

TARGET INDUSTRY PROFILE

Plastics Manufacturing

Prepared for:

DEVELOPMENT CORPORATION OF ABILENE INC.

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TABLE OF CONTENTS

Section	Page
Introduction	i
1. Overview of the West Central Texas Region's Assets for Plastics Manufacturing.....	1
2. Key Findings	3
Labor Market Orientation.....	3
Labor Availability	6
Training Resources.....	11
Labor Quality	12
Labor Costs	13
Infrastructure and Operating Environment	15
Quality of Life.....	16
3. Industry Background.....	18
Definition	18
Sector Overview.....	20
Target Trends	25
4. Principal Locational Criteria.....	26

INTRODUCTION

This target industry profile is the product of a contract between the Wadley-Donovan Group (WDG) and the Development Corporation of Abilene, Inc. (DCOA). WDG was retained by DCOA to profile six target industries for the West Central Texas region.

The West Central Texas study area is a 19-county region consisting of Taylor, Brown, Comanche, Coleman, Mitchell, Nolan, Runnels, Fisher, Kent, Scurry, Stonewall, Haskell, Jones, Knox, Shackelford, Stephens, Throckmorton, Callahan, and Eastland counties. See Figure 1.

For purposes of WDG's target industries analysis, the 19-county region was divided into seven sub-regions chosen by DCOA. The seven sub-regions and the counties in those sub-regions are:

- **Abilene Sub-region:** Taylor County
- **Brownwood Sub-region:** Brown County, Comanche County, Coleman County
- **Sweetwater Sub-region:** Mitchell County, Nolan County, Runnels County
- **Snyder Sub-region:** Fisher County, Kent County, Scurry County, Stonewall County
- **Haskell Sub-region:** Haskell County, Jones County, Knox County
- **Breckenridge Sub-region:** Shackelford County, Stephens County, Throckmorton County
- **Eastland Sub-region:** Callahan County, Eastland County

This document identifies and profiles the target industry *Plastics Manufacturing* for the Abilene, Brownwood, and Eastland sub-regions.

Plastics manufacturing is a viable target industry for the Abilene, Brownwood, and Eastland sub-regions. The plastics industry is one of the largest manufacturing industries in the United States, accounting for more than \$330 billion dollars in annual shipments. The industry directly employs more than 1.5 million workers. Plastics play an indispensable role in a wide variety of markets, ranging from packaging and building/construction to transportation; consumer and institutional products; furniture and furnishings; electrical/electronic components; adhesives, inks, coatings, and other products.

The recommended target sectors within plastics manufacturing encompass eight product categories, each of which consists of specific sub-sector product groups. The eight product categories as identified by the North American Industry Classification System (NAICS) are: *All Other Chemical Product and Preparation Manufacturing* (NAICS 32599); *Unsupported Plastics Film, Sheet, and Bag Manufacturing* (NAICS 32611); *Plastics Pipe, Pipe Fitting, and Unsupported Profile Shape Manufacturing* (NAICS 32612); *Laminated Plastics Plate, Sheet, and Shape Manufacturing* (NAICS 32613); *Polystyrene Foam Product Manufacturing* (NAICS 32614); *Urethane and Other Foam Product (except Polystyrene) Manufacturing* (NAICS 32615); *Plastics Bottle Manufacturing* (NAICS 32616) and *Other Plastics Product Manufacturing* (NAICS 32619). Specific product lines within each of these sectors are recommended, and are identified in this report.

A recent study conducted by Conway Research identified the top ten location factors most important to plastics companies when siting new facilities. The ten factors ranked in order of importance are:

- Good buildings and sites
- Market proximity
- Interstate highway access
- Real estate costs
- Ample electricity
- Low cost electricity
- Business taxes
- Unionization of the workforce
- Skilled labor supply
- Pro-business attitude

This industry was selected for recruitment and attraction efforts, in part, because it meets the following goals:

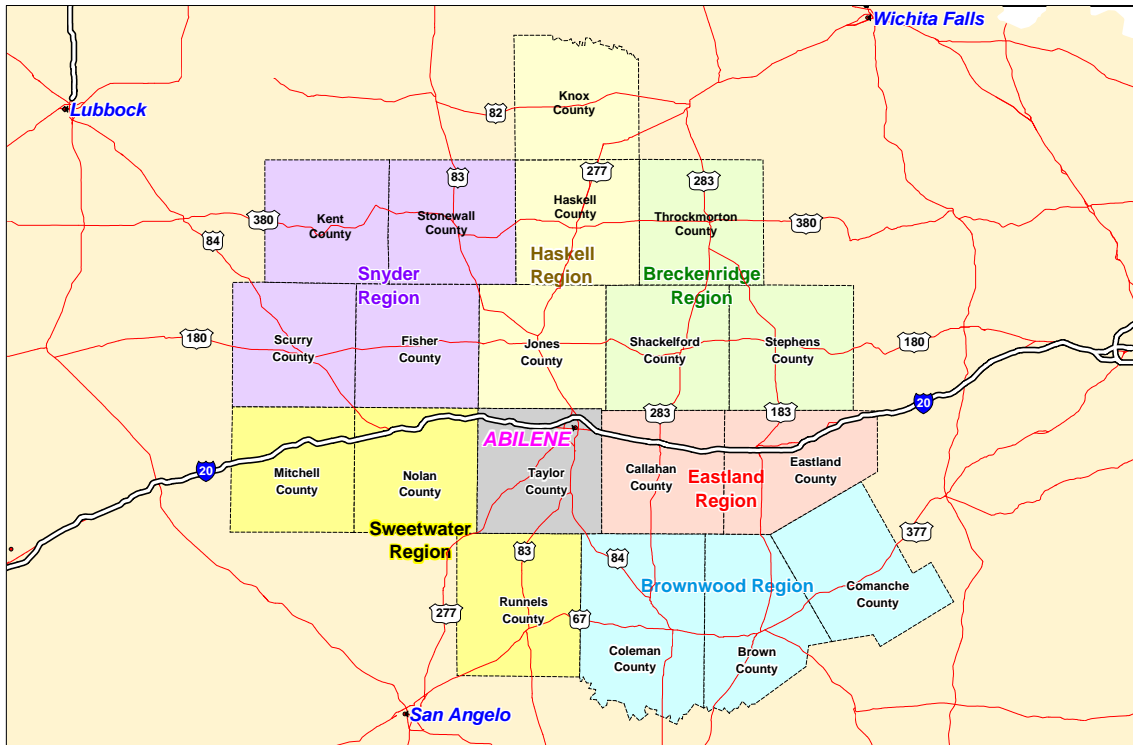
- It offers the best match among the competitive opportunities of the area, industry needs, and industry location trends.
- It builds off the West Central Texas region's blend of assets and challenges.
- It offers the area greater economic diversity and the chance to expand existing industry activities into more advanced operations.
- It offers the best and most realistic recruiting opportunities.
- It offers diversified employment opportunities for the areas' residents and labor market, including Dyess AFB spouses.
- It offers opportunities for economic advancement through growing industries, technology-intensive industries, or industries that are showing continued capital and human resource investment.
- It offers a balance between environmentally sustainable development and the need for "living wage" opportunities.
- It does not burden the areas' infrastructure and resources.
- It offers a broad diversity of job opportunities, including executive, managerial, professional, technical, administrative and clerical, and production.

This report is being submitted in conjunction with a full labor market, education, and infrastructure assessment and action plan of the 19-county region. That assessment provides additional detail to the findings outlined in this report.

These studies utilize the results of employer and educator interviews, data gathered from secondary sources, and the findings from the labor and infrastructure analysis completed by WDG and Science Applications International (SAIC).

WDG is a Grubb & Ellis Company that specializes in location consulting. Its clients include many of the world's leading companies. As an outgrowth of this corporate consulting, WDG is frequently asked by economic development agencies and utilities to assist them with their economic development programs. Assistance is typically provided in sales and marketing, strategic planning, and overall product development. Clients have included Hillsborough County, FL, New Orleans; Tulsa; Buffalo; Cincinnati; Orange County and Orlando, FL; Joplin, MO; Phoenix; Asheville, NC; Eastern Idaho; Memphis; Raleigh; Richmond; Jackson, TN; Mobile; Collier, Charlotte, and Lee Counties, FL; and the states of Delaware, Iowa, Maryland, Arkansas, Kentucky, Kansas, Wisconsin, and Washington.

FIGURE 1
SUB-REGIONS IN THE WEST CENTRAL TEXAS STUDY AREA



OVERVIEW OF WEST CENTRAL TEXAS REGION'S ASSETS FOR PLASTICS MANUFACTURING

The Abilene, Brownwood, and Eastland sub-regions offer excellent locations for plastics manufacturing. Key assets include the following:

