Quality of Life in the Greater San Diego-Tijuana-Tecate-Playas de Rosarito Region

Institute for Regional Studies of the Californias

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1. Introduction

Purpose of the Project

This report is about the quality of life of the greater San Diego and Tijuana-Tecate-Playas de Rosarito (TTPR) Region. It includes qualitative indicators that reveal residents' perceptions about their quality of life. It also has quantitative indicators that provide specific measurements about important regional features. When possible, statistical indicators are presented to include at least five years of data. This is to enable the reader to understand the trend of the indicator over time.

In addition to presenting information about quality of life in the region, this report examines similarities and differences across the border. Community leaders often speak of San Diego and Tijuana as a large binational community that is divided only by a somewhat porous and artificial international boundary. The municipalities of Tecate and Playas de Rosarito are also included in this repot, as they are rapidly growing together with Tijuana to be one large contiguous urbanized area. It is also important to note that the report covers all of San Diego County, not just the San Diego city limits. The coastal cities of San Diego County are also converging to form a continuous urbanized region from the international border to as far north as Camp Pendleton.

Through statistical indicators and the views of a sample of residents from both sides of the border, this project aims to highlight similarities and differences across the border, and to assess the degree to which San Diego County, Tijuana, Tecate, and Playas de Rosarito constitute a single transborder community.

A working group of U.S. and Mexican researchers, public and private sector representatives, and members of nongovernmental organizations identified the specific quantitative indicators for this report. Key criteria for selection of indicators were that they must be relevant to both sides of the border and that they must be available as quantifiable data regularly collected and maintained by an agency. While this approach limited choices somewhat, it did assure that these indicators could be followed over time to provide a good sense of the direction of change in the binational communities. It is important to note, however, that changes in the way data is recording, in the agency responsible for collecting data, or in the government administration may cause holes or inconsistencies in data in some cases. In a few cases, important indicators that are available for only one side of the border, or one municipality or county, are included.

How the Project Was Carried Out

After the working group identified potential indicators, the research team gathered statistical materials to form a suite of indicators for the San Diego-Tijuana-Tecate-Playas de Rosarito region (the Tijuana-Tecate-Playas de Rosarito metropolitan area will be referred to as the TTPR region throughout the report). These indicators were selected to provide a quantitative view of the region's quality of life. Next, a questionnaire based on

this research was designed, tested, and administered on both sides of the border. The purpose of the survey research was to assess the perceptions of the region's residents about quality of life. The questionnaire was administered by telephone in San Diego County and by face-to-face interviews in TTPR. The sampling error associated with a random sample of 1,000 respondents from San Diego County residents 18 years or older is +/- 3.1%, at a confidence level of 95%. The sampling errors for the TTPR region, also assuming at 95% confidence level, are as follows: Tijuana 3.7%, Tecate 8.0%, and Playas de Rosarito 7.6%. A complete description and methodology of the survey can be found in Appendices 1-3.

2. The Regional Context

This section provides a description of the regional context through which to understand quality of life issues in the San Diego-TTPR region. The section highlights regional development, focusing on population growth rates and doubling times for the region, migration to the region, and the age distribution of the population. It also provides information on the characteristics of the survey respondents, including their ages, ethnicities, and occupations.

Development of the Transborder Region

The U.S.-Mexican border is one of the most dynamic regions in the world in terms of population growth, economic expansion, and urban sprawl. International processes such as the North American Free Trade Agreement (NAFTA) and the growth of the *maquiladora* (assembly) industry have combined to reinforce the historic trends of migration to Mexican northern border cities and to the Sunbelt of the U.S. Southwest border. Many decades of rapid growth along the border, particularly in the San Diego-Tijuana region, have raised concerns about the cumulative effects of growth on both the natural and human systems of the region. Individuals and groups from both sides of the border are now expressing concerns about increased traffic congestion, strained water and sewage infrastructure, roads and highways in disrepair, water and air pollution, contaminated beaches, destruction of ecosystems and species, and deteriorating quality of life. There is growing recognition that the natural resources of the region—air, water, ecosystems, and land—are limited and may not be able to adequately accommodate future growth, particularly at the rates experienced during recent decades.

One outcome of the sustained growth rates of the San Diego and Tijuana regions since World War II is that the two areas have increasingly become linked across the international boundary. The San Diego and Tijuana regional economies have developed more intimate connections through the reduction of trade and investment barriers in the NAFTA process, through increased flows of trade and sales of services, through movement of labor across the border, and through cross-border retail purchases. In many ways, a large regional economy has emerged with most capital-intensive and knowledge-based industries in San Diego, and the manufacturing and labor base in Tijuana (Clement 2002). Social ties have become stronger across the border as more families have come to have members in both communities. Increasingly, residents access recreation opportunities, cultural and sporting events, health care services, and retail shopping centers on the opposite side of the border. Environmental problems, including air and water pollution and hazardous materials, are transborder in nature. Communicable diseases and other public health issues are regional in nature, as are social problems and criminal justice issues. Physically, the two major metropolitan areas of the City of San Diego and the City of Tijuana have grown together as new housing, industrial, and commercial areas have emerged in the developing areas of the South Bay and Otay Mesa. The urbanized areas of Tijuana, Tecate, and Playas de Rosarito are expanding toward each other at such a rapid rate that they may soon form one large urbanized zone. This

has led them to propose the creation of a formal conurbation subcommission for Tijuana, Tecate, and Playas de Rosarito. Transportation systems of Southern California and northern Baja California are more tightly linked as cross border traffic flows and infrastructure merge into a regional and binational network. In 2005, the San Diego Association of Governments (SANDAG), through its Committee on Binational Regional Opportunities (COBRO), systematically examined ways to better coordinate transportation and land use at the Otay Mesa-Mesa de Otay interface between the San Diego and greater Tijuana regions. Baja California and San Diego leaders from the private sector have even formed a committee to explore developing a proposal to bring the 2016 summer Olympics to the binational region (*San Diego Union-Tribune* Sept. 8, 2005). For all of these reasons, San Diego and Tijuana are viewed by a growing number of community members as one large binational region, one that compares to and competes with other large metropolitan regions around the globe. Regularly, leaders, stakeholders, and ordinary citizens speak of the San Diego-Tijuana region as a transfrontier metropolis.

Population Growth in the San Diego-TTPR Region

Understanding trends in population growth is basic to understanding the sustainability of a region. While an expanding population in a region may drive economic expansion, population growth can also negatively impact the environment, strain public services and facilities, and affect the overall quality of life. Population is a key component in planning for the sustainable future of the region and the quality of life its residents can enjoy.

The 2002 population of the San Diego, Tijuana, Tecate, and Playas de Rosarito binational region was approximately 4.4 million, with 2.9 million in San Diego County and 1.5 million in the municipalities of Tijuana, Tecate, and Playas de Rosarito. In 2000, this border region accounted for 35% of the total population of the U.S.-Mexican border region, which was 11.8 million.

In 1995, the combined population of the municipalities of Tijuana, Tecate, and Playas de Rosarito accounted for 52% of Baja California's population. By 2000 this region had increased to 1,352,035 individuals, which was 54.4% of the state's population. Tijuana, the largest city in Baja California, increased its population during the same period by 219,228. In 2000, Tijuana's population comprised 49% of the state's population. Table 2.1 tracks the history of population growth in the binational region since 1950.

Table 2.1. Population Growth in San Diego County and TTPR, 1950–2003

Year	San Diego County	TTPR Region	Tijuana	Tecate	Playas de Rosarito*
1950	556,808	71,524	65,364	6,160	N/A
1960	1,033,011	173,898	165,690	8,208	N/A
1970	1,357,854	358,674	340,583	18,091	N/A
1980	1,861,846	491,797	461,257	30,540	N/A
1990	2,498,016	798,938	747,381	51,557	N/A
1995	2,641,561	1,100,817	991,592	62,629	46,596
2000	2,813,833	1,352,035	1,210,820	77,795	63,420
2001	2,863,279	1,430,989	1,281,129	82,590	67,270
2002	2,904,687	1,478,812	1,323,685	85,518	69,609
2003	2,930,886	1,526,154	1,365,801	88,425	71,928

Sources: INEGI 1990, 1995, 2000; CONAPO; U.S. Census 1990a, 1995, 2004; Lorey 1990.
* Playas de Rosarito was established as a separate municipality in 1995.

