient/Emergency room and contracts with two local hospital systems, up to 95% of Veterans' need to travel to San Antonio will be avoided. In addition to physicians and nurses, the VA facility employs a large, technically-skilled support staff to care for patients.

- **Medical Technologist:** Performs, interprets, and validates the accuracy of laboratory procedures and results. Tests biological specimens and environmental samples using manual or automated techniques. Uses independent judgment and assumes responsibility. The job requires an Associate's Degree in Laboratory Science or Medical Laboratory Technology plus the completion of an approved clinical laboratory training program and certification as a medical technologist or clinical laboratory scientist.
- **Health Technician-Audiology:** Performs hearing aid maintenance and works directly with patients.

Independently completes audiology assessments for patients needing ear mold impressions or hearing aid repairs. The position requires an Associate of Arts or Associate of Science degree in speech and hearing fields. Must have one year of experience working independently in performing basic patient care, fitting various hearing aids, communicating with providers, and managing inventory.

- **Civilian Pay Technician:** Processes a wide variety of payrolls within an automated program for employees appointed under different personnel systems. Ensures the proper application of pay regulations and consistency for new hires, promotions, reassignments, awards, and separations. Preference goes to applicants with coursework in accounting, finance, management, and economics. The job requires at least one year of progressively responsible clerical work related to the knowledge and skills needed: payroll procedures, computing, reviewing documents, and preparing reports.

**Outlook:** Aging baby boomers will require increased medical care.



**Megamorphosis** The Architecture and Interior Design firm  
Megamorphosis is responsible for the distinctive Harlingen Pediatric Associates building and The Reese, an adaptive reuse showcase which converted an abandoned building into an upscale multi-use facility. The firm's commercial and residential projects include medical offices, an auditorium, school district and airport buildings, and nature centers. With a LEED-certified architect on staff, Megamorphosis incorporates green and energy-efficient practices into its designs.

- **Architect:** Plans and designs buildings according to a client's requirements. Follows a design concept in exterior and interior spaces. Provides detailed drawings, specifications and technical details for construction contractors and establishes a timeline for each project. Complies with local and federal regulations. Five-year Architecture degree is followed by a three-year architecture internship prior to taking the licensing exam.
- **Interior Design Intern:** Uses color, texture, lighting, and space to improve the aesthetics and function of an interior space. Reads blueprints, understands building codes, collaborates with architect and contractors, and oversees installation of design concept. B.A. in Interior Design is followed by an internship prior to licensing. Requires CAD skills.
- **Technical Draftsmen:** Uses CAD program to create next-generation blueprints for contractors, subcontractors and regulatory agencies. The position requires Associate Degree in Computer Aided Design and knowledge of multiple construction software programs.

**Outlook:** Valley architecture firms have more job applicants than jobs.



### **ITD Precision**

ITD Precision Harlingen, a branch of a Houston manufacturer, opened in 1994. It manufactures metal components for Mexican manufacturing plants and supplies industries such as aerospace, automotive, oil field and consumer appliances. ITD Precision, which has 84 employees, is the only U.S. metal stamping plant that handles heat treating, E-coating and insert molding in-house. Advanced training opportunities for skilled staff.

- **Quality Control Technician:** Measures components with high-precision gages and charts any variation from standard to assure customer receives uniform and safe product. Works with gage repeatability and reproducibility to identify source of variability and takes steps to reduce errors. Records data on spreadsheets. Position requires strong math and computer skills or math degree.
- **Tool and Die Operator:** Make precision machine tools, jugs and gages to exact specifications for use on manufacturing equipment. The position requires two years of experience as machinist with preference for graduates and current apprentices of tool and die programs.

**Outlook:** Manufacturing plants are becoming more automated and seek skilled, cross-trained technicians.

## SECTION 5: SUPPLEMENTAL INFORMATION

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Sections 1, 2, and 3 of this report all focus on the four-county region known as the Lower Rio Grande Valley. The information in those sections provides students, their families, and educators with accurate information that is designed to help students plan for both post-secondary education and careers. Understanding the local labor market is the foundation for understanding the economic “world of the future” in which today’s students will be seeking tomorrow’s good jobs.

Section 4 of this report describes the relationship between education and economic development, from an economic developer’s perspective. Economic developers work to create jobs that pay well enough for workers and their families to have a good quality of life. When economic developers work to recruit new businesses, one important “marketing point” is the “skill sets” of potential workers from the Valley who could be available for jobs at those companies. Economic developers and other community leaders often lament what they describe as a Rio Grande Valley “brain drain”—the situation that occurs when bright students, originally from the Valley, move away to live and work in other geographic locations.

Section 5 provides supplemental information intended to help students make thoughtful, informed decisions about where they choose to live and work. Tech Prep’s goal is to provide relevant information for reference as students consider various options, as well as tools to evaluate that information. This includes an overview of occupational-growth projections in the state and in the nation.

This section concludes with a bibliography for the labor market report as a whole.

### ***Making Choices About Careers—and Whether to Remain in the Valley or Move Away***

*The Rio Grande Valley suffers from a “brain drain” because some of its best-educated young people move away and take jobs in other geographic areas.*

*The information in this section can be useful to students and families for making decisions whether to remain in the Valley or move away.*

*Section 5 provides information comparing the expenses of living in the Valley with several other Texas cities—cost-of-living comparisons for similar lifestyles. This section incorporates the latest occupational-growth projections from the U.S. Bureau of Labor Statistics.*

*It is not Tech Prep’s intention to persuade students to pursue any particular career or to live in any particular geographic location, but, rather, to provide students, their families, and the educators who work with them with accurate, helpful information for making informed decisions.*

## **HELPING STUDENTS THINK THROUGH CAREER CHOICE AND PLACE OF RESIDENCE**

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Career choice is a personal decision that involves both internal factors, such as values and personal preferences, and external factors, such as family influence, socioeconomic status, and perceptions about occupations and the labor market. Choosing where to live is also a personal decision—one that is also influenced by multiple factors, such as the availability of opportunities, perceptions of quality of life in the Valley and other geographic locations, and the realities of the social world.