- Proximity to a growing Southeastern U.S. market for plastics products, including auto-related, construction, packaging, industrial, and consumer products.
- An established and diversified base of manufacturing-sector industries.
- Excellent north/south and east/west access via interstate and state highways to the southeastern and midwestern U.S. markets.
- A highly-rated quality of life, coupled with an overall cost of living well below the U.S. average, that is a significant asset in attracting professional and managerial talent from outside the area.
- The sub-regions are home to multiple, post-secondary institutions, namely: Abilene Christian College, Hardin-Simmons University, McMurray University, Cisco Junior College, Texas State Technical College-Abilene, Texas State Technical College-Brownwood, Central Texas Commercial College, and Howard Payne University. These institutions graduate more than 1,850 students annually.
- The three sub-regions have a strong base of manufacturing as well as traditional service sector industry employment. The proportion of residents in the Brownwood sub-region (24.2%) and Eastland sub-region (14.9%) employed in manufacturing exceeds the West Central Texas regional average of 12.8%, as well as the Texas state average of 12.0%. The Abilene sub-region manufacturing sector employment is 7.5%. The national average is 14.4%. Additionally, 50.5% of the Abilene sub-region's workforce, 38.7% of the Brownwood sub-region's workforce, and 28.6% of the Eastland sub-region's workforce are employed in the service sector. Prospective employers often view a sizeable service sector presence as an asset. Persons employed in this sector often possess the aptitude and basic skills transferable to many production and administrative support occupations found in plastics manufacturing facilities. The West Central Texas regional average for service sector employment is 43.6%, while the state and national averages are 37.6% and 37.4%, respectively.
- The Abilene, Brownwood, and Eastland sub-regions offer labor cost savings in all industry sectors compared to state and national averages. Total average industry earnings in the Eastland sub-region are 63% of the national norm, while the Abilene sub-region and Brownwood sub-region are 66% of the norm. Manufacturing wages in the Eastland sub-region are 69% of the national norm. The Abilene sub-region is 71% and the Brownwood sub-region is 82% of the national norm.
- All three sub-regions offer moderately-sized and growing populations. Applied Geographic Solutions, a leading national demographic data vendor, reported the Abilene sub-region had a 2002 population of 127,449 and is projected to increase 2.1% by 2007. The Brownwood sub-region had a population of 61,401 and is projected to increase by 2.2%, while the Eastland sub-region had a population of 31,253 and was projected to increase by 0.8%. With respective civilian labor forces of 56,267, 27,362, and 16,880, the Abilene, Brownwood, and Eastland sub-regions represent strong labor market potentials for companies requiring moderately-sized workforces.
- Dyess Air Force Base represents an additional resource of high quality labor for the area. There are approximately 2,000 to 2,500 spouses of active military personnel. These spouses represent potential employment candidates for target industry employers, as they are well-educated and seek quality employment.
- Abilene can conservatively sustain a plastics manufacturing operation requiring a first-year staffing of up to 200 qualified employees. Assuming a hiring ratio of one hire for every five applicants, an operation could hire a minimum of 160 employees from the Abilene sub-region proper. A hiring ratio of one hire for every four applicants results in an increased staffing potential of 200 employees. This recruiting ability assumes an operation offering competitive wages, benefits and working conditions.

- The sub-regions offer a strong resident base of managerial, professional specialty, technical, production, and administrative support occupations. The presence of these skill-set concentrations are indicative of a base of seasoned and technically-skilled workers attuned to manufacturing operations and management in general, and to the plastics industry in particular.
- The Abilene, Brownwood, and Eastland sub-regions are home to a well-educated workforce. The proportion of residents in the Abilene and Brownwood sub-regions with one to three years of post-secondary training, which includes an Associate Degree, exceeds the regional (27.5%), state (27.6%), and national (27.3%) averages. Approximately 30% of the Abilene sub-regions and 28% of the Brownwood sub-region's residents have this level of training. The Eastland sub-region's average is 27.4%. The proportion of residents with a four-year or beyond-college degree in the Abilene sub-region (23.8%) and the Brownwood sub-region (19.5%) exceeds the West Central Texas regional average of 17.9%. The Eastland sub-region's average is 12.5%. The statewide average is 23.2%, while the national average is 24.4%.
- Post-secondary institutions in the West Central Texas region graduate more than 3,000 students per year. Many of these students graduate with technical skills in high demand by plastics industry employers, including industrial manufacturing technology, machine technology, drafting and design technology, and computer-aided design (CAD), as well as business-related skills such as accounting, business administration, computer and information sciences, and administrative and secretarial services.
- The Abilene, Brownwood, and Eastland sub-regions have adequate water, sewer, electric, and natural gas reserves and capacity to meet the needs of plastics manufacturing operations.
- Water supply planning on a broad geographic basis and through regional initiatives such as districts or by investing in municipal-owned reservoir systems has long been practiced and has provided communities with a hedge on drought to ensure a dependable water supply. The Abilene, Brownwood, and Eastland regions have the largest available water supply capacities to support increases in industrial demand.
- Assessment of the availability of electric power to support population and economic growth in a region is determined through knowledge of peak electric demand (peak load) and available supply (generation capacity) and the ability to distribute the electricity generated. In the West Central Texas region, peak load occurs in late summer (summer peaking), coinciding with the peak of the cooling season. The difference between demand and capacity is the reserve capacity. While the electric utility industry has not established a firm benchmark percentage for a capacity margin that is considered adequate to guarantee electricity at all times and under varying conditions, the capacity margin of the Texas grid (23.4), which includes the West Central Texas region, is the highest in the country.
- Air service to the three sub-regions is available through the Abilene Regional Airport. American Eagle services the airport and provides direct non-stop service to Dallas/Ft. Worth seven times a day.

KEY FINDINGS

Labor Market Orientation

The Abilene sub-region consists of Taylor County, and it is the only metropolitan statistical area (MSA) in the region. It is the regional center for services, shopping, and employment, and it accounts for approximately 40% of the region's population, with an estimated 2002 population of 127,449. Like the region, the population is projected to remain relatively stable between 2002 and 2007, growing by approximately 2.1%. Relative to the region, Taylor County residents are, on average, younger, and have higher education levels and higher income levels than those of the rest of the region.

The Brownwood sub-region consists of Brown County, Comanche County, and Coleman County, and is located in the southeast area of the study region. It is the second-largest sub-region after the Abilene sub-region, with an estimated 2002 population of 61,401. The sub-region is projected to grow 2.2% between 2002 and 2007—roughly the same rate as the Abilene sub-region. The sub-region has several well-known manufacturing establishments that provide a strong base of experienced manufacturing skills.

The Eastland sub-region consists of Eastland and Callahan Counties. This sub-region is located in the east-central region of the West Central Texas study area. The Eastland sub-region is growing at a slower rate (0.8% by year 2007) than the region as a whole, and has an estimated 2002 population of 31,253. Eastland has the highest median age among the sub-regions and the lowest median household income. There is also a higher proportion of residents with 12 to 15 years of education relative to the region (54.8% vs. 52.2%).

Primary access to the region is provided by Interstate 20 running east/west from Shreveport, LA through the Dallas/Ft. Worth metro area and into Abilene. I-20 continues southwest through Abilene to Midland and Odessa, where it connects with I-10. North/south routes include Highway 277 running north through Jones and Haskell Counties, and Highway 84 running south through Taylor and Coleman Counties.

Air service to the study area is available through the Abilene Regional Airport. American Eagle services the airport and provides direct non-stop service to Dallas/Ft. Worth seven times a day.

Table 1 presents highway mileage to key regional and national areas. Figures 2 and 3 show the West Central Texas region in the context of the south central region of the United States and the West Central Texas region in the context of the State of Texas.

TABLE 1
DISTANCE FROM ABILENE TO SELECT REGIONAL
AND NATIONAL CENTERS
Source: Microsoft Automap

Destination City	From Abilene, TX	
	Highway Miles	Driving Time
Albany, TX	50	58 mins.
Albuquerque, NM	488	9 hrs, 10 mins.
Amarillo, TX	288	5 hrs, 2 mins.
Anson, TX	24	32 mins.
Aspermont, TX	60	1 hr, 14 mins.
Austin, TX	270	5 hrs, 2 mins.
Baird, TX	25	28 mins.
Ballinger, TX	60	1 hr, 15 mins.
Benjamin, TX	95	2 hrs, 3 mins.
Breckenridge, TX	78	1 hr, 24 mins.
Brownwood, TX	97	1 hr, 49 mins.
Coleman, TX	57	1 hr, 13 mins.
Colorado City, TX	73	1 hr, 13 mins.
Colorado Springs, CO	654	11 hrs, 49 mins.
Comanche, TX	96	2 hrs, 1 min.
Corpus Christie, TX	409	7 hrs, 13 mins.

TABLE 1, *continued*
**DISTANCE FROM ABILENE TO SELECT REGIONAL
AND NATIONAL CENTERS**

Source: Microsoft Automap

Destination City	From Abilene, TX	
	Highway Miles	Driving Time
Dallas/Fort Worth, TX	185	3 hrs, 6 mins.
Eastland, TX	60	1 hr, 2 mins.
El Paso, TX	455	7 hrs, 5 mins.
Galveston, TX	469	7 hrs, 32 mins.
Haskell, TX	54	1 hr, 6 mins.
Houston, TX	421	6 hrs, 46 mins.
Jackson, MS	589	9 hrs, 21 mins.
Jayton, TX	83	1 hrs, 42 mins.
Las Vegas, NV	1,061	18 hrs, 27 mins.
Little Rock, AR	504	8 hrs, 3 mins.
New Orleans, LA	707	11 hrs, 13 mins.
Phoenix, AZ	886	13 hrs, 51 mins.
Roby, TX	52	1 hrs, 4 mins.
Salt Lake City, UT	1,107	20 hrs, 42 mins.
Shreveport, LA	370	5 hrs, 56 mins.
Snyder, TX	82	1 hr, 29 mins.
Sweetwater, TX	43	46 mins.
Throckmorton, TX	84	1 hr, 41 mins.
Tulsa, OK	396	6 hrs, 59 mins.
Wichita, KS	447	7 hrs, 44 mins.