Population Growth Rate

The population growth rate allows for estimates of the region's population for future years. The two basic components of population growth are natural increase and net migration. Natural increase is simply the number of births minus the number of deaths. Net migration is the difference between the number of people moving into the region and the number moving out of the region.

Between 1990 and 1995, the population of San Diego County grew at an annual rate of 1.2%. During the first half of the 1990s, population growth in the county was attributed mainly to natural increase (SANDAG 1999). However, during the first half of the 1990s the county experienced a net out-migration,[i] largely as a result of the economic slowdown and the loss of defense and aerospace jobs. The economic growth during the second half of the decade, increased domestic migration again for the county (San Diego Regional Chamber of Commerce 2000).

The main driver of population growth in TTPR has been migration. The expanding economy and a perceived high quality of life make San Diego, Tijuana, Tecate, and Playas de Rosarito attractive regions for migrants. In 2000, about half of the TTPR population was born outside of the state of Baja California (INEGI 2000). In the same year, only 43.9% of San Diego residents were born in the state of California, while 21.5% were born outside of the United States (U.S. Census 2000). Playas de Rosarito became a municipality in 1995. From 1995 to 2000, it grew at a faster rate (6.4% annually) than both Tijuana and Tecate, a high growth rate that can be partially explained by its small population of 46,596 in 1995.

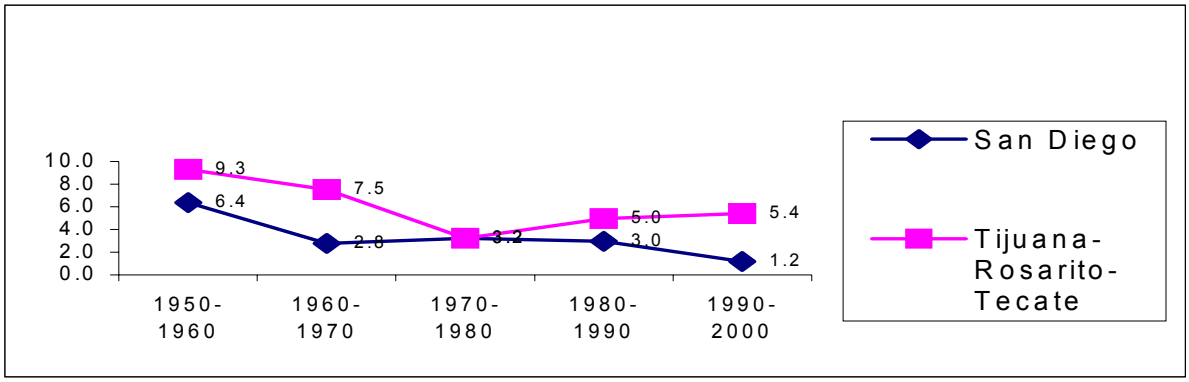
Table 2.2. Average Annual Population Growth Rates in San Diego and TTPR by Decade, 1950–2000

Years	San Diego	TTPR	Tijuana	Tecate	Rosarito
1950–1960	6.4%	9.3%	9.8%	2.9%	N/A
1960–1970	2.8%	7.5%	7.5%	8.2%	N/A
1970–1980	3.2%	3.2%	3.1%	5.4%	N/A
1980–1990	3.0%	5.0%	4.9%	5.4%	N/A
1990–2000	1.2%	5.4%	4.9%	4.2%	6.4%*

Source: Calculation based on Table 1.1.
* For years 1995–2000.

Figure 2.1 shows that since the 1960s, San Diego County's population has been growing at a decreasing rate, while the population of the Tijuana, Tecate, and Playas de Rosarito region has been growing at an increasing rate. From 1970 to 1980 San Diego and the TTPR region grew at the same annual rate of 3.2%.

Figure 2.1. Average Annual Population Growth Rates, San Diego County and TTPR Region, 1950-2000*

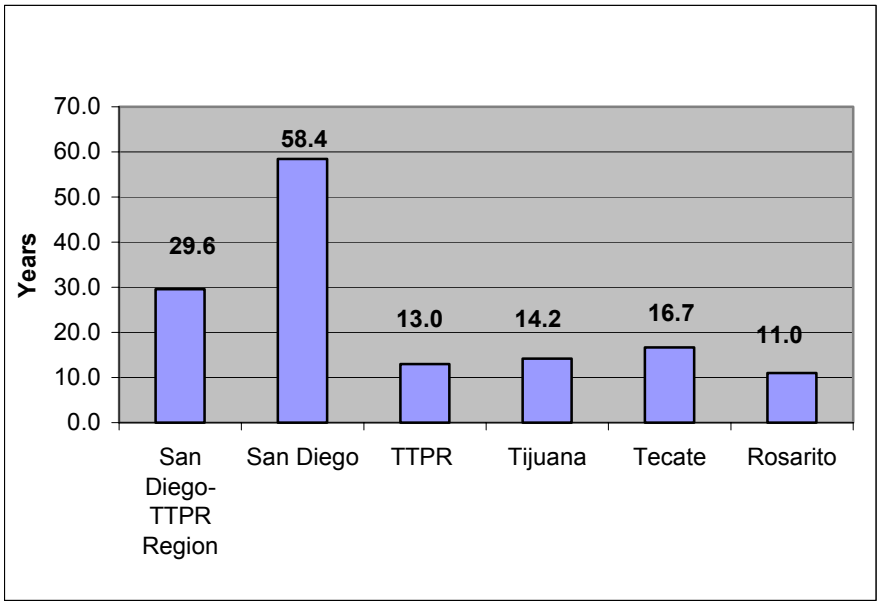


*Doubling times based on 1990-2000 average annual growth rates.
Source: Calculations based on Table 1.1.

Doubling times

Figure 2.2 presents population-doubling times for the San Diego-TTPR region. The rule of 70, a formula that estimates how many years it would take a population to double if the growth rate remains constant, and average growth rates from 1990–2000 were used to calculate the number of years required for the San Diego-TTPR population to double. If the San Diego-TTPR regional population continues to grow at the same rate that it did in the 1990s, it is expected to double in approximately 30 years. San Diego will take the longest time to double its population (58 years) and Playas de Rosarito will take the least number of years to double its population (11 years).

Figure 2.2. Doubling Times for San Diego County and TTPR Population*



*Doubling times based on 1990-2000 average annual growth rates.
Source: Calculations based on Table 1.1.

Place of Birth of Survey Respondents

The survey asked respondents whether they were native to the county or municipality, and if not, they were asked where they were born. Table 2.3 shows where the respondents were born.

Table 2.3. Migration to the Region: Place of Birth of Survey Respondents

Place of Birth	Residence of Respondents				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
County/Municipality	24%	25%	30%	19%	8%
USA	57%	2%	2%	3%	4%
Mexico	10%	73%	68%	78%	87%
Other Country	8%	<1%	<1%	0%	1%
Did Not Respond	<1%	<1%	<1%	1%	1%

Percentages may not add to 100% due to rounding.
Source: San Diego-TTPR Survey.

These responses illustrate the significant level of migration to the region. In San Diego County, 18% percent of survey respondents migrated from Mexico or another country, while 57% came from elsewhere in the United States. Sixty-eight percent of Tijuana respondents were born elsewhere in Mexico, as well as 78% of Tecate respondents and 87% of those surveyed in Playas de Rosarito. Only small percentages of residents in all three Baja California municipalities came from the United States or other foreign countries.

The survey results on place of birth the results from both the U.S. and Mexican 2000 Censuses. The census results, as listed in Table 2.5, include children whereas the San Diego-TTPR survey only queried one person per household, eighteen years of age or older.