*Considering Available Employment Opportunities:* Some people may have the desire to remain in the Rio Grande Valley because they prefer the environment and/or want to be close to family, but they move away because there are few or no jobs in their chosen fields, forcing these individuals to seek employment elsewhere. In this situation, in which there is a genuine lack of employment opportunities, the solution is a drastic change in the Rio Grande Valley's economic growth, and that is beyond the scope of the work done by the Tech Prep organization. The information provided in Sections 1, 2, and 3 of this report should prove useful as students and their families analyze the employment opportunities that actually exist in the Rio Grande Valley, compare the availability of those opportunities with the students' career goals, and make informed decisions based on accurate information.

*Considering Cost of Living:* Some individuals may be interested in jobs for which there are employment opportunities available locally, but choose to move away they believe "the grass is greener" elsewhere because of higher salaries in other geographic locations. These individuals' perceptions may or may not be accurate, depending on the cost of living in those other geographic locations. To make informed decisions about where to live and work, students need to understand the relationship between income and cost of living. The information in this section is intended to provide data and tools that will help students make realistic assessments of the perceived differences in pay.

Tech Prep's goal is not to persuade students to pursue any particular career or to live in any particular location, but, rather, to help students make informed decisions. Each individual student will of course use this information within the framework of his/her own personal preferences and social world.

### **The Relationship Between Income and Cost of Living**

When students consider their options and make plans for their lives as working adults, the adults who are working with students to help guide them through that planning process have the opportunity to help them understand the realities of personal economic success. Factors to be considered include, but are not limited to, the following:

*Salary Paid Will Be "Net," Not "Gross":* Salaries that students earn when they are employees will be paid to them as "net," not "gross." For example, a worker who is paid \$12.00 per hour will earn \$480.00 in a week. However, if that worker were paid weekly, the worker would not receive a check for \$480.00. Although \$480.00 would be that individual's "gross" wage for one week, the paycheck the individual received would be the "net" amount payable. Income taxes, Social Security taxes, Medicare taxes, and possibly other types of "deductions" would be subtracted from that individual's salary before the check was issued.

*Choosing whether to remain in the Valley or move to another place to live and work is a personal decision.*

*When choosing whether to remain in the Valley or to move away, it is wise for students to consider several factors—not only the realities of the social world, but also:*

- *availability of employment opportunities in students' chosen career fields;*
- *comparison of opportunities available in the Valley with opportunities available in other locations; and*
- *comparison of cost of living in the Valley with cost of living in other places.*



*Managing Debt Is Important:* Students will find that many organizations begin to offer them credit cards and other types of credit accounts even while they are in high school. Using credit cards, or even acquiring college-loan debt, might seem like “free money,” but it is not. Bills have to be paid, and any individual who has any type of credit account needs to take those payments into consideration when considering how much money they will actually have for “discretionary spending” when they are adults.

*Earnings Increase Over Time.* Students coming out of college sometimes expect to walk into a company and expect to get paid as much as a veteran worker. An education is important, and for most of the good jobs available today, some level of education beyond high school is a requirement. Although there are exceptions, most students will have to work and gain experience before they are earning the salaries that will allow them to have the standard of living they hope to enjoy.

*Understanding How Salary Is Computed:* Figure 5.1 explains the way that most common ways that salaries are computed.

**Figure 5.1 How to Compute Salary Conversions—  
Annual, Weekly, and Hourly Salary Rates**

Part A. How to Compute an Annual Salary When Given an Hourly Salary			
<i>Steps to Be Taken</i>	<i>Example</i>		
1. Compute the weekly salary by multiplying the hourly wage by the number of hours in an average work week (40 hours).	Hourly salary	X No. of Hours	= Weekly salary
	\$14.43	X 40	= \$577.20
2. Compute the annual salary by multiplying the weekly salary by the number of weeks in a year (52 weeks)	Weekly salary	X No. of Weeks	= Annual Salary
	\$577.20	X 52	= \$30,014.40
Part B. How to Compute an Hourly Salary When Given an Annual Salary			
<i>Steps to Be Taken</i>	<i>Example</i>		
1. Compute the weekly salary by dividing the annual salary by the number of weeks in a year (52 weeks)	Annual salary	÷ No. of Weeks	= Weekly salary
	\$22,000.00	÷ 52	= \$423.08
2. Compute the hourly salary by dividing the weekly salary by the number of hours in an average work week (40 hour)	Weekly salary	÷ No. of Hours	= Hourly Salary
	\$423.08	÷ 40	= \$10.58

Once students understand these basic concepts, they still need to understand how the cost of living where they live affects them.

### **Cost of Living Comparisons**

The dilemma often faced by individuals making cost of living comparisons is finding reliable data and methods to make these comparisons. Fortunately, various organizations provide free online calculators to help individuals compare the cost of living in one location to another. Data used by these calculators comes from various sources, such as the Bureau of Labor Statistics and the Bureau of Census. However, most of the online calculators use data provided by The Council for Community and Economic Research (C2ER). This council is a private-sector organization that collects data from

participating businesses and organizations throughout the United States in five categories: grocery items, housing and utilities, transportation, health care, and miscellaneous goods and services. C2ER then uses these data to calculate a Cost of Living Index (COLI) for each city in their database. Harlingen as well as Brownsville, McAllen and many other Texas cities are included in their database.