FIGURE 2
WEST CENTRAL TEXAS IN THE CONTEXT OF THE SOUTH CENTRAL UNITED STATES

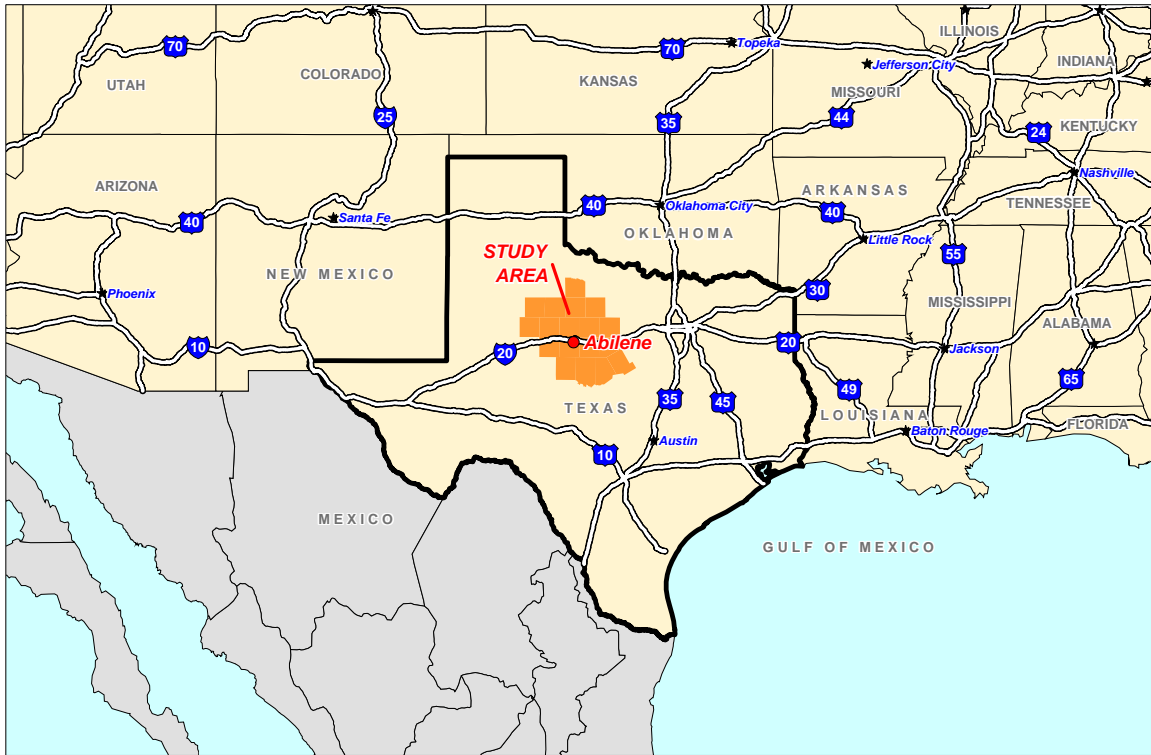
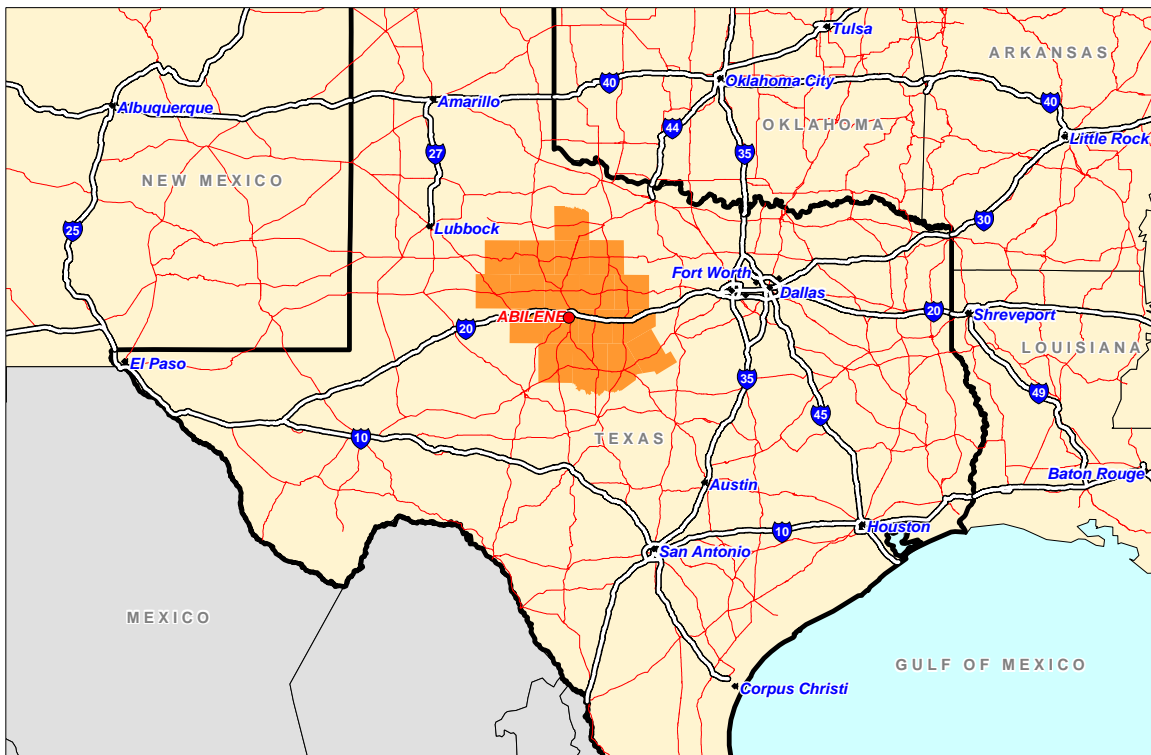


FIGURE 3
WEST CENTRAL TEXAS IN THE CONTEXT OF THE STATE OF TEXAS



Labor Availability

Overall

1. **The Abilene, Brownwood, and Eastland sub-regions are moderately sized with growing populations.** The Abilene sub-region had a population of 127,449 in 2002, and is projected to grow by 2.1% by 2007. The Brownwood sub-region had a population of 61,401 and is projected to increase by 2.2%, while the Eastland sub-region had a population of 31,253, and was projected to increase by 0.8%. The population base of these sub-regions represents a strong labor market potential for firms requiring moderately-sized workforces. The Abilene sub-region offers a civilian labor pool of 56,267. The Brownwood sub-region offers access to an estimated 27,362 workers, while the Eastland sub-region civilian labor force is 16,880.
2. **This target provides an opportunity to build on the three sub-regions' existing base of manufacturing operations.** As seen in Table 2, the sub-regions have a strong base of manufacturing as well as traditional service sector industry employment. Combined, the number of persons employed in the manufacturing industry sector in the three sub-regions is 8,528 workers.
 - Major manufacturing sector employers in the sub-regions include Kohler Co., EBAA Iron Inc., 3M Co., ABCO Industries, Bandag Inc., Brownwood Manufacturing Co., CMI Johnson-Ross Inc., Gore's Inc., Tige Boats Inc., and Victor Equipment Co.
 - Workers employed in the service and retail trade sectors can be viewed as an attribute and could prove to be beneficial in the growth and development of the plastics manufacturing target. Employees in these industry sectors often possess the aptitude and basic skills that are transferable to many of the entry-level production and administrative support functions embedded in the target. Furthermore, many employees in the retail trade and service sectors would be attracted to positions at plastics manufacturing facilities, as they could potentially offer more challenging work, higher wages, and an opportunity for job and career advancement. The service industry sector (including NAICS 56,61, 62, 71, and 72) is well-represented in the three sub-regions, employing 46.0% of the combined labor force (32,830 workers). This also holds true for the retail trade sector. Over fifteen percent (15.3%) of the combined sub-regions' workforce (10,944 workers) is employed in retail trade.

TABLE 2
INDUSTRY EMPLOYMENT BY SECTOR, 2000 (*indicates service sector)
 Source: U.S. Department of Commerce, County Business Patterns

NAICS	Industry Description	Abilene sub-Region	Eastland sub-Region	Brownwood Sub-region	West TX Region	TX	U.S.
11----	Forestry, fishing, hunting, and agriculture support	10	0	35	198	---	---
21----	Mining	635	139	90	2,739	---	---
22----	Utilities	461	106	203	1,301	---	---
23----	Construction	2,506	1,106	740	5,658	---	---
31----	Manufacturing	3,706	893	3,929	11,970	---	---
42----	Wholesale trade	2,031	515	961	4,354	---	---
44----	Retail trade	7,230	976	2,738	14,460	---	---
48----	Transportation & warehousing	1,246	136	240	2,388	---	---
51----	Information	1,337	140	275	2,163	---	---
52----	Finance & insurance	2,436	224	581	4,317	---	---
53----	Real estate & rental & leasing	811	20	115	1,127	---	---
54----	Professional, scientific & technical services	1,378	123	250	2,249	---	---
55----	Management of companies & enterprises	447	10	95	592	---	---
56----	Admin, support, waste mgt, remediation services*	2,955	85	331	3,493	---	---
61----	Educational services*	2,373	10	385	3,678	---	---
62----	Health care and social assistance*	10,176	797	3,229	18,115	---	---
71----	Arts, entertainment & recreation*	597	20	141	893	---	---
72----	Accommodation & food services*	5,695	504	1,289	9,139	---	---

TABLE 2, continued
INDUSTRY EMPLOYMENT BY SECTOR, 2000 (*Indicates Service Sector)
 Source: U.S. Department of Commerce, County Business Patterns

NAICS	Industry Description	Abilene sub-Region	Eastland sub-Region	Brownwood Sub-region	West TX Region	TX	U.S.
81----	Other services (except public administration)*	3,027	300	916	5,634	---	---
95----	Auxiliaries (ex. corporate, subsidiary & regional mgt)	66	10	10	246	---	---
99----	Unclassified establishments	75	17	34	238	---	---
Percentage of Employment							
11----	Forestry, fishing, hunting, and agriculture support	0.0%	0.0%	0.2%	0.2%	0.1%	0.2%
21----	Mining	1.3%	2.3%	0.6%	2.9%	1.3%	0.4%
22----	Utilities	0.9%	1.8%	1.2%	1.4%	0.6%	0.6%
23----	Construction	5.1%	18.5%	4.6%	6.0%	6.5%	5.8%
31----	Manufacturing	7.5%	14.9%	24.2%	12.8%	12.0%	14.4%
42----	Wholesale trade	4.1%	8.6%	5.9%	4.6%	5.7%	5.4%
44----	Retail trade	14.7%	16.3%	16.8%	15.4%	12.7%	13.0%
48----	Transportation & warehousing	2.5%	2.3%	1.5%	2.5%	3.9%	3.3%
51----	Information	2.7%	2.3%	1.7%	2.3%	3.1%	3.1%
52----	Finance & insurance	5.0%	3.7%	3.6%	4.6%	4.8%	5.2%
53----	Real estate & rental & leasing	1.6%	0.3%	0.7%	1.2%	1.8%	1.7%
54----	Professional, scientific & technical services	2.8%	2.1%	1.5%	2.4%	5.5%	6.0%
55----	Management of companies & enterprises	0.9%	0.2%	0.6%	0.6%	3.2%	2.5%
56----	Admin, support, waste mgt, remediation services*	6.0%	1.4%	2.0%	3.7%	9.9%	8.0%
61----	Educational services*	4.8%	0.2%	2.4%	3.9%	1.4%	2.2%
62----	Health care and social assistance*	20.7%	13.3%	19.9%	19.3%	11.5%	12.4%
71----	Arts, entertainment & recreation*	1.2%	0.3%	0.9%	1.0%	1.1%	1.5%
72----	Accommodation & food services*	11.6%	8.4%	7.9%	9.7%	8.8%	8.7%
81----	Other services (except public administration)*	6.2%	5.0%	5.6%	6.0%	4.9%	4.6%
95----	Auxiliaries (ex. corporate, subsidiary & regional mgt)	0.1%	0.2%	0.1%	0.3%	1.0%	0.9%
99----	Unclassified establishments	0.2%	0.3%	0.2%	0.3%	0.1%	0.1%