Table 2.4. Census Data, Place of Birth of San Diego-TTPR Region Residents, 2000

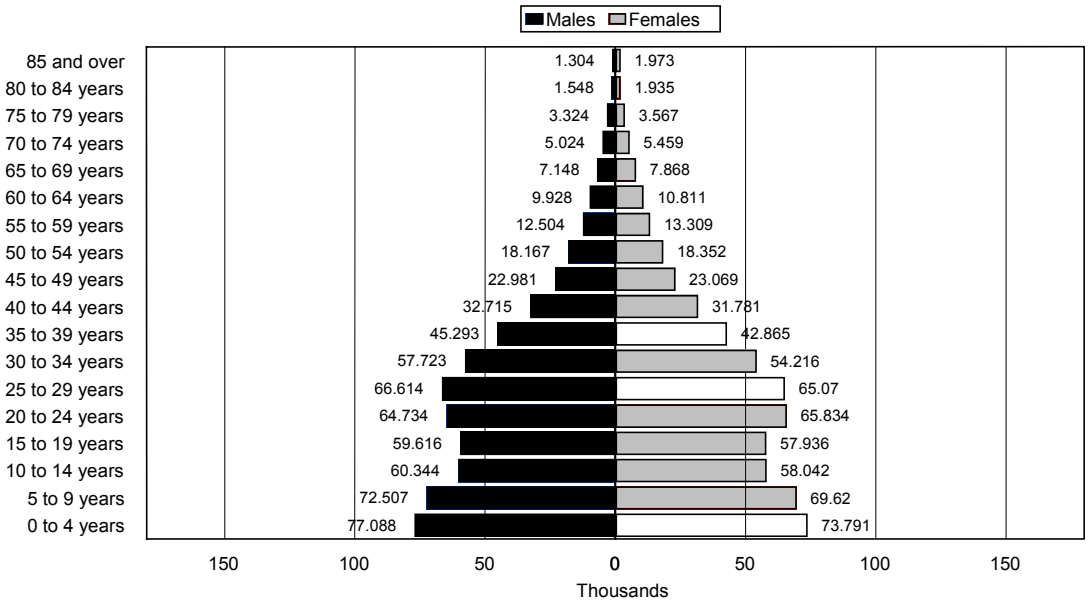
Place of Birth	Residence of Respondents				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
State of Residence	43.9%	39.8%	39.7%	43.3%	37.1%
Different State in Country of Residence	32.9%	47.6%	48.0%	43.5%	44.2%
Other Country	21.5%	2.9%	2.8%	2.9%	3.5%
Did Not Specify	NA	9.7%	9.4%	10.3%	15.3%

Source: U.S. Census 2000 Summary File 3; INEGI 2000.

Age Structure

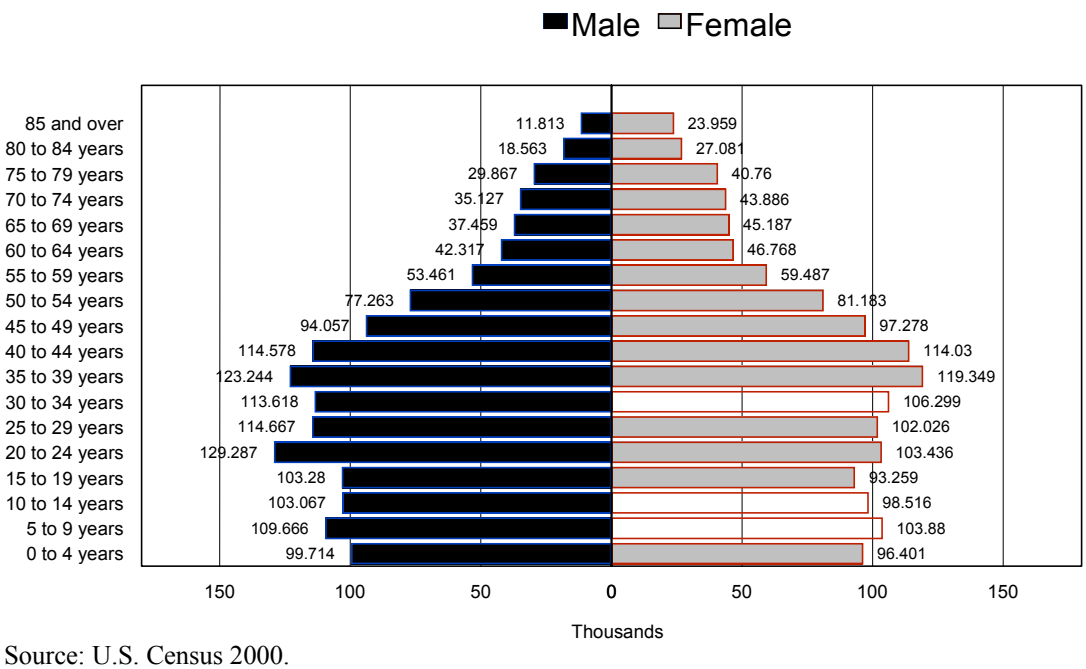
The age structure of a population is important for determining the future demand for educational facilities, employment, health services, recreational facilities, housing, and other services provided by the government and the private sector. In 2000, approximately 60% of the TTPR population was below age 35, and 39.1% was below the age of 20. The most obvious difference between the age structures of San Diego County and the TTPR region is that San Diego County's population is aging, with 24.3% of the population age 50 and above, compared to TTPR's population, with only 9% age 50 and above. Thirty-nice percent of TTPR's younger population is under age 20, while only 28.9% of San Diego County's population is under 20.

Figure 2.3. Age Distribution by Gender, TTPR Region, 2000



Source: INEGI 2000.

Figure 2.4 Age Distribution by Gender, San Diego County, 2000



Source: U.S. Census 2000.

Population Projections

Through the use of age structure information, growth rates, and migration rates, demographers are able to predict fairly accurately the future size of the population in any given region. By 2020, San Diego is projected to have approximately 3.6 million (3,675,938) residents (Peach and Williams 2000), while the projected figure for TTPR is 2.74 million. By about 2014, the Mexican side of the region will have more residents than the U.S. portion.

Table 2.5. Population Projections for San Diego and TTPR

	2005	2010	2015	2020	2025	2030
San Diego	3,007,816	3,226,809	3,457,283	3,675,938	3,884,581	4,084,289
Tijuana	1,465,303	1,761,124	2,093,651	2,461,687	2,874,845	3,341,815
Tecate	96,282	118,455	144,254	173,658	207,333	246,082
Playas de Rosarito	76,517	87,862	99,130	110,212	120,820	130,568
TTPR	1,638,102	1,967,441	2,337,035	2,745,557	3,202,998	3,718,465

Source: Peach and Williams; CONAPO for Playas de Rosarito.

Characteristics of Survey Respondents

The diversity of San Diego residents is reflected by the characteristics of the survey respondents. As mentioned above, only 24% of the San Diego respondents were born in San Diego County, 57% were born elsewhere in the United States, 10% were born in Mexico, and 8% were born in another country. The following tables provide information

regarding the age, ethnicity, and occupation of the survey respondents from both sides of the border.

As Table 2.6 shows, the age distribution of respondents from San Diego and from TTPR is relatively equal, representing a fairly even spread across age divisions. Roughly 40% of San Diegans surveyed were between 18 and 34 years old; 35% were between 35 and 54; and 25% were 55 or older. Similarly, almost half of TTPR respondents were between 18 and 34, 36% were 35 to 54 years old, and 15% were over age 55. Although TTPR respondents were slightly younger on average, the age distribution of survey respondents is not indicative of the overall age distribution of the population, as shown above in the age pyramids. This is largely due to the survey's stipulation that respondents be age 18 or older.

Table 2.6 Age of San Diego and TTPR Respondents

Age group	**San Diego** N= 1001	**TTPR** N= 1025	**Tijuana** N= 711	**Tecate** N= 150	**Playas de Rosarito** N= 164
18 to 24	15.7%	19.8%	21.1%	20.7%	13.4%
25 to 34	24.8%	28.8%	28.1%	28.7%	31.7%
35 to 44	19.8%	22.2%	21.5%	22.7%	25.0%
45 to 54	14.6%	14.0%	12.9%	16.7%	15.9%
55 to 64	10.0%	8.2%	8.4%	7.3%	7.9%
65 or over	14.4%	6.6%	7.6%	3.3%	5.5%
Did not Respond	0.6%	0.4%	0.3%	0.7%	0.6%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

As Table 2.7 indicates, the ethnicity of survey respondents logically varied much more across the border than the ages of respondents. The majority of San Diego respondents, 65%, were White, 20% were Hispanic, almost 5% were Asian or Pacific Islander, 4% were Black, and 1.6% were Native American. TTPR respondents were 96.2% Mexican. Twenty-four respondents, or 2.3%, were Hispanic, six TTPR respondents were White, and one was Black.