Using this data and their own methodology, C2ER develops a list ranking the cities with the highest and lowest cost of living. C2ER provides a quarterly report listing the ten most expensive cities to live in and the ten least expensive, based on a Cost of Living Index in which the national average is set at 100 and those cities with a COLI cost of 100 or more are the most expensive and those below 100 are the least expensive. The farther below 100, the lower the cost of living. C2ER consistently ranks Texas among the states with one of the lowest cost of living, and cities in the Rio Grande Valley consistently rank among the least expensive in Texas. For example, in their 2010 third-quarter report, C2ER ranked Harlingen, Texas, with a COLI of 79.9, as the least expensive city in the nation (see Table 5.1). McAllen, with 83.2, and Brownsville, with 84.3, ranked second and third respectively. New York City (Manhattan), with a COLI of 207.9; New York City (Brooklyn), with 181.3; and Honolulu, Hawaii, with 167.8, were the three most expensive. It is important to understand that these rankings vary by quarter. For example, in the 2009 annual report from C2ER, none of the Rio Grande Valley cities ranked among the 10 least expensive urban areas in the nation. At this time it is not possible to see where the cities in the Rio Grande Valley ranked in 2009 because C2ER provides the full report only to its subscribers. (See <http://www.coli.org>.)

*According to the Cost of Living Index produced by the Council for Community and Economic Research (C2ER), Harlingen, McAllen, and Brownsville are among the ten cities with the lowest cost of living in the United States (report for the third quarter, 2010).*

**Table 5.1 The Ten Most and Least Expensive Urban Areas in the ACCRA Cost of Living Index (COLI)**  
**Third Quarter 2010**  
**National Average for 314 Urban Areas = 100**

Most Expensive			Least Expensive		
Ranking	Urban Area	COLI	Ranking	Urban Area	COLI
1	New York (Manhattan) NY	207.9	1	Harlingen, TX	79.9
2	New York (Brooklyn) NY	181.3	2	McAllen, TX	83.2
3	Honolulu, HI	167.8	3	Brownsville, TX	84.3
4	San Francisco, CA	162.0	4	Pueblo, CO	84.3
5	New York (Queens) NY	158.5	5	Springfield, IL	84.8
6	San Jose, CA	152.4	6	Wichita Falls, TX	85.5
7	Truckee-Nevada Co., CA	147.4	7	Pryor Creek, OK	85.6
8	Orange County, CA	145.7	8	Muskogee, OK	85.6
9	Oakland, CA	144.0	9	Commerce-Hunt Co., TX	85.8
10	Nassau County, NY	144.0	10	Fort Smith, AR	85.8

Source: Reproduced from the C2ER Press Release in the C2ER website [www.c2er.org](http://www.c2er.org)

Another way to think of cost of living is to compare the level of earnings necessary in different cities to enjoy a similar lifestyle. The following examples, which compare the cost of living in Harlingen, Texas, with six other Texas cities, are meant to help students understand the realities of the relationship between income and cost of living (see Tables 5.2 and 5.3). The examples provided here use data from The Council for Community and Economic Research (C2ER). C2ER sells its cost of living formula, calculator and data to businesses that offer it free of charge on their websites. The examples that follow were calculated using the [www.bankrate.com](http://www.bankrate.com) website calculator, which utilizes C2ER data for its calculations.

Tech Prep's criteria for selecting targeted occupations include a minimum wage of \$10.00 an hour. It is important to remember that the \$10.00 hourly wage may not be a starting wage, but a wage earned after some experience on the job. See Section 3 of this report for the rationale for selecting this wage, as well as the other criteria used in the selection process. Some occupations are compensated using a salary structure rather than an hourly wage (see Section 3). In constructing the comparison examples in Tables 5.2 and 5.3, both an hourly wage method and a salary method are provided.

Table 5.2 compares the cost of living in Harlingen with the cost of living in six of the largest cities in Texas, using an hourly wage structure. This comparison shows the hourly wage, for each particular city, that a worker must earn to enjoy the same lifestyle in any of these cities. Table 5.2 uses the hourly wage of \$10.00 per hour, in Harlingen, because of the criteria for selection of Tech Prep's list of targeted occupations in Section 3 of this report, as explained above. (Note: An hourly wage of \$10.00 equates to an annual salary of \$20,800 per year.)

**Table 5.2 Example Cost of Living Comparison for Wage Occupation**

	<b>Hourly Wage</b>	<b>City</b>	<b>Difference in Percent</b>	<b>Hourly Wage Needed to Maintain Same Lifestyle</b>
Harlingen	\$10.00	Austin	+15.35%	\$11.54
Harlingen	\$10.00	Corpus Christi	+9.62%	\$10.96
Harlingen	\$10.00	Dallas	+10.96%	\$11.10
Harlingen	\$10.00	Ft. Worth	+9.97%	\$11.00
Harlingen	\$10.00	Houston	+11.33%	\$11.33
Harlingen	\$10.00	San Antonio	+15.51%	\$11.55

Table 5.3 makes the same cost of living comparisons as Table 5.2, using a salary structure. The salary selected is \$42,000 because it is not unusual for some occupations in the fields of Health, Business, Education, and Technology to earn a salary of \$42,000 per year here in the Rio Grande Valley (see Targeted Occupations list in Section 3). (Note: An annual salary of \$42,000 per year equates to an hourly wage of \$20.20 per hour.)

**Table 5.3 Example Cost of Living Comparison for Salaried Occupation**

	Salary	City	Difference in Percent	Salary Needed to Maintain Same Lifestyle
Harlingen	\$42,000	Austin	15.35%	\$48,447
Harlingen	\$42,000	Corpus Christi	9.62%	\$46,040
Harlingen	\$42,000	Dallas	10.96%	\$46,603
Harlingen	\$42,000	Ft. Worth	9.97%	\$46,287
Harlingen	\$42,000	Houston	11.33%	\$46,759
Harlingen	\$42,000	San Antonio	15.51%	\$48,514

These comparisons show that the cost of living in the Rio Grande Valley is approximately 10 % lower than four of the cities used for comparison (Corpus Christi, Dallas, Fort Worth, and Houston). Austin and San Antonio have a cost of living that is approximately 15% higher.