3. **The existing industry base of the Abilene, Brownwood, and Eastland sub-regions offer an excellent opportunity for a plastics manufacturing facility needing to hire between 55 and 200 employees.** Table 3 shows a conservative estimate of qualified manufacturing workers over one year for a facility locating in each of the three sub-regions, assuming the new operation offers competitive wages and benefits. This staffing potential varies by geographic labor draw area and selectivity ratio. Assuming a hiring ratio of one hire for every five applicants, an operation could hire at least 160 employees from the Abilene sub-region, 115 employees from the Brownwood sub-region, or 55 employees from the Eastland sub-region proper. A hiring ratio of one hire for every four applicants results in an increased staffing potential of 200 employees from the Abilene sub-region, 140 employees from the Brownwood sub-region, or 70 employees from the Eastland sub-region. While this model quantifies staffing potentials exclusive to each respective sub-region, the more likely scenario would be an applicant flow emanating from all three sub-regions. It should be noted that this model assumes no other similar operations offering competitive wages and benefits enter the market at the same time. As more competitors enter the market, the number of successful hires likely will decline.

TABLE 3
ESTIMATED LABOR SUPPLY YIELD FOR A COMPETITIVE
PLASTICS MANUFACTURING OPERATION

Source: WDG estimate based on employment figures and projections by AGS, Inc.

	Factor	30-Minute Commute Zone of Abilene Sub-region	30-Minute Commute Zone of Brownwood Sub-region	30-Minute Commute Zone of Eastland Sub-region
1	Currently employed supply	690	280	130
2	Potential underemployment yield	1,855	500	255
3	Increased participation yield	295	720	385
4	New labor force entrants	110	45	5
5	Total expected applicants- 1 year	2,945	1,550	775
6	Applicant commute propensity (85%)	2,505	1,390	700
7	Initial Employer Intercept (80%)	2,005	1,255	630
8	Qualified Applicants (50%)	1,000	625	315
9	Employee Acceptance (85%)	800	565	285
10	Staffing potential with one-in-five selectivity	200	115	55
11	Staffing potential with one-in-four selectivity	160	140	70

Explanatory Notes

1. Estimate of currently employed workers unhappy enough with their current job to apply.
2. Individuals currently working in low-level sales, service and farming, forestry or fishing occupations who will apply.
3. Women currently not participating in the workforce who will participate
4. Growth component to account for new entrants into the labor force.
5. Total eligible population.
6. Percentage of workers willing to commute for employment from various labor sheds – percentage varies depending on location.
7. Percentage of workers who will work at initial operation despite similar positions available between their residence and the original employers. In this case, it is assumed that a plastics manufacturing facility coming into the area would be an employer of choice and a high percentage of workers would commute to the employer's original location. As more competitors enter the market, the percentage of workers accepting work at the original location is assumed to decline.
8. Number of applicants passing initial screening and offered an interview. The actual percentage will vary according to the skills required by the operation, and the skill level of the available workforce.
9. The percentage of workers accepting a new position. Again, it is assumed that initially, a high percentage would accept a position. However, as additional companies enter the market, the percentage is likely to decline because of increased competition for workers.
10. For a company desiring to hire one individual for every five interviews, the maximum estimated staffing potential for their operation in year one.
11. For a company desiring to hire one individual for every four interviews, the maximum estimated staffing potential for their operation in year one.

4. **When viewed against regional, state, and national averages, there is a higher proportion of residents employed as precision production workers, machine operators, transportation and material movers, and equipment cleaners, helpers, and laborers in the Brownwood and Eastland sub-regions.** The Abilene sub-region averages are somewhat lower. These skill-set concentrations are indicative of a base of seasoned and technically-skilled workers in the sub-region's workforce. In addition, residents employed in the sales and service occupational categories in all three sub-regions exceed both state and national averages. Importantly, workers in the sales and service sectors often have skills that are immediately transferable to many target industry occupations.
- The proportion of metro area residents employed in precision production and machine operator occupations in the Brownwood sub-region, 18.2% (4,778 workers), and the Eastland sub-region, 18.2% (2,415 workers), exceeds the West Central Texas regional figure (16.3%), the state figure (15.8%), and the national figure (16.7%). Approximately 8,100 individuals, or 13.8% of workers in the Abilene sub-region are employed in these occupations.
 - The proportion of residents employed in transportation and laborer/handler occupations in the Brownwood sub-region, 9.0% (2,348 workers), and the Eastland sub-region, 10.7% (1,413 workers),

also exceeds the West Central Texas regional average (8.5%), the state average (7.4%), and the national average (7.3%). The Abilene sub-region average is 6.7% (3,974 workers).

- The proportion of residents employed in sales and service occupations in all three sub-regions—Abilene, 31.6% (18,611 workers), Brownwood, 30.2% (7,926 workers), and Eastland, 28.3% (3,753 workers)—exceeds the state average (27.9%) and the national average (27.0%). Approximately 29.8% of residents in the West Central Texas region are employed in sales and service occupations.
- The proportion of residents employed in executive and professional specialty occupations in the Abilene sub-region, 25.0% (14,736 workers), exceeds the regional average (20.4%) and state average (24.6%), while mirroring the national average (25.0%). The Brownwood sub-region average is 17.3% (4,540 workers) and the Eastland sub-region average is 18.0% (2,381 workers).
- The proportion of residents employed in technical occupations in the Abilene sub-region, 3.8% (2,226 workers), exceeds the regional average (2.8%) and the national average (3.6%). The state average is 3.8%. The Brownwood sub-region average, 2.4% (628 workers), and Eastland sub-region average, 2.2% (289 workers), are somewhat lower.
- The proportion of residents employed in clerical and administrative support occupations in the Abilene sub-region, 16.5% (9,703 workers), and the Eastland sub-region, 15.4% (2,033 workers), exceeds the regional average of 15.1%. The Brownwood sub-region average is 13.7% (3,586 workers). The state average is 17.1%, while the national average is 17.2%.

TABLE 4
EMPLOYMENT BY SELECTED OCCUPATION 2001

Source: Applied Geographic Solutions

Occupation	Abilene Region	Brownwood Region	Eastland Region	West TX Region	Texas	U.S.
Actual Employment						
Executive	5,464	1,766	867	10,942	--	--
Professional	9,272	2,774	1,514	18,619	--	--
Technician	2,226	628	289	4,121	--	--
Sales	7,126	2,697	1,409	15,066	--	--
Clerical	9,703	3,586	2,033	21,851	--	--
Services	11,485	5,229	2,344	28,009	--	--
Farming	1,603	2,417	948	10,381	--	--
Precision Production	6,048	2,818	1,789	16,732	--	--
Machine Operators	2,045	1,960	626	6,750	--	--
Transportation	2,335	1,359	848	7,348	--	--
Laborers / Handlers	1,639	989	565	4,928	--	--
Percentage of Labor Force						
Executive	9.3%	6.7%	6.6%	7.6%	10.5%	10.6%
Professional	15.7%	10.6%	11.4%	12.9%	14.1%	14.4%
Technician	3.8%	2.4%	2.2%	2.8%	3.8%	3.6%
Sales	12.1%	10.3%	10.6%	10.4%	11.5%	10.9%
Clerical	16.5%	13.7%	15.4%	15.1%	17.1%	17.2%
Services	19.5%	19.9%	17.7%	19.4%	16.4%	16.1%
Farming	2.7%	9.2%	7.2%	7.2%	3.2%	3.1%
Precision Production	10.3%	10.7%	13.5%	11.6%	11.3%	11.0%
Machine Operators	3.5%	7.5%	4.7%	4.7%	4.5%	5.7%
Transportation	4.0%	5.2%	6.4%	5.1%	3.8%	3.7%
Laborers / Handlers	2.8%	3.8%	4.3%	3.4%	3.6%	3.6%

Abilene Sub-region

1. **Among the sub-regions, the Abilene sub-region has the largest labor pool.** The sub-region had an average civilian labor force of 56,267 in August 2002.
 - Among all of the sub-regions, the largest labor pool is within a 30-minute commute zone from 6450 Five Points Parkway in the City of Abilene. Typically, most non-exempt and hourly employees will

commute up to 30 minutes for a competitively-paying job. Within a 30-minute drive time from the Abilene commute node, there is a population base of 137,275 offering a labor force of 61,755.