Table 2.7 Ethnic Background of San Diego and TTPR Respondents

Ethnic/Racial Background	San Diego N=1001	TTPR N=1025	Tijuana N=711	Tecate N=150	Playas de Rosarito N=164
White	64.6%	0.6%	0.7%	-	0.6%
Black	4.1%	0.1%	0.1%	-	-
Hispanic	20.5%	2.3%	2.5%	1.3%	2.4%
Mexican	-	96.2%	95.9%	97.3%	96.3%
Asian/Pacific	4.9%	-	-	-	-
Native American	1.6%	-	-	-	-
Other	2.5%	0.1%	-	-	0.6%
Did not respond	1.8%	0.7%	0.7%	1.3%	-

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

The occupations and occupational status of survey respondents on both sides of the border is another important factor that may influence responses to quality of life issues. Of those respondents employed at the time of the survey, a much higher percentage of San Diegans, 45%, reported having professional occupations, than TTPR respondents, of which 17% had professional occupations. Additionally, 18% of San Diego respondents and 11% of TTPR respondents were managers. TTPR respondents were more highly concentrated in the clerical and service sectors, as well as in semi-skilled jobs than were San Diegans surveyed. Responses were fairly equal across the border in the sales, craftsman, and laborer occupations. These distinctions are indicative of sectoral differences in the economies of the San Diego and the TTPR regions—namely, the contrast between the capital-based economy in the San Diego and the large manufacturing sector that has developed in the TTPR region.

Table 2.8 Occupation of San Diego and TTPR Respondents

Description of Occupation	San Diego N=1001	TTPR N=1025	Tijuana N=711	Tecate N=150	Playas de Rosarito N=164
Professional	44.5%	17.4%	19.4%	19.3%	4.8%
Manager	17.9%	10.8%	10.5%	4.8%	20.6%
Clerical	7.0%	12.6%	14.3%	6.0%	12.7%
Sales worker	6.1%	6.3%	7.3%	2.4%	6.3%
Craftsman	7.1%	9.3%	8.9%	9.6%	11.1%
Semi-skilled	1.6%	10.6%	10.2%	19.3%	1.6%
Service worker	9.4%	23.9%	21.0%	27.7%	33.3%
Laborer	5.6%	6.5%	6.3%	8.4%	4.8%
Did not respond	0.9%	2.6%	2.2%	2.4%	4.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

The employment status of survey respondents of San Diego and TTPR provides additional information. Almost half of San Diegans surveyed were working full-time, while only 31% of TTPR respondents said the same. As part-time employment was more or less similar, the difference in full-time employment can be attributed to the much higher percent of homemaker respondents in TTPR—37% versus only 8% in San Diego. Additionally, retirees comprised a higher percentage of San Diego respondents than TTPR respondents. This is likely due to the larger portion of San Diego's population that is age 50 and above and more complete coverage of retirement programs, including Social Security, in the United States than in Mexico.

Table 2.9 Employment Status of San Diego and TTPR respondents

Status	**San Diego** N=1001	**TTPR** N=1025	**Tijuana** N=711	**Tecate** N=150	**Playas de Rosarito** N=164
Full-time	49.1%	31.3%	30.0%	42.7%	26.8%
Part-time	15.7%	13.7%	14.3%	12.7%	11.6%
Student	4.2%	7.3%	7.9%	6.7%	5.5%
Homemaker	7.6%	36.8%	36.6%	28.7%	45.1%
Retired	15.8%	4.6%	4.6%	4.7%	4.3%
Disabled	2.3%	0.5%	0.4%	0.7%	0.6%
Unemployed	5.1%	5.3%	5.8%	2.7%	5.5%
Did not respond	0.4%	0.6%	0.4%	1.3%	0.6%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Summary

With high regional population growth and urban sprawl on both sides of the border, San Diego and TTPR will increasingly live up to the term transfrontier metropolis. San Diego, Tijuana, Tecate, and Playas de Rosarito are already inextricably linked; the transborder movement that connects them will only grow stronger as population projections are realized. The high in-migration rates and, in TTPR's case, young population, will likely assure that such growth continues far into the future. The characteristics of survey respondents presented in this section, including age, ethnicity, and occupation, will be elaborated on with discussion elsewhere in this report.

3. Quality of Life: Perceptions of the Region's Residents

There is not a universal definition of quality of life. Never the less, the concept of quality of life refers to how good is someone's life. Measuring the level of someone's quality is not essay and there are several ways to attempt measure it. Indictors and perceptions are standard measurements that help us better describe the "quality of life" of residents in a geographic area.

Although there is no one, universal definition of quality of life, the San Diego-TTPR public perception survey gathered responses on numerous aspects that affect residents' quality of life in the San Diego-TTPR binational region. This report discusses in detail the factors that respondents identified as most important in influencing their quality of life. This section presents the results of respondents' ratings of their overall quality of life, their willingness to move to improve quality of life, the factors they identified as most important to quality of life, and several elements currently lacking that they feel would improve quality of life.

Personal Quality of Life

In the survey, 1,026 residents in the TTPR region and 1,001 residents in San Diego County were asked to rate their personal quality of life. Table 3.1 presents their responses.

Table 3.1. Personal Quality of Life (QOL)

Personal QOL	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	28%	5%	6%	5%	4%
Good	56%	48%	51%	35%	48%
Fair	14%	45%	42%	57%	46%
Poor	2%	2%	2%	3%	3%
Don't know	<1%	<1%	<1%	1%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

In all four cities, residents generally rated their quality of life as either good or fair. Few on either side of the border considered their quality of life as poor. Residents in San Diego gave their quality of life higher marks than residents in Tijuana, Tecate, and Playas de Rosarito. More than one-quarter, or 28%, of San Diegans considered their quality of life as "excellent," a number contrasting with only 6%, 5%, and 4% of Tijuana, Tecate, and Playas de Rosarito respondents, respectively. In addition, San Diegans were more likely to rate their quality of life as "good" (56%) than as "fair" (14%). Survey respondents from Tijuana and Rosarito also rated their quality of life "good"—51% and 48%, respectively—more often than "fair"—42% and 46% of Tijuana and Rosarito responses. More residents of Tecate surveyed, however, rated their quality of life as "fair", 57%, than as "good," 35%. According to the survey results for the transborder region, San Diegans surveyed are most satisfied with their quality of life, followed by respondents from Tijuana, Playas de Rosarito, and, lastly, Tecate.

Moving Outside the Region to Improve Quality of Life

Although San Diegans surveyed were mostly satisfied with their quality of life, they were also the most willing to move outside the region in order to improve their quality of life. As Table 3.2 demonstrates, 34% of respondents in San Diego were very or somewhat likely to move outside the region to improve their quality of life, a higher percentage than in Tecate (31%), Tijuana (24%) and Playas de Rosarito (17%).

Table 3.2. Likelihood of Moving Outside the Region to Improve Quality of Life

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very likely	16%	9%	10%	10%	6%
Somewhat likely	18%	15%	14%	21%	11%
Not very likely	21%	19%	17%	22%	23%
Not likely	45%	55%	57%	41%	59%
Don't know	1%	2%	2%	6%	1%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Respondents were generally more likely to move outside their county or municipality of residence to improve their quality of life if they rated their personal quality of life lower, but the difference was not nearly as great as might be expected. Table 3.3 presents cross tabulations of likelihood of moving and personal quality of life.