### **Costing Out Various Lifestyles**

The cost of living comparisons provided above should be helpful to students considering moving out of the Rio Grande Valley; however, students might also want start from a different point. That is, they may want to select a style of living and figure out how much it would cost to achieve that style of living both in the Rio Grande Valley and other Texas cities. The Texas Workforce Commission provides an online resource called Reality Check that teachers and counselors can use to help students make that type of comparison. Reality Check is a tool designed to help students understand how much it costs to maintain various lifestyles in various regions. With this calculator students can select a city they would like to live in and then select the type of housing, transportation, food, entertainment, etc., they would like to have. After students enter those selections, the program calculates the monthly and annual salary necessary to maintain that lifestyle. Reality Check even calculates the estimated taxes for that salary.

Table 5.4 uses the Reality Check calculator to compare the income needed to maintain a middle class lifestyle by a single person living alone in either Harlingen or Houston, Texas. The items selected are for a generic middle class lifestyle. Individual students' preferences and life situations will require adjusting the amounts either up or down. For example, one individual may have an older automobile given to them free of charge by a relative. In that case, the transportation cost could be adjusted down to delete the car payment; but the other expenses would remain and maintenance would be increased due to the vehicle's age. (It would also be prudent to increase the savings amount because the likelihood of expensive repairs would increase.) Living at home with parents who provide housing and utilities would reduce students' housing cost considerably, as would sharing housing costs with a roommate. The amounts for each of these items, as well as others, appear in the Reality Check webpage (<http://www.cdr.state.tx.us/realitycheck/>) included with student resources on the Texas Workforce Commission's website (<http://www.twc.state.tx.us>). The Reality Check resource was developed by researchers using data collected by various organizations.

It is important to understand that the estimates in Table 5.4 are for a single person, usually at the beginning of his/her work life. Most people at this stage in life live alone for only a short period of time. In time, most marry and have children; therefore, it is important for students to understand that the amount required to maintain a similar lifestyle for a family can be much higher. (Also, the amount required for savings for the children's college as well as emergencies can have a significant impact on the minimum income necessary to maintain a similar lifestyle. Once, the children leave home to live on

their own, the requirements will decrease; however, other items such as the cost of health care will increase.) The Reality Check calculator also provides the option to estimate the additional cost that a spouse and/or children would add to the total cost of living estimate.

**Table 5.4 Expenses for a Middle Class Lifestyle for a Single Person  
Living Alone in Harlingen, Texas, or Houston, Texas**

Monthly Expense Items	Item Description	Amount Harlingen	Amount Houston
Housing	Average apartment (includes approximately 950 square feet,, two bedrooms, 1.5 bathrooms, unfurnished, and excluding all utilities).	\$588.00	\$770.00
Utilities	Electricity, Cable, DSL and Basic Mobile Phone that includes 300 anytime minutes, texting, etc.	\$275.00	\$297.00
Food	On this plan you will be eating at home but also dining out. This is just a sample, based on estimates produced by Reality Check. You may or may not buy all of the items included, and you may or may not eat at the restaurants. The amount that appears is the cost of the items multiplied by four weeks. Review the items included at the Reality Check website.	\$350.00	\$350.00
Transportation	Buying a new, basic economy auto will allow you to have new, reliable transportation. Sample monthly expense includes: auto payment, insurance, gas and maintenance.	\$607.00	\$607.00
Clothes	This clothing budget includes maintaining your wardrobe and buying work clothes.	\$75.00	\$75.00
Health Care	Average national cost for group medical insurance, whereby an employer subsidizes an employee's medical coverage. An employee will have to contribute the amount listed for the employee-only coverage. Usually does not include dental. Also this line item does not include actual co-payments for prescriptions and doctor's visits.	\$50.00	\$50.00
Entertainment	This estimate includes renting movies as well as going bowling or to the movies once or twice a month.	\$110.00	\$111.00
Personal	This item includes soap, shampoo, haircuts, etc.	\$100.00	\$100.00
Miscellaneous	This item includes purchase of furniture, electronic equipment, travel, and "just stuff."	\$250.00	\$250.00
Savings	It is always important to have some money set aside for emergencies.	\$50.00	\$50.00

Monthly Expense Items	Item Description	Amount Harlingen	Amount Houston
	Total	\$2453.00	\$2662.00
	Annual Expenses	\$29,436.00	\$31,944.00
	Taxes (25% of Annual Expenses)	\$7,359.00	\$7986.00
	<b>Annual Salary Needed</b>	<b>\$39,248.00</b>	<b>\$42,592.00</b>
	<b>Hourly Wage Needed</b>	<b>\$18.87</b>	<b>\$20.47</b>

Source: Texas Workforce Commission's Reality Check website (<http://www.cdr.state.tx.us/realitycheck/>)

## **Conclusion**

The examples provided here are merely illustrations to acquaint students with the comparison process. Students are encouraged to make their own comparisons using some or all the websites provided in this report and others they may find on their own as long as the data were collected and tabulated using an acceptable methodology. As a student decides where to live, it is also prudent to compare locales based on other aspects important to the individual, such as quality of schools, crime rates, climate and other amenities. In some cases it might also be appropriate to consider other costs, such as traveling back and forth to the Rio Grande Valley to visit family.

Tech Prep provides this comparison tools to help students make informed decisions and not to advocate for a particular occupation or location. However, the Rio Grande Valley has long been a provider of well educated and trained personnel for the rest of the state. This has caused a "brain drain" that has left the Rio Grande Valley with one of the most dismal educational levels in the nation. It is Tech Prep's hope that providing these comparison tools will help those who would like to remain in the Rio Grande Valley to make realistic decisions that are favorable to this area.

## **U.S. DEPARTMENT OF LABOR OCCUPATIONAL GROWTH PROJECTIONS: STATE AND NATIONAL TRENDS**

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Section 2 of this report provides information about employment trends in the Rio Grande Valley. The information below provides projections for future employment growth in the State of Texas and the nation.

Table 5.5 lists the fastest-growing occupations in Texas in 2006 and the projections for growth through 2016. Chart 5.1 depicts percentage changes in national employment trends for 2008-2018 and provides summary information about the occupational groups reflected in the chart. Table 5.6 lists the fastest-growing occupations in the nation.