2. **Surveyed area employers report satisfactory-to-good availability of employment candidates for a range of skills, and are generally pleased with the overall quality of the workforce.** Basic computer skills among job applicants, including basic keyboarding skills, using word processing software, and accessing and using the Internet, were rated as good by local employers. Work ethic and productivity were rated as above average.
3. **There is a potentially-hidden labor force in the Abilene sub-region of approximately 45,854 residents.** This pool of workers consists of currently-not-employed residents interested in employment, employed residents interested in training for career advancement, and recent college graduates.
 - Approximately 59.3% of residents currently not employed (i.e., unemployed and not participating in the labor force) in the Abilene sub-region are interested in working. This equates to 19,100 residents that could potentially enter the labor market, of which 66.7% report that they have no limitations to working. The most frequently mentioned work limitation is the lack of jobs matching the surveyed respondents' level of education/training.
 - An additional 47.2% of employed residents would be interested in training to acquire new job skills, which amounts to 25,400 residents.
 - The Abilene sub-region is home to many of the region's post-secondary institutions, namely: Abilene Christian College, Hardin-Simmons University, McMurray University, Cisco Junior College, and Texas State Technical College. These institutions graduate more than 1,350 students annually.
4. **Dyess Air Force Base is another important source of labor for Taylor County employers.** There are approximately 5,437 enlisted military at the base and over 6,000 family members. Spouses of military personnel and exiting military comprise an important component of Taylor County's workforce, according to interviewed employers.

Brownwood Sub-region

1. **The Brownwood sub-region has the second-largest labor force after the Abilene sub-region, with a civilian labor force of 27,362.**
 - Within a 30-minute drive time of 2800 Morris Sheppard Drive in Brownwood, there is an estimated labor pool of 14,665.
 - The Brownwood sub-region's labor force participation rate (58.2%) is slightly lower than the region's (61.9%).
2. **Based on the demographic profile of the sub-region and residential survey results, it is estimated that there is a hidden labor supply of 20,500 residents.**
 - Approximately 57.6% of currently-non-employed residents indicate that they would be interested in working, amounting to 8,000 residents. 51.5% of these residents report no limitations to working. The second most frequently mentioned work limitation is dependent care obligations.
 - Roughly 46% of currently-employed residents would be interested in training to upgrade their job skills for career development. This amounts to 12,000 residents interested in enhancing their skills. The top preferences for retraining include computer-related professional and support staff, professional medical services, and business services.
 - Graduates from local post-secondary institutions such as Texas State Technical College-Brownwood, Central Texas Commercial College, and Howard Payne University graduate just under 500 students per year.

Eastland Sub-region

1. **The Eastland sub-region has a small civilian labor pool; however, it is the only sub-region to experience an increase in its workforce.** In 2002, the Eastland sub-region had an annual civilian labor force of 16,880 residents, which was a 12.6% increase since 1996.
 - The sub-region has the lowest labor participation rate among all of the sub-regions. Only 56.6% of working-age residents are actively participating in the workforce.
 - The commute zone node for the Eastland sub-region is located at 100 West Main in Eastland. Within a 30-minute drive time of this site, there is a population of 15,539 providing a labor force of 7,689.
2. **There is a labor reserve of 11,300 in the Eastland sub-region.**
 - There are 3,000 residents currently not employed that would be interested in employment. This amounts to 66.7% of all non-employed residents.
 - There are large numbers of currently-employed residents that would be interested in training for career development. Approximately 51.1% of employed residents—the highest percentage among all of the sub-regions—would be interested in upgrading their skills. This amounts to 8,300 individuals.

Training Resources

1. **The West Central Texas region's two- and four-year post-secondary institutions graduate more than 3,000 students per year in a variety of disciplines.** Post-secondary institutions in the West Central Texas region include Abilene Christian University, American Commercial College, Central Texas Commercial College, Cisco Junior College, Hardin-Simmons University, Howard Payne University, McMurray University, Ranger College, Texas State Technical College, and Western Texas College. Many of these institutions' students graduate with technical skills in high demand by plastics industry employers, including industrial manufacturing technology and industrial maintenance technology, as well as business-related skills such as accounting, business administration, computer and information sciences, and administrative and secretarial services. Table 5 shows enrollment and graduation figures for regional post-secondary institutions. Combined, these institutions have an enrollment of more than 11,000 students.

TABLE 5
REGIONAL POST-SECONDARY INSTITUTIONS' ENROLLMENT AND GRADUATES, 2000
 Source: U.S. Department of Education

Institution	County	City	Total Fall Enrollment	Total Graduates
<i>Less-than-four-year institutions</i>				
Cisco Junior College	Eastland	Cisco	1,143	272
Western Texas College	Scurry	Snyder	554	185
Central Texas Commercial College	Brown	Brownwood	60	39
American Commercial College	Taylor	Abilene	114	188
Texas State Technical College-Sweetwater	Nolan	Sweetwater	800	354
<i>More-than-four-year institutions</i>				
Abilene Christian University	Taylor	Abilene	3,565	894
Hardin-Simmons University	Taylor	Abilene	1,752	456
Howard Payne University	Brown	Brownwood	1,189	262
McMurry University	Taylor	Abilene	965	195
Ranger College	Eastland	Ranger	588	131
Hendrick Medical Center School of Radiography	Taylor	Abilene	20	19
Stenograph Institute of Texas	Taylor	Abilene	117	34

2. **Several institutions in the West Texas region offer degrees and programs offerings relevant to target industry employers.**

- **Texas State Technical College** has four campuses within the West Texas study area: Abilene, Breckenridge, Brownwood, and Sweetwater. All of the campuses offer a range of programs providing business and technical skills applicable to positions in the plastics manufacturing industry.
 - Texas State Technical College-Abilene offers degree programs and coursework in Computer Technology such as computer network technology, computer science technology, computer information technology, and digital imaging and design technology. Manufacturing Technology course offerings include drafting and design technology.
 - Texas State Technical College-Breckenridge offers a Computer Information Technology (CIT) program. The CIT program offers two separate program options, including computer business systems and digital multimedia systems. Students who choose the Computer Business Systems option receive training in software applications such as word processing, electronic spreadsheets, and database management systems, with particular attention given to accounting and automated accounting systems.
 - Texas State Technical College-Brownwood offers degree and certificate programs in Computer Information Technology and Computer Networking, as well as Manufacturing Technology programs in industrial maintenance technician and machine technology. A degree program in drafting design technology and certificate program in computer-aided design (CAD) also are available.
 - Texas State Technical College-Sweetwater has a Computer Technology division offering degree programs in computer information technology, computer network technology, computer science technology, and digital imaging and design technology. Manufacturing Technology degree programs include automation robotics and drafting design technology, and a certificate program in computer-aided design (CAD).
- **Cisco Junior College** offers degree programs in accounting, business, and computer science. Technical certificate programs are in maintenance mechanics and office systems technology.
- **The Hardin-Simmons Kelley College of Business** offers undergraduate majors in accounting, computer science, economics, finance, general business, international business, management, and marketing. The Master of Business Administration (M.B.A.) degree also is offered.
- **Howard Payne University** offers more than 50 majors, minors, and pre-professional programs within six schools. Some of the degree programs offered include business administration, communication, computer information systems, and general studies. Within the business administration programs, concentrations are available in business education, finance, management, and marketing.
- **Abilene Christian College** offers degree programs through three colleges and a graduate school. The College of Business Administration offers degrees in accounting and finance and management sciences, as well as a Master of Accountancy degree. The College of Arts and Sciences offers degrees in communications, journalism and mass communication, and mathematics and computer science.

Labor Quality

1. **Demographics for the Abilene, Brownwood, and Eastland sub-regions indicate a well-educated workforce.** As shown in Table 6, the education levels of sub-region residents, specifically those with post-secondary education, are high relative to regional and state figures.
 - According to 2000 data from the U.S. Bureau of the Census, the percentage of residents with at least a high school diploma in the Abilene sub-region (81.2%) and the Brownwood sub-region (78.4%)

exceeds the West Central Texas regional average (76.8%) and the state average (75.6%). The Eastland sub-region (75.4%) mirrors the state average. The national average is 80.3%.

- The percentage of residents in the Abilene sub-region with one to three years of post-secondary training, which includes an Associate degree (30.3%), and the Brownwood sub-region (28.0%), surpasses the regional average (27.5%), the state average (27.6%), and the national average (27.3%). The Eastland sub-region (27.4%) mirrors these averages. This is significant, since many employers prefer to hire employees with some post-secondary training.
- The proportion of residents with a four-year college degree in the Abilene sub-region (22.5%) and the Brownwood sub-region (19.5%) exceeds the West Central Texas regional average (17.9%). The Eastland sub-region's average is 12.5%. The Texas statewide average is 23.2%, while the national average is 24.4%.

TABLE 6
EDUCATIONAL ATTAINMENT 2000

Source: U.S. Bureau of the Census

	Abilene Sub-region	Brownwood Sub-region	Eastland Sub-region	West Central Texas	Texas	United States
No High School Diploma	18.8%	21.6%	24.6%	23.2%	24.4%	19.6%
High School Diploma Only	28.4%	30.8%	35.4%	31.4%	24.8%	28.6%
1-3 Years College	24.8%	23.3%	22.4%	22.7%	22.4%	21.0%
Associate Degree	5.5%	4.7%	5.1%	4.8%	5.2%	6.3%
1 to 3 Years College Incl. Associate Degree	30.3%	28.0%	27.4%	27.5%	27.6%	27.3%
Bachelors Degree	14.9%	13.1%	9.0%	12.1%	15.6%	15.5%
Graduate Degree	7.6%	6.5%	3.6%	5.8%	7.6%	8.9%
16 or More Years of Education	22.5%	19.5%	12.5%	17.9%	23.2%	24.4%

2. **Surveyed employers in the West Central Texas region are generally satisfied with the quality of the workforce.**
 - Overall basic skills and verbal communication skills across the region were given satisfactory scores (a median and average score of 3.0 on a scale where 1=poor and 5=excellent).
 - Team and cooperative skills received a slightly higher rating.
3. **Employers also rated the work ethic and productivity of the regional workforce satisfactory to above satisfactory.**
 - Work ethic and productivity received median scores of 3.0 and average scores of 3.2 on a scale where 1=poor and 5=excellent.
 - Employers rated the productivity higher in the region compared to other company locations. Employers gave satisfactory to good scores on employee willingness to work overtime.
4. **Area employers indicated that employee turnover is moderate across the region, and absenteeism is modest.**
 - Average annual turnover was reported by area employers to be approximately 10%. Average daily absenteeism was under 5% and not perceived as a problem among employers.