Table 3.3. Personal Quality of Life and Likelihood of Moving Outside the County or Municipality to Improve Quality of Life

County/ Municipality	Quality of Life	Move to Improve Quality of Life?				
		Very Likely	Somewhat Likely	Not Very Likely	Not Likely	Total Respondents
San Diego	Excellent	10%	13%	17%	60%	282
	Good	16%	19%	25%	41%	555
	Fair	28%	24%	18%	31%	142
	Poor	27%	33%	0%	40%	15
	Total	16%	18%	21%	45%	994
TTPR	Excellent	8%	19%	14%	60%	52
	Good	9%	11%	18%	63%	481
	Fair	10%	18%	22%	50%	446
	Poor	15%	25%	10%	50%	20
	Total	9%	15%	19%	57%	999
Tijuana	Excellent	8%	18%	15%	59%	39
	Good	9%	11%	16%	64%	354
	Fair	11%	18%	20%	51%	291
	Poor	17%	25%	8%	50%	12
	Total	10%	14%	17%	58%	696
Tecate	Excellent	14%	43%	14%	29%	7
	Good	10%	13%	23%	54%	48

	Fair	11%	24%	26%	39%	82
	Poor	0%	67%	0%	33%	3
	Total	11%	22%	24%	44%	140
Rosarito	Excellent	0%	0%	0%	100%	6
	Good	5%	12%	22%	62%	78
	Fair	7%	12%	26%	55%	73
	Poor	20%	0%	20%	60%	5
	Total	6%	11%	23%	60%	162

Percentages may not total 100% due to rounding. For purposes of this table, those responding "don't know" either to personal quality of life or likelihood of moving were omitted from this calculation, with the percentages derived from those who remained.
Source: San Diego-TTPR Survey.

In San Diego, 41% of respondents who rated their quality of life as "good" were "not likely" to move outside the county to improve their quality of life, compared to 31% among those who considered their quality of life to be "fair." This trend also held up in TTPR. Sixty-four percent of Tijuana, 54% of Tecate, and 62% Playas de Rosarito respondents who considered their quality of life "good" were "not likely" to move. Smaller percentages of those who rated their quality of life as "fair" were "not likely" to move—51%, 39%, and 55% in Tijuana, Tecate, and Playas de Rosarito, respectively.

Most Important Quality of Life Indicators

Residents were asked to rank the three quality of life indicators that they considered as first most important, second most important, and third most important. The seven indicators were selected by the project team through a process that included a literature review on quality of life indicators and consultations with subject experts from the transborder region. Table 3.4 lists the responses.

Table 3.4. Rankings of Quality of Life Indicators

Indicator	San Diego	TTPR	Tijuana	Tecate	Rosarito
Education	2nd	1st	1st	1st	1st
Economy	1st	2nd	2nd	2nd	2nd
Health Care	3rd	4th	4th	3rd	4th
Public Safety	4th (Tied)	3rd	3rd	4th	3rd
Housing	4th (Tied)	5th	5th	5th	5th
Environment	6th	6th	6th	6th	6th
Transportation	7th	7th	7th	7th	7th

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

There is a consensus among the respondents that education and the economy are the two most important quality of life indicators, with San Diegans rating the economy higher and residents of Tijuana, Tecate, and Rosarito rating education higher. Residents were split on whether health care or public safety was the third most important factor, and housing

generally was rated fifth, although San Diegans considered it equal to public safety. Finally, there was a binational consensus on the last two indicators, with the environment rating sixth and transportation rating seventh.

What Would Improve Quality of Life?

Residents in the three municipalities and county were also given the opportunity to suggest one thing lacking in their community that would improve their quality of life. In San Diego, residents mainly mentioned things related to transportation, housing, better recreational facilities, and the economy. Tijuana respondents also had a variety of suggestions. Most of these pertained to transportation, but were mainly concerned with road quality rather than traffic congestion or public transportation improvements. Other factors mentioned were better recreational areas such as parks or open spaces, and better public services. In Tecate, respondents mentioned the lack of recreational areas, economic issues such as job availability, and the need for better public services such as water, sewage, and electricity. In Playas de Rosarito, the respondents' consensus was that the improvement of public services would improve their quality of life. Some services needing improvement were the sewage system, the potable water connections, and street pavement. Improvement of public safety, economy, and health care were also mentioned. Table 3.5 lists the elements that residents thought were lacking in their communities and that would improve their quality of life.

Table 3.5 One Thing Your Community Lacks that Would Improve Your Quality of Life

Category	%	N	Common Responses
San Diego County, N=494			
Community	7%	33	More interaction, community spirit, tolerance, unity
Environment	4%	18	More open spaces, cleaner air, water, and beaches
Government	3%	16	Better city council, better planning, honest politicians
Housing	14%	67	Affordable housing, easier access to homeownership
Economy	10%	48	More jobs, higher pay, more businesses, opportunity
Education	5%	24	Improved education quality, more libraries
Health	3%	16	Cheaper health insurance, more access to health care
Public Safety	6%	31	Better public safety, more police, crime/drug control
Slower Growth	8%	40	Less people, building limits, city planning
Recreation	11%	54	More open spaces, parks, and entertainment
Public Services	7%	35	Street lights, sidewalks, better drinking water, sewage
Transportation	23%	112	Cheaper, increased public transportation, road repair
Tijuana, N=404			
Environment	2%	8	Cleaner environment, more green spaces
Government	<1%	2	Better relations between govt. and public, new govt.
Housing	<1%	3	Own a home, improved housing
Economy	5%	22	More jobs, economic opportunities, increased salaries
Education	2%	9	More libraries, schools, and kindergartens

Health	1%	4	Better health care, more doctors
Public Safety	34%	137	Safety and security, more surveillance, patrolling
Slower Growth	<1%	2	More room, tranquility
Recreation	16%	66	More parks, green areas, sports fields, movie theaters
Public Services	31%	124	Sewage connection, trash pick-up, street paving/repair
Transportation	4%	18	Better public transit (buses), road repair, more roads
Other	3%	12	More churches, community centers, less street dogs
Tecate, N=64			
Environment	2%	1	Clean river, sewer connection
Government	-	-	N/A
Housing	3%	2	Opportunity to own, enlarge/remodel
Economy	19%	12	More jobs and opportunities, higher salaries
Education	8%	5	More schools, university in Tecate
Health	9%	6	More health care and ambulances, specialized hospital
Public Safety	9%	6	Improved public safety, street surveillance
Slower Growth	-	-	N/A
Recreation	27%	17	More parks, recreational areas, and shopping centers
Public Services	19%	12	Road paving and repair, sewage, drainage, street lights
Transportation	5%	3	Less traffic, 24hr. port of entry to U.S.
Playas de Rosarito, N=129			
Environment	-	-	N/A
Government	-	-	N/A
Housing	-	-	N/A
Economy	3%	4	More jobs, better wages
Education	2%	2	High school, university, libraries
Health	3%	4	Hospital, clinic, bigger health center
Public Safety	4%	5	More safety and surveillance, better police services
Slower Growth	-	-	N/A
Recreation	9%	11	Parks, green/recreational areas, movie theater
Public Services	79%	101	Improved drainage, sewage, and water, road repair
Transportation	-	-	N/A
Other	<1%	1	Remove thermoelectric plant

Percentages may not total 100% due to rounding.

The results from this question contrast with the rankings of quality of life indicators noted in Table 3.4. Residents in all cities placed education and economy as the top choices for quality of life indicators, placing transportation last. However, suggestions as to what would improve the quality of life most often involved the transportation sector and public services such as. This may indicate a desire for immediate short-term improvements. San Diegans may believe economy and education are very important for long term development and sustaining the area's quality of life, yet also see public transportation and traffic management as important in the short term, and as pragmatic improvements in their daily lives.

Similarly, *Tijuanenses* expressed a desire for improved transportation in the form of more paved roads and called for improved public safety. Again, education and economy may be viewed as important indicators and necessary for long-term development, yet in the short term, individuals see a need for immediate results in the form of better roads and improved public safety.

Tecate and Rosarito residents also indicated a desire for transportation and public service improvements. Residents suggested a need for better road quality and improved urban services such as water lines, public recreation areas, and sewage system improvements.