**Table 5.5 Top 25 Fastest-Growing Occupations in Texas**

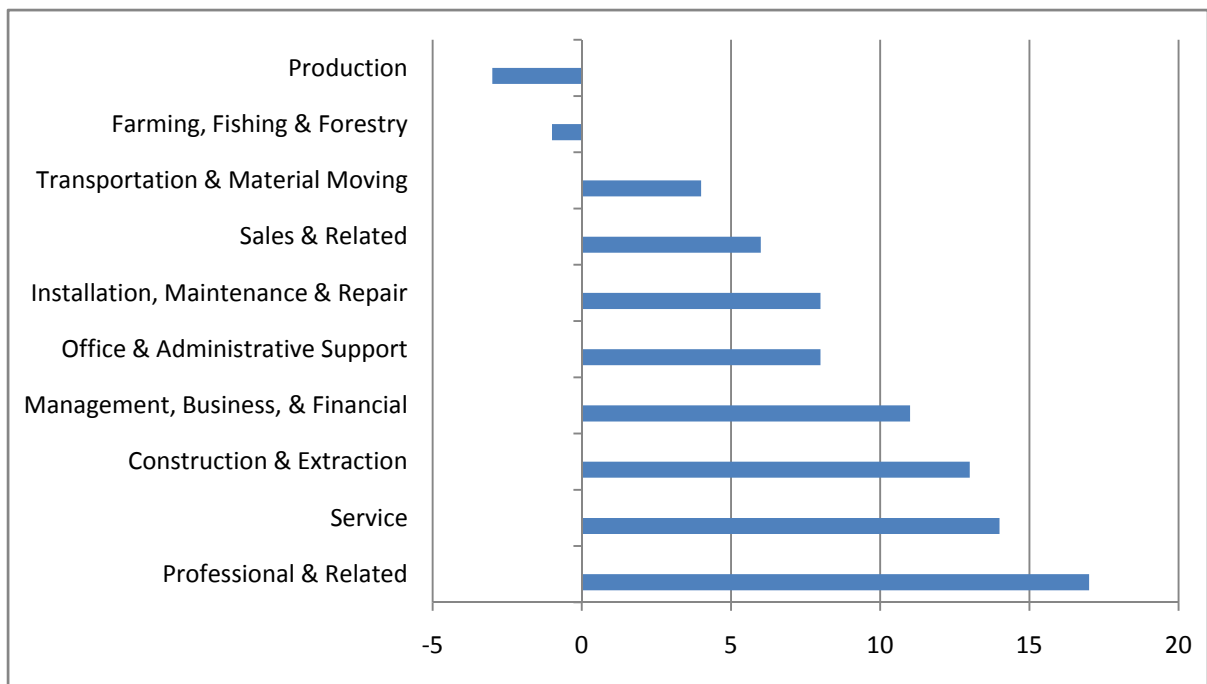
Rank	Occupation	Employment		Percent <sup>*</sup> Change
		2006	2016	
1	Personal and Home Care Aides	133,050	207,850	56%
2	Network Systems and Data Communications Analysts	17,750	27,620	56%
3	Medical Assistants	34,790	53,500	54%
4	Special Education Teachers, Preschool, Kindergarten, and Elementary School	13,750	20,560	50%
5	Physical Therapist Assistants	3,780	5,570	47%
6	Computer Software Engineers, Applications	30,900	45,200	46%
7	Special Education Teachers, Middle School	6,270	9,170	46%
8	Kindergarten Teachers, except Special Education	12,850	18,690	45%
9	Physician Assistants	3,810	5,540	45%
10	Pharmacy Technicians	24,420	35,050	44%
11	Instructional Coordinators	11,290	16,180	43%
12	Cardiovascular Technologists and Technicians	2,740	3,920	43%
13	Elementary School Teachers, except Special Education	145,430	207,710	43%
14	Home Health Aides	51,960	74,160	43%
15	Occupational Therapist Assistants	1,770	2,510	42%
16	Skin Care Specialists	2,050	2,900	42%
17	Surgical Technologists	6,460	9,140	41%
18	Radiation Therapists	830	1,170	41%
19	Middle School Teachers, except Special and Vocational Education	74,370	104,040	40%
20	Physical Therapist Aides	3,780	5,280	40%
21	Veterinary Technologists and Technicians	6,720	9,390	40%
22	Physical Therapists	10,410	14,460	39%

Rank	Occupation	Employment		Percent <sup>*</sup> Change
		2006	2016	
23	Dental Hygienists	9,210	12,760	39%
24	Athletic Trainers	1,560	2,150	38%
25	Dental Assistants	18,190	25,070	38%

Source: Career One Stop sponsored by U.S. Department of Labor (<http://www.careeronestop.org/>)

*Chart 5.1 and Tables 5.6 and 5.7, together with the explanatory information included below, come directly, with only minor modification, from a publication by the U.S. Department of Labor. This analysis of employment change and projected growth provides a detailed description of the size of the expected growth, a brief job description, and an explanation for the growth projections.*

**Chart 5.1 Percent Change in Total Employment, by Major Occupational Group, 2008-18 (Projected)**



Source: BLS National Employment Matrix

*Management, business, and financial occupations:* Workers in management, business, and financial occupations plan and direct the activities of business, government, and other organizations. Their employment is expected to increase by 11 percent by 2018. Employment in management occupations is projected to grow slowly over the projection period, increasing by 5 percent, an addition of 454,300 new jobs. Growth is being affected by declines in several occupations, including farmers and ranchers. Employment of farmers and ranchers is projected to decline as the agricultural industry produces more output with fewer workers.

Employment in business and financial operations occupations is projected to grow by 18 percent, resulting in 1.2 million new jobs. Increasing financial regulations and the need for greater accountability



will drive demand for accountants and auditors, adding roughly 279,400 jobs to this occupation from 2008 to 2018. Further, an increasingly competitive business environment will grow demand for management analysts, an occupation that is expected to add 178,300 jobs. Together, these two occupations are anticipated to account for 38 percent of new business and financial operations jobs.