Labor Costs

1. **Published wage data shows the Abilene MSA (Abilene sub-region) has average to below-average labor costs relative to the nation in almost all representative occupations.** Wage data for each specific sub-region is not available. Table 7 shows median earnings for some representative target-industry-related occupational groups in the Abilene MSA and the U.S. recently published by the U.S. Bureau of Labor

Statistics. Among those occupations listed within each target industry occupational group, average earnings in Abilene are substantially lower than national averages.

- Production occupations such as cutting, punching, and press machine setters, operators, and tenders, averaging \$18,845, offer an 18% savings over national averages, while production worker's helpers, averaging \$16,266, are 9% less expensive in the Abilene market. First-line supervisors/managers of production and operating workers, earning \$33,280, are approximately 17% below the national average.
- Transportation and material-moving occupations can also offer cost savings. Laborers and freight, stock, and material-moving workers, averaging \$14,456, represent a 23% savings, while hand packers and packagers, averaging \$13,291, are 15% less expensive. Truck drivers, averaging \$21,486, are 4% below national averages.
- Management occupational salaries average 24%-41% less than national norms in the Abilene market. Positions such as computer and information systems managers, averaging \$46,238, and purchasing managers, averaging \$33,966, are 36%-41% below national averages. General and operations managers, averaging \$42,827, industrial production managers, averaging \$43,493, and human resources managers, averaging \$42,536, constitute a 28%-30% savings. Administrative service managers are 24% less costly, earning on average \$35,526.
- Business and Financial Operations occupational salaries for positions such as purchasing agents and accountants and auditors are 13%-23% less costly than national averages in the Abilene market. Salaries range from \$33,176 for purchasing agents to \$37,627 for accountants and auditors.
- Office and Administrative Support occupations in Abilene represent considerable savings for all occupational titles listed when compared to the nation. Average salaries for office-related occupations such as executive secretaries and administrative assistants, customer service representatives, bookkeeping, accounting and auditing clerks, and general office clerks represent savings ranging from 19%-28%. Salaries for these positions average in the high 'teens to mid-twenties, ranging from \$17,098 for a general office clerk to \$24,066 for an executive secretary or administrative assistant. First-line supervisors/managers of office and administrative support workers, averaging \$27,331, are 25% below the national average.
- Computer and Mathematical occupations also offer savings. Computer programmers represent the most significant savings when compared to national averages. Average salaries in Abilene for this position, \$43,888, are 24% less expensive, while network and computer systems administrators, averaging \$42,848, are 16% below the national average.

TABLE 7
MEDIAN ANNUAL EARNINGS IN THE ABILENE MSA
AND THE U.S. IN SELECT OCCUPATIONS 2000

Source: U.S. Bureau of Labor Statistics, Area Occupational Employment & Wage Estimates

	Abilene MSA	U.S.	% Difference Abilene vs. U.S.
<i>Management Occupations</i>			
General and Operations Managers	\$42,827	\$61,173	-30.0%
Administrative Services Managers	\$35,526	\$47,070	-24.5%
Computer and Information Systems Managers	\$46,238	\$78,832	-41.3%
Human Resources Managers	\$42,536	\$58,989	-27.9%
Industrial Production Managers	\$43,493	\$61,651	-29.5%
Purchasing Managers	\$33,966	\$53,040	-36.0%
<i>Business and Financial Operations Occupations</i>			
Purchasing Agents	\$33,176	\$43,222	-23.2%
Accountants and Auditors	\$37,627	\$43,493	-13.5%

TABLE 7, continued
MEDIAN ANNUAL EARNINGS IN THE ABILENE MSA
AND THE U.S. IN SELECT OCCUPATIONS 2000

Source: U.S. Bureau of Labor Statistics, Area Occupational Employment & Wage Estimates

	Abilene MSA	U.S.	% Difference Abilene vs. U.S.
Office and Administrative Support Occupations			
First-Line Supervisors/Managers of Office and Administrative Support Workers	\$27,331	\$36,421	-25.0%
Bookkeeping, Accounting, and Auditing Clerks	\$20,405	\$25,667	-20.5%
Customer Service Representatives	\$17,784	\$24,606	-27.7%
Executive Secretaries and Administrative Assistants	\$24,066	\$31,096	-22.6%
Office Clerks, General	\$17,098	\$21,133	-19.1%
Computer and Mathematical Occupations			
Computer Programmers	\$43,888	\$57,595	-23.8%
Network and Computer Systems Administrators	\$42,848	\$51,272	-16.4%
Production Occupations			
First-Line Supervisors/Managers of Production and Operating Workers	\$33,280	\$40,331	-17.5%
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$18,845	\$22,942	-17.9%
Helpers--Production Workers	\$16,266	\$18,013	-9.7%
Transportation and Material Moving Occupations			
Truck Drivers, Light Or Delivery Services	\$21,486	\$22,339	-3.8%
Laborers and Freight, Stock, and Material Movers, Hand	\$14,456	\$18,803	-23.1%
Packers and Packagers, Hand	\$13,291	\$15,662	-15.1%

Infrastructure and Operating Environment

1. Major manufacturing employers in the Abilene, Brownwood, and Eastland sub-regions include Kohler Co., EBAA Iron Inc., 3M Co., ABCO Industries, Bandag Inc., Brownwood Manufacturing Co., CMI Johnson-Ross Inc., Gore's Inc., Tige Boats Inc., and Victor Equipment Co. Table 8 provides a sampling of these employers and their approximate employment.

TABLE 8
MAJOR MANUFACTURING EMPLOYERS
Source: WDG from Development Corporation Of Abilene, Inc. (DCOA) Data

Company	Employment
Kohler Co.	1,000-4,999
EBAA Iron Inc.	250-499
3M Co.	500-999
ABCO Industries	100-249
Bandag Inc.	100-249
Brownwood Manufacturing Co.	100-249
CMI Johnson-Ross Inc.	100-249
Gore's Inc.	100-249
Tige Boats Inc.	100-249
Victor Equipment Co.	100-249

2. The urbanized areas in the West Central Texas region have been proactive in investing in the necessary water supply and distribution infrastructure to support future growth and development. In particular, the cities of Abilene and Brownwood have taken significant steps to modernize their infrastructures. The Abilene, Brownwood, and Eastland sub-regions have adequate water supplies and the necessary delivery infrastructure to reliably meet current needs and to provide for some service expansion.

3. **Within the West Central Texas region, there is adequate wastewater collection and treatment infrastructure.** Several cities have recently made investments in their wastewater infrastructure and/or have ongoing wastewater upgrade projects.
4. **All of the West Central Texas region's urbanized areas have good highway access, with particularly good access through Abilene, Eastland, and Sweetwater, which are optimally located along or near Interstate 20.** Abilene, Brownwood, Snyder, and Sweetwater also have rail access. Abilene and Brownwood have commercial airline service from their regional airports to Dallas-Fort Worth.
5. **Texas Workers' Compensation and labor legislation are favorable to employers.** A review of existing Texas labor law, as shown in Table 9, reveals no current state legislation exceeding federal mandates. Texas is a right-to-work state. There are no statewide restrictions stronger than federal in terms of drug testing, right-to-know, ADA legislation, EEO hiring, sexual harassment, or mandated parental leave legislation. Texas has solid employment-at-will legislation, meaning that an employee is hired at will, and that employment can be terminated at the will of either the employer or the employee.

TABLE 9
TEXAS LABOR LEGISLATION
Source: State of Texas

Employment at will? (Yes or No)	Yes
If yes, significant restrictions (from employers standpoint)?	No
Restrictions on employee drug testing?	No
Telephone monitoring restrictions for regulation of productivity (or customer service)?	Yes: One Party Consent
Plant Closing Law stricter than Federal?	No
ADA legislation stricter than Federal?	No
Ban on hiring replacement workers during a strike?	No
Striking workers entitled to unemployment insurance?	No
Relatively difficult for an employer to contest and win a workers' comp. claim?	No
Relatively difficult for an employer to contest and win an unemployment ins. claim?	No
Right to Work law in effect?	Yes
EEO hiring standards more restrictive than Federal?	No
Sexual harassment laws more restrictive than Federal?	No
Mandated parental leave legislation more generous than Federal?	No
Onerous provisions for wrongful discharge?	No

Quality of Life

1. **Taylor County—specifically the City of Abilene—functions as a regional center for business, healthcare, transportation, and education, which has resulted in a wide variety of lodging, dining, cultural, and retail opportunities.** The Abilene Philharmonic Orchestra, the Abilene Community Theatre, the Abilene Repertoire, the Abilene Opera Association, multiple spectator and participatory sporting events, annual celebrations, and numerous historical attractions are just a few of the available opportunities that enhance the quality of life in Taylor County.
 - Abilene has witnessed a dramatic renewal and redevelopment of its downtown district. In addition to renovating numerous downtown properties, Abilene plans on capturing its West Texas heritage in a facility called "Frontier Texas!" that will include both a visitors' center and a historical experience.
 - Abilene has 31 parks covering 2,481 acres, two public swimming pools, and six public or private golf courses.
 - The climate and diverse environment of West Central Texas lends itself to year-round participation in most outdoor sports. There are at least six months of each year devoted to hunting seasons that focus on game birds and animals that are native to or abundant in this area.

2. **The cost of living is below the national average (where data was available).**
 - In Abilene, the cost-of-living (COL) index is 96.2 where the U.S. is 100. The COL index in Brownwood is 85.2.
3. **The City of Abilene, on average, enjoys 350 days of sunshine per year.** The average annual temperature is 64.8 degrees Fahrenheit (F). In July, the average high temperature is 85°F and the average low is 64°F. In January, the average high is 65 degrees, with the average low at 43 degrees.
4. **The City of Abilene serves as a regional medical center. Abilene has two hospitals, with a total of 680 beds.** 285 physicians practice in the City of Abilene, as well as 64 dentists.

INDUSTRY BACKGROUND

A target industry definition, an overview of each the target sectors, and target trends are presented below.