It is evident that San Diego and TTPR residents desire changes that can provide immediate improvements in their daily lives and that can ensure economic prosperity and social development in the long term.

Summary

Over 2,000 residents of the diverse, binational San Diego-TTPR region participated in this public perception survey on quality of life. With some variation across the border, respondents generally agreed that economy and education are the most important factors in determining quality of life, with health care and public safety vying for third and fourth place, and housing ranking closely behind. San Diegans surveyed reported a higher quality of life overall than TTPR respondents reported, and San Diegans surveyed were also the most willing to move outside of the region to improve their quality of life. Finally, respondents had numerous suggestions on what could improve quality of life; respondents from San Diego mentioned improved transportation, housing, recreational facilities, and economy while TTPR respondents' suggestions ranged from improved public services and more recreational areas to job availability and improved health care. The following sections will further explore each of the aforementioned quality of life factors in detail, emphasizing similarities and differences across the border throughout.

4. Education

Both the United States and Mexico place a high value on public education as a way of developing citizens and as the best means of producing the skill sets necessary for economic growth and development. People in both Mexico and the United States value education as a means of achieving upward social and economic mobility. This section discusses educational attainment and its effects on quality of life on both sides of the border. It then turns to educational enrollment rates in both San Diego and TTPR, including high school dropout rates, before closing with a discussion of survey respondents' perceptions of public education and their suggestions for its improvement.

In San Diego, the quality of local schools is a key element in determining the desirability of neighborhoods to prospective residents. Control of local school policies is of great importance for citizens in San Diego's many communities. Quality of education is also a significant theme in state and national politics in the United States. The responses in Table 4.1 suggest that people in the region understand the link between education and personal and family prosperity.

As Table 4.1 indicates, survey respondents of Tijuana, Tecate, and Playas de Rosarito all regarded education as the most important quality of life indicator, while San Diegans rated it second, behind the economy.

Table 4.1. Importance of Education for Quality of Life

Education Importance	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Ranking "Most Important"	23%	40%	39%	46%	40%
% of Residents Ranking "Second Important"	19%	22%	21%	26%	21%
% of Residents Ranking "Third Important"	14%	13%	13%	10%	16%
Total Mention	56%	75%	73%	82%	77%
Index Percent	20%	29%	29%	33%	30%
Cumulative Category Rank	2nd	1st	1st	1st	1st

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Educational Attainment

The survey asked about respondents' educational attainment. The responses provide reasonably accurate comparisons across the border since all respondents were 18 years of age or older. It is also possible to compare respondents by education level, since similar education level categories were used for each survey. Survey results shown in Table 4.2 and Figure 4.1 demonstrate the educational attainment gap across the border.

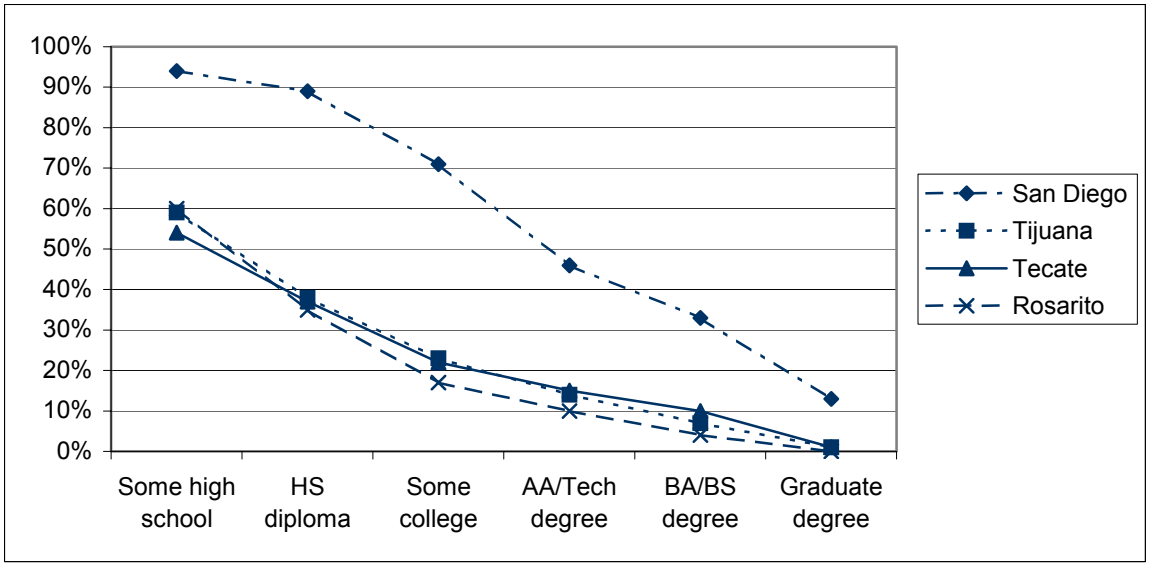
Table 4.2. Education Completed by Survey Respondents

Education Completed	San Diego	TTPR	Tijuana	Tecate	Rosarito
Less than 9th grade	6%	42%	41%	45%	41%
Some high school	5%	21%	21%	17%	25%
HS diploma	18%	15%	15%	15%	18%
Some college	25%	9%	9%	7%	7%
AA/Tech degree	13%	6%	7%	5%	6%
BA/BS degree	20%	6%	6%	9%	4%
Graduate degree	13%	1%	1%	1%	0%
Don't Know	<1%	<1%	1%	0%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Figure 4.1 shows educational attainment in the transborder region based on survey results. The area under each line represents cumulative education in a region. Thus, the area between the San Diego County and TTPR lines represents the education attainment differential between north and south of the border.

Figure 4.1. Education Completed by Survey Respondents



Source: San Diego-TTPR Survey.

Survey data and official statistics are similar regarding educational attainment. According to the 2000 U.S. Census, 30% of San Diegans 25 years or older had a Bachelor's Degree or higher, a figure similar to the 33% reported by the survey. The 2000 Mexican census (INEGI) reported that nearly 9% of the residents in the Tijuana-Rosarito region had a Bachelor's Degree or higher, compared to the survey results of 7% in Tijuana, 10% in Tecate, and 4% in Playas de Rosarito. Tables 4.3 and 4.4 provide more detailed census data regarding educational attainment on both sides of the border.

Table 4.3. Educational Attainment, 25 Years and Over, San Diego County and California, 2000

Educational Attainment	San Diego		California	
	2000	1990	2000	1990
Less than 9th grade	7.9%	7.6%	11.5%	11.2%
9th to 12th grade, no diploma	9.5%	10.5%	11.7%	12.6%
High school graduate	19.9%	22.8%	20.1%	22.3%
Some college, no degree	25.6%	25.6%	22.9%	22.6%
Associate degree	7.6%	8.2%	7.1%	7.9%
Bachelor's degree	18.7%	16.5%	17.1%	15.3%
Graduate or professional degree	10.9%	8.8%	9.5%	8.1%
High school graduate or higher	82.6%	81.9%	76.8%	76.2%
Bachelor's degree or higher	29.5%	25.3%	26.6%	23.4%

Sources: U.S. Census 1990; U.S. Census 2000.

Table 4.4. Educational Attainment of the Population 5 Years and Over, Tijuana-Playas de Rosarito, 2000

Educational Attainment	Percentage in Category	Percentage at or Above
None	5.0%	---
Preschool/Kindergarten	3.8%	94.1%
Primary (years 1–6)	39.9%	90.3%
Secondary (years 7–9)	25.5%	50.4%
High School (years 10–12)	12.7%	24.9%
Technical/Commercial/Normal	3.7%	12.2%
Professional	8.0%	8.5%
Master's Degree or Doctorate	0.5%	0.5%
Not Specified	0.9%	---

Source: INEGI 2000.

Educational Attainment and Quality of Life

Given the high importance survey respondents gave education as a quality of life indicator, it is useful to note their perceptions of quality of life according to their education levels. In Table 4.5, the responses for quality of life are assigned a weighted numerical value, with the percentage of those responding "excellent" multiplied by three, the percentage of those responding "good" multiplied by two, and the percentage of those responding "fair" multiplied by one. The resulting figure, scaled from 0–3, represents a numerical aggregate of quality of life, with a figure of 0 representing a "poor" quality of life, a figure of 1 representing "fair", a figure of 2 representing "good", and 3 representing "excellent", with decimals representing values in between. The number of respondents reporting each level of education for each region is indicated in parenthesis.