*Professional and related occupation:* This occupational group, which includes a wide variety of skilled professions, is expected to be the fastest-growing major occupational group, at 17 percent, and is projected to add the most new jobs—about 5.2 million.

Employment among healthcare practitioners and technical occupations, a subgroup of the professional and related category, is expected to increase by 21 percent. This growth, resulting in a projected 1.6 million new jobs, will be driven by increasing demand for healthcare services. As the number of older people continues to grow, and as new developments allow for the treatment of more medical conditions, more healthcare professionals will be needed.

Education, training, and library occupations are anticipated to add more than 1.3 million jobs, representing a growth rate of more than 14 percent. As the U.S. population increases, and as a larger share of adults seeks educational services, demand for these workers will increase.

Computer and mathematical science occupations are projected to add almost 785,700 new jobs from 2008 to 2018. As a group, these occupations are expected to grow more than twice as fast as the average for all occupations in the economy. Demand for workers in computer and mathematical occupations will be driven by the continuing need for businesses, government agencies, and other organizations to adopt and utilize the latest technologies.

Employment in community and social services occupations is projected to increase by 16 percent, growing by roughly 448,400 jobs. As health insurance providers increasingly cover mental and behavioral health treatment, and as a growing number of elderly individuals seek social services, demand for these workers will increase.

Employment in arts, design, entertainment, sports, and media occupations is expected to grow by 12 percent from 2008 to 2018, resulting in almost 332,600 new jobs. Growth will be spread broadly across different occupations within the group. Media and communications occupations will add a substantial number of jobs, led by rapid growth among public relations specialists, who will be needed in greater numbers as firms place a greater emphasis on managing their public image. Employment among entertainers and performers and those in sports and related occupations also will increase, partly as a result of increasing demand for coaches and scouts. Furthermore, art and design occupations will see substantial growth, with demand increasing for graphic and interior designers. As more advertising is conducted over the Internet, a medium that generally includes many graphics, and as businesses and households increasingly seek professional design services, a greater number of these workers will be needed.

Employment in life, physical, and social science occupations is projected to increase by nearly 277,200 jobs over the 2008-18 projection period. This increase represents a growth rate of 19 percent, almost twice the average for all occupations across the economy. About 116,700 of these jobs are expected to be created among social science and related occupations, led by strong growth among market and survey

researchers, as businesses increase their marketing efforts in order to remain competitive and as public policy firms and government agencies utilize more public opinion research. Employment in life science occupations, in addition, will increase rapidly as developments from biotechnology research continue to be used to create new medical technologies, treatments, and pharmaceuticals.

Architecture and engineering occupations are projected to add roughly 270,600 jobs, representing a growth rate of 10 percent. Much of this growth will occur among engineering occupations, especially civil engineers. As greater emphasis is placed on improving the nation's infrastructure, these specialists will be needed to design, implement, or upgrade municipal transportation, water supply, and pollution-control systems.

Legal occupations will add the fewest new jobs among all professional and related subgroups, increasing by about 188,400. However, with a growth rate of 15 percent, this group will grow faster than the average for all occupations in the economy. Of the new jobs created, lawyers will account for 98,500 while paralegals and legal assistants will account for 74,100. Paralegals and legal assistants are expected to grow by 28 percent as legal establishments begin to expand the role of these workers and assign them more tasks once performed by lawyers.

*Service occupations:* The duties of service workers range from fighting fires to cooking meals. Employment in service occupations is projected to increase by 4.1 million, or 14 percent, which is both the second-largest numerical gain and the second-largest growth rate among the major occupational groups.

Among service occupation subgroups, the largest number of new jobs will occur in healthcare support occupations. With more than 1.1 million new jobs, employment in this subgroup is expected to increase by 29 percent. Much of the growth will be the result of increased demand for healthcare services as the expanding elderly population requires more care.

Employment in personal care and service occupations is anticipated to grow by 20 percent over the projection period, adding more than 1 million jobs. As consumers become more concerned with health, beauty, and fitness, the number of cosmetic and health spas will increase, causing an increase in demand for workers in this group. However, the personal care and service group contains a wide variety of occupations, and two of them—personal and home care aides, and child care workers—will account for most of this group's new jobs. Personal and home care aides will experience increased demand as a growing number of elderly individuals require assistance with daily tasks. Child care workers, in addition, will add jobs as formal preschool programs, which employ child care workers alongside preschool teachers, become more prevalent.

Employment in food preparation and serving and related occupations is projected to increase by roughly 1 million jobs from 2008 to 2018, representing a growth rate of 9 percent. Growth will stem from time-conscious consumers patronizing fast-food establishments and full-service restaurants.

Employment in building and grounds cleaning and maintenance occupations is expected to grow by almost 483,900 jobs over the projection period, representing a growth rate of 8 percent. As businesses place a larger emphasis on grounds aesthetics, and as households increasingly rely on contract workers to maintain their yards, grounds maintenance workers will see rapid growth. In addition, more building

cleaning workers will be needed to maintain an increasing number of residential and commercial structures.

Protective service occupations are expected to gain the fewest new jobs among all service subgroups: about 400,100, or 12-percent growth. These workers protect businesses and other organizations from crime and vandalism. In addition, there will be increased demand for law enforcement officers to support the growing U.S. population.

*Sales and related occupations:* Sales and related workers solicit goods and services for businesses and consumers. Sales and related occupations are expected to add 980,400 new jobs by 2018, growing by 6 percent. As organizations offer a wider array of products and devote an increasing share of their resources to customer service, many new retail sales workers will be needed. Job growth in this group will be spread across a wide variety of industries, but almost half will occur in retail sales establishments.

*Office and administrative support occupations:* Office and administrative support workers perform the day-to-day activities of the office, such as preparing and filing documents, dealing with the public, and distributing information. Employment in these occupations is expected to grow by 8 percent, adding 1.8 million new jobs by 2018. Customer service representatives are anticipated to add the most new jobs, 399,500, as businesses put an increased emphasis on building customer relationships. Other office and administrative support occupations will experience declines as advanced technology improves productivity, decreasing the number of workers necessary to perform some duties.