Definition

The *plastics product manufacturing* industry group comprises establishments primarily engaged in processing new or spent (i.e., recycled) plastics resins into intermediate or final products, using such processes as compression molding, extrusion molding, injection molding, blow molding, and casting. Within most of these industries, the production process is such that a wide variety of products can be made.

Table 10 lists the target sectors and their North American Industrial Classification System (NAICS) code numbers.

**TABLE 10
RECOMMENDED TARGETS AND THEIR NAICS CODES**

Industry Code Description	NAICS Code
All Other Chemical Product and Preparation Manufacturing	
Custom Compounding of Purchased Resins	325991
Unsupported Plastics Film, Sheet, and Bag Manufacturing	
Unsupported Plastics Bag Manufacturing	326111
Unsupported Plastics Film and Sheet (except Packaging) Manufacturing	326113
Plastics Pipe, Pipe Fitting, and Unsupported Profile Shape Manufacturing	
Unsupported Plastics Profile Shape Manufacturing	326121
Plastics Pipe and Pipe Fitting Manufacturing	326122
Laminated Plastics Plate, Sheet, and Shape Manufacturing	
Laminated Plastics Plate, Sheet, and Shape Manufacturing	326130
Polystyrene Foam Product Manufacturing	
Polystyrene Foam Product Manufacturing	326140
Urethane and Other Foam Product (except Polystyrene) Manufacturing	
Urethane and Other Foam Product (except Polystyrene) Manufacturing	326150
Plastics Bottle Manufacturing	
Plastics Bottle Manufacturing	326160
Other Plastics Product Manufacturing	
Plastics Plumbing Fixture Manufacturing	326191
All Other Plastics Product Manufacturing	326199

Table 11 summarizes national industry characteristics for each of the recommended target sub-sectors.

**TABLE 11
NATIONAL INDUSTRY CHARACTERISTICS BY TARGET SECTOR, 2000**
Source: U.S. Census Bureau County Business Patterns 2000

NAICS Code	Description	Employment	Average Annual Earnings	Total Establishments	Average Employment/ Establishment
	All Other Chemical Product & Preparation Mfg				
325991	Custom compounding of purchased resin	27,449	\$39,266	764	35.9
	Unsupported Plastics Film, Sheet, & Bag Mfg				
326111	Unsupported plastics bag mfg	40,860	\$32,475	499	81.9
326113	Unsupported plastics film & sheet (ex. packaging) mfg	55,230	\$39,001	801	69.0
	Plastics Pipe, Pipe Fitting, & Unsupported Profile Shape				
326121	Unsupported plastics profile shape mfg	27,331	\$34,653	695	39.3
326122	Plastics pipe & pipe fitting mfg	22,869	\$32,081	446	51.3
	Laminated Plastics Plate, Sheet & Shape Mfg				
326130	Laminated plastics plate, sheet & shape mfg	17,239	\$34,579	426	40.5
	Polystyrene Foam Product Mfg				
326140	Polystyrene foam product mfg	33,394	\$29,174	569	58.7

TABLE 11, continued
NATIONAL INDUSTRY CHARACTERISTICS BY TARGET SECTOR, 2000
 Source: U.S. Census Bureau County Business Patterns 2000

NAICS Code	Description	Employment	Average Annual Earnings	Total Establishments	Average Employment/ Establishment
	Foam Product (Ex. Polystyrene) Mfg				
326150	Foam product (ex. polystyrene) mfg	37,940	\$30,074	608	62.4
	Plastics Bottle Mfg				
326160	Plastics bottle mfg	37,488	\$31,068	481	77.9
	Other Plastics Product Mfg				
326191	Plastics plumbing fixture mfg	22,508	\$25,948	552	40.8
326199	All other plastics product mfg	529,507	\$30,062	8,311	63.7

Other Plastics Product Manufacturing is the -largest target sector, with 552,015 employees. The target sub-sectors are plastic plumbing fixture manufacturing (NAICS 326191) and all other plastics product manufacturing (NAICS 326199), which includes the manufacture of approximately 72 specific products. Nationally, there are 8,863 establishments employing, on average, 62 persons. Average annual per-employee earnings are \$29,894.

The Unsupported Plastics Film, Sheet, and Bag Manufacturing target sector is the second-largest of the eight recommended target sectors, employing some 96,090 persons. The target sub-sectors include unsupported plastics bag manufacturing (NAICS 326111) and unsupported plastics film and sheet (except packaging) manufacturing (NAICS 326113). Average annual per employee earnings for this sector are \$36,226. It is also the largest sector in terms of number of establishments, comprising some 1,300 establishments nationally. Average employment per establishment is 73 persons.

Plastics Pipe, Pipe Fitting, and Unsupported Profile Shape Manufacturing is the third-largest target sector, with 50,200 employees. The target sub-sectors include unsupported plastics profile shape manufacturing (NAICS 326121) and plastics pipe & pipe fitting manufacturing (NAICS 326122). Nationally there are 1,141 establishments employing, on average, 44 persons. Average annual per employee earnings are \$33,481.

The Foam Product (Except Polystyrene) Manufacturing target sector, with 37,940 employees nationally, ranks fourth. The target sub-sector is foam product (except polystyrene) manufacturing (NAICS 326150). There are 608 establishments in the U.S. Average employment per establishment is 62 persons. The average annual per-employee earnings for this sector are \$30,074.

The Plastics Bottle Manufacturing target sector ranks fifth in number of employees. The target sub-sector is plastic bottle manufacturing (NAICS 326160). There are 481 establishments in the U.S. employing some 37,488 persons. Sector average annual per employee earnings are \$31,068. Average employment per establishment is 77 persons.

Polystyrene Foam Product Manufacturing is the sixth-largest target sector, with 33,394 employees. The target sub-sector is polystyrene foam product manufacturing (NAICS 326140). Nationally, there are 569 establishments employing, on average, 58 persons. Average annual per employee earnings are \$29,174.

The All Other Chemical Product and Preparation Manufacturing target sector, with 27,449 employees nationally, ranks seventh. The target sub-sector is custom compounding of purchased resin manufacturing (NAICS 325991). There are 764 establishments in the U.S. Average employment per establishment is 35 persons. This target sector boasts the highest average annual per-employee earnings of all eight recommended target sectors. The average annual per employee earnings for this sector are \$39,266.

Laminated Plastics Plate, Sheet & Shape Manufacturing is the smallest of the eight target sectors, with 426 establishments nationally employing 17,239 persons. The target sub-sector is laminated plastics plate, sheet and shape manufacturing (NAICS 326130). Average annual per-employee earnings for persons in the sector are \$34,579. Average employment per establishment is 40 persons.

Sector Overview

Below are overviews of the recommended sub-sectors, including representative products and companies.

Custom Compounding of Purchased Resins (NAICS 325991)

This industry comprises establishments primarily engaged in (1) custom mixing and blending plastics resins made elsewhere, or (2) reformulating plastics resins from recycled plastics products. Table 13 lists products commonly produced by this target's facilities. Table 14 provides a sampling of major target sector employers.

**TABLE 13
REPRESENTATIVE PRODUCTS**

Custom compounding (i.e., blending and mixing) of purchased plastics resins
Plastics resins compounding from recycled materials
Plastics resins, custom compounding of purchased
Reformulating plastics resins from recycled plastics products

**TABLE 14
REPRESENTATIVE COMPANIES**

Ampacet Corp.
Clean Tech Inc.
Heritage Plastics Co.
Poly One Corp.
Industrial Dielectrics inc.

Unsupported Plastics Bag Manufacturing (NAICS 326111)

This industry comprises establishments primarily engaged in (1) converting plastics resins into plastics bags, or (2) forming, coating, or laminating plastics film and sheet into single-wall or multi-wall plastic bags. Establishments in this industry may print on the bags they manufacture. Table 15 lists products commonly produced by this target's facilities. Table 16 provides a sampling of major target sector employers.

**TABLE 15
REPRESENTATIVE PRODUCTS**

Bags, plastics film, single wall or multiwall
Food storage bags, plastics film, single wall or multiwall
Frozen food bags, plastics film, single wall or multiwall
Grocery bags, plastics film, single wall or multiwall
Merchandise bags, plastics film, single wall or multiwall
Trash bags, plastics film, single wall or multiwall

**TABLE 16
REPRESENTATIVE COMPANIES**

Bemis Company Inc.
Omega Plastics Corp.
Cryovac Division Sealed Air Corp.
Integrated Bagging Systems Inc.
Flexsol Packaging Corp.

Unsupported Plastics Film and Sheet (except Packaging) Manufacturing (NAICS 326113)

This industry comprises establishments primarily engaged in converting plastics resins into plastics film and unlaminated sheet (except packaging). Table 17 lists products commonly produced by this target's facilities. Table 18 provides a sampling of major target sector employers.

**TABLE 17
REPRESENTATIVE PRODUCTS**

Acrylic film and unlaminated sheet (except packaging)
Cellulosic plastics film and unlaminated sheet (except packaging)
Film, plastics (except packaging)
Photographic, micrographic, and X-ray plastics, sheet, and film (except sensitized)
Plastics film and unlaminated sheet (except packaging)
Polyester film and unlaminated sheet (except packaging)
Polyethylene film and unlaminated sheet (except packaging)
Polypropylene film and unlaminated sheet (except packaging)
Polyvinyl film and unlaminated sheet (except packaging)

**TABLE 18
REPRESENTATIVE COMPANIES**

Pliant Corp.
Tyco Plastics Inc.
Carlisle Companies Inc.
AEP Industries Inc.
Sid Tool Co.

Unsupported Plastics Profile Shape Manufacturing (NAICS 326121)

This industry comprises establishments primarily engaged in converting plastics resins into nonrigid plastics profile shapes (except film, sheet, and bags), such as rod, tube, and sausage casings. Table 19 lists products commonly produced by this target's facilities. Table 20 provides a sampling of major target sector employers.