Table 4.5. Quality of Life According to Education Level Completed

Education Completed	Perception of Quality of Life*				
	San Diego (N)	TTPR (N)	Tijuana (N)	Tecate (N)	Rosarito (N)
Less than 9th grade	1.60 (58)	1.41 (426)	1.47 (291)	1.22 (67)	1.37 (67)
Some high school	1.74 (47)	1.51 (217)	1.55 (150)	1.38 (26)	1.51 (41)
HS diploma	2.11 (174)	1.66 (156)	1.73 (104)	1.52 (23)	1.55 (29)
Some college	2.15 (253)	1.75 (87)	1.72 (65)	1.80 (10)	1.92 (12)
AA/Tech degree	2.08 (133)	1.82 (63)	1.91 (46)	1.38 (8)	1.78 (9)
BA/BS degree	2.26 (204)	1.87 (62)	1.86 (43)	1.77 (13)	1.83 (6)
Graduate degree	2.19 (129)	2.00 (8)	1.83 (6)	2.50 (2)	N/A (0)
All Respondents	2.11 (998)	1.56 (1,019)	1.60 (705)	1.41 (149)	1.52 (164)

Source: San Diego-TTPR Survey cross-tabulation.
*0 = poor; 1 = fair, 2 = good, 3 = excellent.

While there is a positive relationship between levels of education and positive perception of quality of life, it is by no means overwhelming. The exception is the difference in San Diego between those who have a high school degree and those who do not. This seems to support using the high school dropout rate as a quality of life indicator, although the relationship is not nearly as evident in TTPR. Interestingly, in San Diego those respondents with a BA or BS degree reported a higher quality of life than those with a graduate degree. The opposite is true in the TTPR.

Table 4.6 and Figure 4.2 present data on the relationship between respondents' perception of economic situation and educational attainment. These data are the result of the same methodology used to examine quality of life according to educational level in the preceding discussion and Table 4.5.

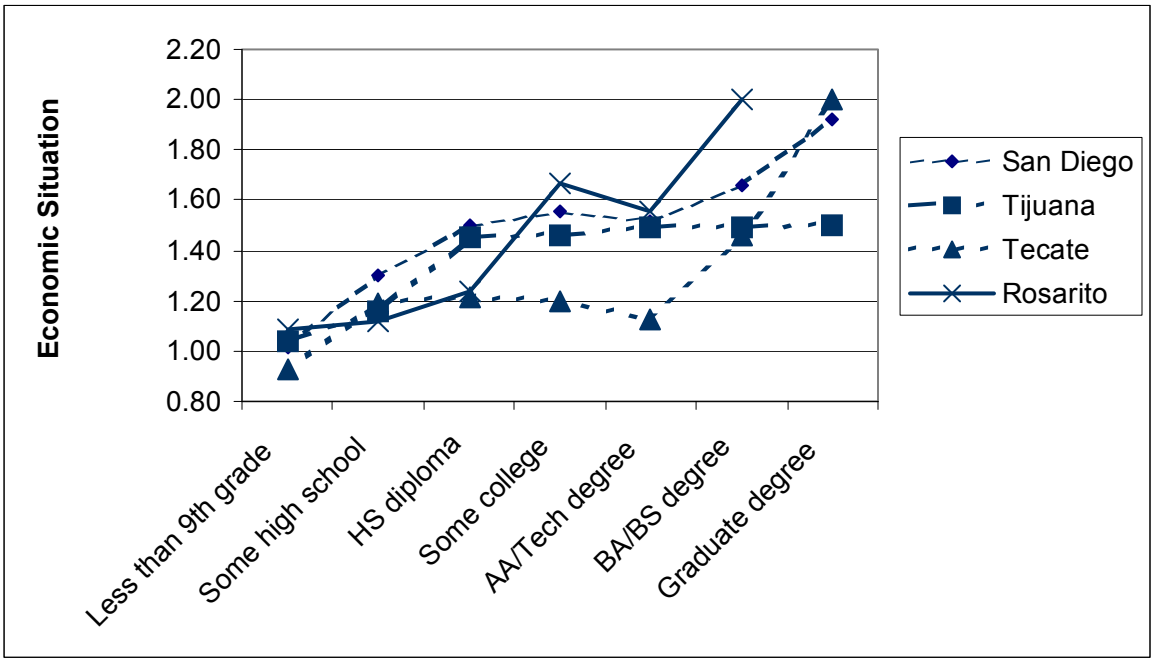
As might be expected, there is a general positive relationship between levels of educational attainment and perception of personal economic situation. However, there are some education levels that are especially important and some where increasing educational levels do not reflect more positive views of personal economic situations.

Table 4.6. Perceived Current Economic Situation, Numerical Indicator by Level of Education Completed

Education Completed	Personal Economic Situation				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
Less than 9th grade	1.02 (58)	1.03 (427)	1.04 (291)	0.93 (68)	1.09 (67)
Some high school	1.30 (47)	1.15 (217)	1.16 (150)	1.19 (26)	1.12 (41)
HS diploma	1.50 (173)	1.37 (156)	1.45 (104)	1.22 (23)	1.24 (29)
Some college	1.55 (253)	1.45 (87)	1.46 (65)	1.20 (10)	1.67 (12)
AA/Tech degree	1.52 (132)	1.42 (63)	1.49 (46)	1.13 (8)	1.56 (9)
BA/BS degree	1.66 (203)	1.53 (62)	1.49 (43)	1.46 (13)	2.00 (6)
Graduate degree	1.92 (129)	1.62 (8)	1.50 (6)	2.00 (2)	N/A (0)
All Respondents	1.56 (995)	1.20 (1,020)	1.22 (705)	1.12 (150)	1.23 (164)

Source: San Diego-TTPR Survey cross-tabulation.

Figure 4.2. Perception of Economic Situation by Education Level



Source: San Diego-TTPR Survey cross-tabulation (Table 4.6).

In San Diego, there are clear inflection points among those who have some high school education rather than none (27% increase in positive perception of economic situation); between those with a high school diploma and those without (15% increase); and between those who have a graduate degree versus a bachelor's (16%). In Tijuana, a similar pattern can be found between those with a high school diploma and those without (25%).

The fact that "personal economic situation" is more closely related to education levels than to "quality of life" may have to do with expectations for the future. While one's economic situation is fairly objective, unrealized expectations may contribute to a lower perception of quality of life or it may be that those with higher levels of education may have different expectations regarding quality of life. For example, in San Diego, those with a graduate degree have a slightly lower perception of the local quality of life than those with a bachelor's degree. In Tijuana, those with an AA/Technical degree have a higher perception of quality of life (1.91) than both those with a bachelor's degree (1.86) and a graduate degree (1.83). In San Diego, while those with a graduate degree have a lower perception of quality of life than those with a bachelor's degree, they perceive their economic situation as 16% higher than do those with a bachelor's.

Educational Enrollment Rate

Both San Diego and Tijuana provide free public education. An index is utilized to examine the degree to which free public education is used. This index measures the percentage of the population aged 5–14 that is enrolled in school at the time.

It is difficult to estimate the educational coverage rate for San Diego; while population breakdowns from census data measure children aged 5–14, educational breakdowns are given by grade rather than by age. If one assumes that ages 5–14 represent grades K-8 (although this is not entirely precise), then 7.8% of children ages 5–14 in San Diego County were not enrolled in school. More accurately, it can be said that 7.8% of those ages 5-14 were not enrolled in K-8, although some 14-year-olds may have been in 9th grade (U.S. Census 2000).

Indicators for Tijuana, Tecate, and Playas de Rosarito were taken from INEGI publications and from its website. In 1995, it was estimated that 14.79% of the population of Tijuana aged 5-14 and 12.9% of the population of Baja California aged 5-14 did not attend school. Both of these figures, however, compared favorably to Mexico as a whole, where 15.86% of those aged 5-14 did not attend school (INEGI).