*Farming, fishing, and forestry occupations:* Farming, fishing, and forestry workers cultivate plants, breed and raise livestock, and catch animals. These occupations are projected to decline by about 1 percent, losing 9,100 jobs, by 2018. Productivity increases in agriculture will lead to declining employment among agricultural workers, offsetting small gains among forest, conservation, and logging workers.

*Construction and extraction occupations:* Construction and extraction workers build new residential and commercial buildings and also work in mines, quarries, and oil and gas fields. Employment of these workers is expected to grow 13 percent, adding about 1 million new jobs. Construction trades and related workers will account for about 808,400 of these jobs. Growth will result from increased construction of homes, office buildings, and infrastructure projects. Declines in extraction occupations will reflect overall employment stagnation in the mining and oil and gas extraction industries.

*Installation, maintenance, and repair occupations:* Workers in installation, maintenance, and repair occupations install new equipment and maintain and repair older equipment. These occupations are projected to add 440,200 jobs by 2018, growing by 8 percent. More than 1 in 3 new jobs in this group will occur in the construction industry, because these workers are integral to the development of buildings, communication structures, transportation systems, and other types of infrastructure. As construction on these types of projects increases over the projection period, installation, maintenance and repair workers will be needed in greater numbers.

*Production occupations:* Production workers are employed mainly in manufacturing, where they assemble goods and operate plants. Production occupations are expected to decline by 3 percent, losing

349,200 jobs by 2018. As productivity improvements reduce the need for workers, and as a growing number of these jobs are offshored, demand for production workers will decline. Some jobs will be created in production occupations, mostly in food processing and woodworking.

*Transportation and material-moving occupations:* Transportation and material-moving workers transport people and materials by land, sea, or air. Employment of these workers is anticipated to increase by 4 percent, accounting for 391,100 new jobs. As the economy grows over the projection period, and the demand for goods increases, truck drivers will be needed to transport those goods to businesses, consumers, and other entities. In addition, a substantial number of jobs will arise among bus drivers, as well as taxi drivers and chauffeurs, as a growing number of people utilize public transportation.

### **Employment Change by Detailed Occupations**

Occupational growth can be considered in two ways: by the rate of growth and by the number of new jobs created by growth. Some occupations both have a fast growth rate and create a large number of new jobs. However, an occupation that employs few workers may experience rapid growth, although the resulting number of new jobs may be small. For example, a small occupation that employs just 1,000 workers and is projected to grow 50 percent over a 10-year period will add only 500 jobs. By contrast, a large occupation that employs 1.5 million workers may experience only 10 percent growth, but will add 150,000 jobs. As a result, in order to get a complete picture of employment growth, both measures must be considered.

*Occupations with the fastest growth:* Of the 20 fastest-growing occupations in the economy (Table 5.6), half are related to healthcare. Healthcare is experiencing rapid growth, due in large part to the aging of the baby-boom generation, which will require more medical care. In addition, some healthcare occupations will be in greater demand for other reasons. As healthcare costs continue to rise, work is increasingly being delegated to lower-paid workers in order to cut costs. For example, tasks that were previously performed by doctors, nurses, dentists, or other healthcare professionals increasingly are being performed by physician assistants, medical assistants, dental hygienists, and physical therapist aides. In addition, patients increasingly are seeking home care as an alternative to costly stays in hospitals or residential-care facilities, causing a significant increase in demand for home health aides. Although not classified as healthcare workers, personal and home care aides are being affected by this demand for home care as well.

**Table 5.6 Occupations With the Fastest Growth (National Perspective)**

<b>Occupations</b>	<b>Percent Change</b>	<b>Number of New Jobs (in thousands)</b>	<b>Wages (May 2008 median)</b>	<b>Education/Training Category</b>
Biomedical Engineers	72	11.6	\$ 77,400	Bachelor's degree
Network Systems and Data Communications Analysts	53	155.8	71,100	Bachelor's degree
Home Health Aides	50	460.9	20,460	Short-term on-the-job training
Personal and Home Care Aides	46	375.8	19,180	Short-term on-the-job training
Financial Examiners	41	11.1	70,930	Bachelor's degree
Medical Scientists, except Epidemiologists	40	44.2	72,590	Doctoral degree
Physician Assistants	39	29.2	81,230	Master's degree
Skin Care Specialists	38	14.7	28,730	Postsecondary vocational award
Biochemists and Biophysicists	37	8.7	82,840	Doctoral degree
Athletic Trainers	37	6.0	39,640	Bachelor's degree
Physical Therapist Aides	36	16.7	23,760	Short-term on-the-job training
Dental Hygienists	36	62.9	66,570	Associate degree
Veterinary Technologists and Technicians	36	28.5	28,900	Associate degree
Dental Assistants	36	105.6	32,380	Moderate-term on-the-job training
Computer Software Engineers, Applications	34	175.1	85,430	Bachelor's degree
Medical Assistants	34	163.9	28,300	Moderate-term on-the-job training
Physical Therapist Assistants	33	21.2	46,140	Associate degree
Veterinarians	33	19.7	79,050	First professional degree
Self-Enrichment Education Teachers	32	81.3	35,720	Work experience in a related occupation
Compliance Officers, except Agriculture, Construction, Health and Safety, and Transportation	31	80.8	48,890	Long-term on-the-job training

Source: Bureau of Labor Statistics Occupational Employment Statistics and Division of Occupational Outlook

Two of the fastest-growing detailed occupations are in the computer specialist occupational group. Network systems and data communications analysts are projected to be the second-fastest-growing occupation in the economy. Demand for these workers will increase as organizations continue to upgrade their information technology capacity and incorporate the newest technologies. The growing reliance on wireless networks will result in a need for more network systems and data communications analysts as well. Computer applications software engineers also are expected to grow rapidly from 2008 to 2018. Expanding Internet technologies have spurred demand for these workers, who can develop Internet, intranet, and Web applications.