**TABLE 19
REPRESENTATIVE PRODUCTS**

Casings, sausage, nonrigid plastics
Profile shapes (e.g., rod, tube), nonrigid plastics
Rod, nonrigid plastics
Sausage casings, plastics
Tube, nonrigid plastics

**TABLE 20
REPRESENTATIVE COMPANIES**

VPI
Laird Plastics Inc.
Summit Polymers Inc.
Dayton Technology
Mercury Plastic inc.

Plastics Pipe and Pipe Fitting Manufacturing (NAICS 326122)

This industry comprises establishments primarily engaged in converting plastics resins into rigid plastics pipes and pipefittings. Table 21 lists products commonly produced by this target's facilities. Table 22 provides a sampling of major target sector employers.

**TABLE 21
REPRESENTATIVE PRODUCTS**

Fittings and unions, rigid plastics pipe
Fittings, rigid plastics pipe
Pipe fittings, rigid plastics
Pipe, rigid plastics
PVC pipe

TABLE 22
REPRESENTATIVE COMPANIES

Cooper Standard Automotive Inc.
Dart Container Corp.
Plastech Engineering Products Inc.
Schmalbach-Lubeca
Venture Industries

Laminated Plastics Plate, Sheet, and Shape Manufacturing (NAICS 326130)

This industry comprises establishments primarily engaged in laminating plastics profile shapes such as plate, sheet (except packaging), and rod. The lamination process generally involves bonding or impregnating profiles with plastics resins and compressing them under heat. Table 23 lists products commonly produced by this target's facilities. Table 24 provides a sampling of major target sector employers.

TABLE 23
REPRESENTATIVE PRODUCTS

Laminated plastics plate, rod, and sheet
Plate, laminated plastics
Profile shapes (e.g., plate, rod, sheet), laminated plastics
Rod, laminated plastics
Sheet, laminated plastics (except flexible packaging)

TABLE 24
REPRESENTATIVE COMPANIES

International Paper Company
Pioneer Plastics
Sheldahl Inc.
Wilsonart International Inc.
Formica Corp.

Polystyrene Foam Product Manufacturing (NAICS 326140)

This industry comprises establishments primarily engaged in manufacturing polystyrene foam products. Table 25 lists products commonly produced by this target's facilities. Table 26 provides a sampling of major target sector employers.

TABLE 25
REPRESENTATIVE PRODUCTS

Coolers or ice chests, polystyrene foam
Cups, polystyrene foam
Dinnerware, polystyrene foam
Foam polystyrene products
Food containers, polystyrene foam
Ice buckets, polystyrene foam
Ice chests or coolers, polystyrene foam
Insulation and cushioning, polystyrene foam plastics
Jugs, vacuum, polystyrene foam plastics
Plates, polystyrene foam
Polystyrene foam packaging
Sheet (i.e., board), polystyrene foam insulation
Shipping pads and shaped cushioning, polystyrene foam
Thermal insulation, polystyrene foam

TABLE 26
REPRESENTATIVE COMPANIES

Spartech Plastics Inc.
ORC Plastics
Saint-Gobian Performance Plastic
Spotless Plastics USA Inc.
Clarion Plastics Technologies

Urethane and Other Foam Product (except Polystyrene) Manufacturing NAICS 326150)

This industry comprises establishments primarily engaged in manufacturing plastics foam products (except polystyrene). Table 27 lists products commonly produced by this target's facilities. Table 28 provides a sampling of major target sector employers.

**TABLE 27
REPRESENTATIVE PRODUCTS**

Cushions, carpet and rug, urethane and other foam plastics (except polystyrene)
Foam plastics products (except polystyrene)
Ice buckets, urethane or other plastics foam (except polystyrene)
Ice chests or coolers, urethane or other plastics foam (except polystyrene)
Insulation and cushioning, foam plastics (except polystyrene)
Jugs, vacuum, foam plastics (except polystyrene)
Packaging, foam plastics (except polystyrene)
Polyurethane foam products
Seat cushions, foam plastics (except polystyrene)
Shipping pads and shaped cushioning, foam plastics (except polystyrene)
Urethane foam products

**TABLE 28
REPRESENTATIVE COMPANIES**

Utah Foam Products
Advanced Adhesive Products Inc.
C&C Enterprises
Contoured Foam Co.
Foamex International Inc.

Plastics Bottle Manufacturing (NAICS 326160)

This industry comprises establishments primarily engaged in manufacturing plastics bottles. Table 29 lists products commonly produced by this target's facilities. Table 30 provides a sampling of major target sector employers.

**TABLE 29
REPRESENTATIVE PRODUCTS**

Bottles, plastics

**TABLE 30
REPRESENTATIVE COMPANIES**

Portola Packaging Inc.
Salgan Plastics Corp.
Wheaton USA Inc.
PVC Container Corp.
Plastipak Packaging

Plastics Plumbing Fixture Manufacturing (NAICS 326191)

This industry comprises establishments primarily engaged in manufacturing plastics or fiberglass plumbing fixtures. Table 31 lists products commonly produced by this target's facilities. Table 32 provides a sampling of major target sector employers.

**TABLE 31
REPRESENTATIVE PRODUCTS**

Bathtubs, plastics
Chemical toilets, plastics
Cultured marble plumbing fixtures
Drinking fountains (except mechanically refrigerated), plastics
Hot tubs, plastics or fiberglass
Laundry tubs, plastics

TABLE 31, continued
REPRESENTATIVE PRODUCTS

Plumbing fixtures (e.g., shower stalls, toilets, urinals), plastics or fiberglass
Portable toilets, plastics
Shower stalls, plastics or fiberglass
Sinks, plastics
Toilet fixtures, plastics
Urinals, plastics

TABLE 32
REPRESENTATIVE COMPANIES

Jacuzzi Inc.
Watkins Manufacturing Corp.
Sanderson Plumbing Products
Aher Plastics Co.
Leisure Bay Industries

All Other Plastics Product Manufacturing (NAICS 326199)

This industry comprises establishments primarily engaged in manufacturing plastics products (except film, sheet, bags, profile shapes, pipes, pipe fittings, laminates, foam products, bottles, plumbing fixtures, and resilient floor coverings). Most plastics products are within this category. Table 33 lists products commonly produced by this target's facilities. Table 34 provides a sampling of major target sector employers.

TABLE 33
REPRESENTATIVE PRODUCTS

Bolts, nuts, and rivets, plastics
Bottle caps and lids, plastics
Bubble packaging materials, plastics
Building materials (e.g., fascia, panels, siding, soffit), plastics
Building panels, corrugated and flat, plastics
Bushings, plastics
Countertops, plastics
Doors and door frames, plastics
Hardware, plastics
Jars, plastics
Motor vehicle moldings and extrusions, plastics
Screening, window, plastics
Siding, plastics
Tanks, storage, plastics or fiberglass
Tires, plastics
Windows and window frames, plastics
Windshields, plastics

TABLE 34
REPRESENTATIVE COMPANIES

Cooper-Standard Automotive
Dart Container Corp.
Plastech Engineering Products Inc.
Venture Industries
Chemtrusion Inc.

Target Trends

The principal trends of this target favor a West Central Texas region location. These trends include:

- The plastics industry is one of the largest manufacturing industries in the United States, contributing significantly to the nation's economy. A number of indicators demonstrate the continued growth of plastics manufacturing.
- U.S. manufacturers of plastics raw materials, products, machinery, and molds employed more than 1.5 million workers in 2000. When upstream supplying industries – industries that provide feedstocks, spare parts, and related services – are taken into account, the number of plastics industry jobs nationally rises to 2.4 million.
- Plastics industry employment has grown steadily in the past 20 years, increasing at an average of three percent annually.
- Fifteen percent of plastics industry jobs are due to exports.
- The U.S. plastics industry had a \$7.3 billion trade surplus in 2000.
- Since 1980, U.S. plastics industry shipments have grown an average of 3.8 percent per year.
- Over the past 25 years, plastics industry employment, real shipments, and value added grew faster than manufacturing as a whole.

PRINCIPAL LOCATIONAL CRITERIA

1. Favorable access to production and supervisory talent from the local labor market. The primary occupations of this industry are listed below.
 - Plastic molding machine workers
 - Assemblers, fabricators, and hand workers
 - Blue-collar worker supervisors
 - Hand packers and packagers
 - Machine tool operators
 - Inspectors, testers, and graders, precision
 - Metal and plastic machine operators
 - General managers and top executives
 - Machine forming operators
 - Freight, stock, and material movers, hand
 - Industrial machinery mechanics
 - Extruding and forming machine workers
 - Sales and related workers
 - Helpers, laborers
 - Traffic, shipping, and receiving clerks
 - Maintenance repairers, general utility
 - Industrial truck and tractor operators
 - Coating/painting/spraying machine operators
 - Industrial production managers
 - Machine feeders and off-bearers
 - Packaging and filling machine operators
 - Tool and die makers
 - General office clerks
2. A labor force with good basic and technical skills.
3. Wages that are below the national industry average.
4. Overall low or moderate operating costs, including real estate, personal property, inventory, sales, and payroll taxes, property costs, and construction costs.
5. Strong vocational/technical training programs.
6. Good-to-excellent air service for transportation of managers, technicians, and engineers between corporate locations, and for air cargo shipments.
7. Excellent, low-cost, truckload, and less-than-truckload motor carrier service, water borne and rail freight service.
8. Access to markets (preferably with delivery times by the second morning after the day of shipment—about 1-1/2 days).
9. Positive labor/management relations.
10. Good support services and suppliers within a day's drive or less.
11. Favorable labor legislation, such as the ability to hire workers during a strike and a favorable environment to contest Workers' Compensation and unemployment claims.
12. Reliable and low cost electric power.

13. Available sites or buildings with full utility service, proximity to the interstate system, and zoned for heavy and light manufacturing.
14. Fair and rapid environmental permitting and construction approvals.
15. Excellent sewer treatment capacities for treating waste by-products.
16. Abundant and well priced natural gas.
17. Abundant clean water.
18. Rail service opportunities for very large facilities to accommodate inbound raw materials.