Developments from biotechnology research will continue to be used to create new medical technologies, treatments, and pharmaceuticals. As a result, demand for medical scientists and for biochemists and biophysicists will increase. However, although employment of biochemists and biophysicists is projected to grow rapidly, this corresponds to only 8,700 new jobs over the projection period. Increased medical research and demand for new medical technologies also will affect biomedical engineers. The aging of the population and a growing focus on health issues will drive demand for better medical devices and equipment designed by these workers. In fact, biomedical engineers are projected to be the fastest-growing occupation in the economy. However, because of its small size, the occupation is projected to add only about 11,600 jobs.

Increasing financial regulations will spur employment growth both of financial examiners and of compliance officers, except agriculture, construction, health and safety, and transportation.

Self-enrichment teachers and skin-care specialists will experience growth as consumers become more concerned with self-improvement. Self-enrichment teachers are growing rapidly as more individuals seek additional training to make themselves more appealing to prospective employers. Skin-care specialists will experience growth as consumers increasingly care about their personal appearance.

Of the 20 fastest-growing occupations, 12 are in the associate degree or higher category. Of the remaining eight, six are in an on-the-job training category, one is in the work-experience-in-a-related occupation category, and one is in the postsecondary vocational degree category. Eleven of these occupations earn at least \$10,000 more than the national annual median wage, which was \$32,390 as of May 2008. In fact, nine of the occupations earned at least twice the national median in May 2008.

*Occupations with the largest numerical growth:* The 20 occupations listed in Table 5.7 are projected to account for more than one-third of all new jobs—5.8 million combined—over the 2008-18 period. The occupations with the largest numerical increases cover a wider range of occupational categories than do those occupations with the fastest growth rates. Health occupations will account for some of these increases in employment, as will occupations in education, sales, and food service. Office and administrative support services occupations are expected to grow by 1.3 million jobs, accounting for about one-fifth of the job growth among the 20 occupations with the largest growth. Many of the occupations listed in the table are very large and will create more new jobs than occupations with high growth rates. Only three out of the 20 fastest-growing occupations—home health aides, personal and home care aides, and computer software application engineers—also are projected to be among the 20 occupations with the largest numerical increases in employment.

**Table 5.7 Occupations With the Largest Numerical Growth (National Perspective)**

<b>Occupations</b>	<b>Number of New Jobs (in Thousands)</b>	<b>Percent Change</b>	<b>Wages (May 2008 Median)</b>	<b>Education/Training Category</b>
Registered Nurses	581.5	22	\$ 62,450	Associate degree
Home Health Aides	460.9	50	20,460	Short-term on-the-job training
Customer Service Representatives	399.5	18	29,860	Moderate-term on-the-job training
Combined Food Preparation and Serving Workers, including Fast Food	394.3	15	16,430	Short-term on-the-job training
Personal and Home Care Aides	375.8	46	19,180	Short-term on-the-job training
Retail Salespersons	374.7	8	20,510	Short-term on-the-job training
Office Clerks, General	358.7	12	25,320	Short-term on-the-job training
Accountants and Auditors	279.4	22	59,430	Bachelor's degree
Nursing Aides, Orderlies, and Attendants	276.0	19	23,850	Postsecondary vocational award
Postsecondary Teachers	256.9	15	58,830	Doctoral degree
Construction Laborers	255.9	20	28,520	Moderate-term on-the-job training
Elementary School Teachers, except Special Education	244.2	16	49,330	Bachelor's degree
Truck Drivers, Heavy and Tractor-Trailer	232.9	13	37,270	Short-term on-the-job training
Landscaping and Groundskeeping Workers	217.1	18	23,150	Short-term on-the-job training
Bookkeeping, Accounting, and Auditing Clerks	212.4	10	32,510	Moderate-term on-the-job training
Executive Secretaries and Administrative Assistants	204.4	13	40,030	Work experience in a related occupation
Management Analysts	178.3	24	73,570	Bachelor's or higher degree, plus work experience
Computer Software Engineers, Applications	175.1	34	85,430	Bachelor's degree
Receptionists and Information Clerks	172.9	15	24,550	Short-term on-the-job training
Carpenters	165.4	13	38,940	Long-term on-the-job training

Source: Bureau of Labor Statistics Occupational Employment Statistics and Division of Occupational Outlook

The education/training categories and wages of the occupations with the largest numbers of new jobs are significantly different than those of the fastest-growing occupations. Twelve of these occupations are in an on-the-job training category, and just seven are in a category that indicates any postsecondary education. Ten of the 20 occupations with the largest numbers of new jobs earned less than the national median wage in May 2008.

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## Tech Prep Staff Members

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**Janie Adames**, Secretary

**Patricia G. (Pat) Bubb**, Executive Director

**Carolina Duran**, Data Analyst/Accountant

**Anadelia Gonzales, Ph.D.**, Specialist Projects Coordinator

**Eliza Groff**, Secretary

**Martha Gutierrez**, Worksite Learning Specialist/P-16 Council Coordinator

**Vicky Millhimes**, Secretary, Business Services

**Lilia Perez**, Secretary, Credit Tracking

**Belinda Torres**, Ed.D., Tech Prep Coordinator

### STATEMENT OF EQUAL OPPORTUNITY

No person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity sponsored by Tech Prep of the Rio Grande Valley, Inc., on the basis of race, color, national origin, religion, sex, age, veteran status, or disability.

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TSTC Tech Prep Building | 1902 North Loop 499

Harlingen, Texas 78550-3697

956.364.4509 or 1.800.852.8784 ext. 4509

[www.techpreprgv.com](http://www.techpreprgv.com)

### Mission Statement

Tech Prep of the Rio Grande Valley, Inc., is a public/private collaborative partnership whose mission is to form working regional and state partnerships that leverage regional resources to facilitate college-and-career-focused learning opportunities for students stressing practical problem-solving and critical thinking to achieve a higher level of competence in the workforce.