High School Dropout Rate

High school dropout rates are useful indicators of the effectiveness of an educational system. Often, a high school education represents the minimum education needed for a resident to take advantage of economic opportunities available in a region. Thus, a low dropout rate indicates that a region is better preparing its residents to be productive members of society. This is probably true in both San Diego and the TTPR region where changing economies are requiring an increasingly educated workforce.

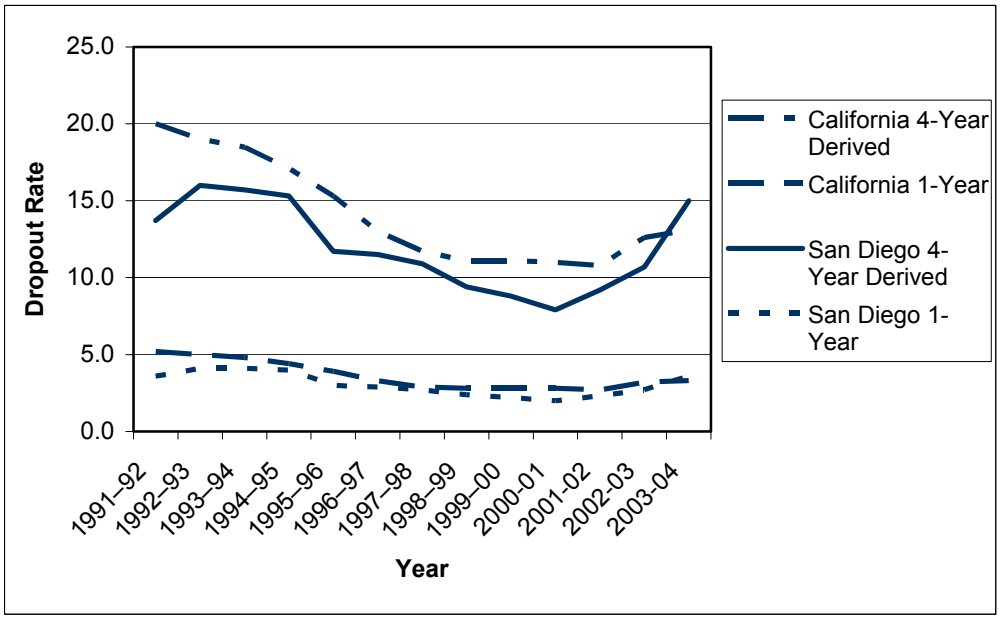
The high school dropout rates in San Diego County and California have fluctuated over the last fifteen years. In San Diego County as well as at the state level, the high school dropout rate peaked in 1992–1993, declined until 2001-02, and has begun to rise again recently. San Diego County's dropout rate had consistently been lower than the state's until 2003-04, when it exceeded the statewide level.

Table 4.7. Dropout Rate for Grades 9-12, California and San Diego County Public Schools

Year	California 4-Year Derived	California 1-Year	San Diego 4-Year Derived	San Diego 1-Year
1991-92	20.0	5.2	13.7	3.6
1992-93	19.0	5.0	16.0	4.1
1993-94	18.5	4.8	15.7	4.1
1994-95	17.1	4.4	15.3	4.0
1995-96	15.3	3.9	11.7	3.0
1996-97	13.0	3.3	11.5	2.9
1997-98	11.7	2.9	10.9	2.7
1998-99	11.1	2.8	9.4	2.4
1999-00	11.1	2.8	8.8	2.2
2000-01	11.0	2.8	7.9	2.0
2001-02	10.8	2.7	9.2	2.3
2002-03	12.6	3.2	10.7	2.7
2003-04	13.1	3.3	15.0	3.6

Source: California Department of Education.
Note: The 1 year dropout rate is the percent of dropouts during a single year. The 4 year derived rate is an estimate of the percent of students who would dropout over the course of a four year high school period.

Figure 4.3. Dropout Rates for Grades 9-12, San Diego County and California Public Schools



Source: California Department of Education.

Although the above dropout rates are only for grades 9-12, data is also available on the overall retention index for grades K-12 in San Diego County. For the 1997-1998 school year, the retention index was 98.70, and for 1998-1999 it was 97.31 (Calculations made from Average Daily Attendance (ADA) statistics derived from the U.S. Department of

Education, National Center for Education Statistics and enrollment statistics from the Educational Demographics unit, California Department of Education).

Data on the number of TTPR students dropping out of school for a short time, or the number of students leaving school due to a move to another city are not available. Furthermore, an accurate estimate of students who are part of the transitory population is not available. However, one-year dropout rate and completion rates are available. Completion rates were calculated by dividing the number of students who passed to the next grade level by the number of students who attended and multiplying that number by 100. Table 4.8 indicates that the completion index decreases at higher-grade levels. In 2000-2001, 95.2% of TTPR enrolled students in elementary school passed to the next grade level, but only 54.4% of the students enrolled in high school passed to the next grade level.

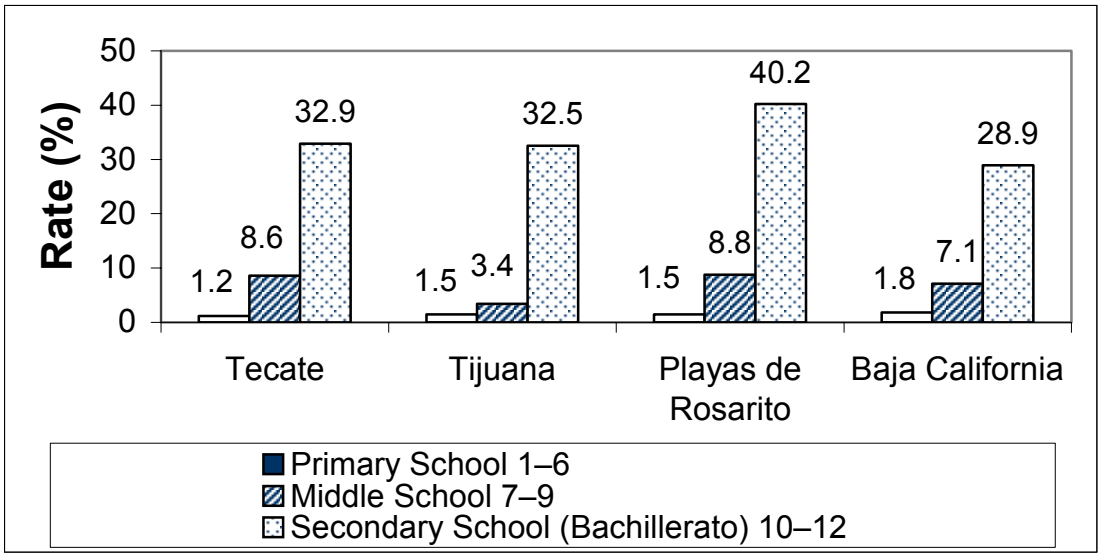
Table 4.8. TTPR Completion Rates, 2000-2001

Level	Tijuana	Tecate	Playas de Rosarito	TTPR
Elementary	92.0	98.4	—	95.2
Junior high	75.7	59.7	83.5	72.97
High school	53.2	55.6	—	54.4

Source: Sistema Educativo Estatal (SEE), Baja California.
Note: Completion rates are determined by dividing the number of students who advanced to the next grade by the number of students who attended school. Data were not always available for Playas de Rosarito.

The actual dropout rates are provided in figure 4.4. As mentioned above, these figures only provide a broad overview of retention from grades 1 through 12 and do not account for students temporarily out of school or in the process of changing schools.

Figure 4.4. TTPR Dropout Rates, 2000-2001



Source: Sistema Educativa Estatal (SEE), Baja California.

From the above data, it is evident that TTPR dropout rates increase with grade level. At the end of the 2000-2001 school year, almost 30% of all Baja California secondary school students who had begun the year dropped out while only 2% dropped out of primary school. Tijuana's 32% dropout rate for secondary school students is significantly higher than San Diego's 2% and California's 2.8% rates. The high dropout rate in TTPR may be one reason for negative survey responses about the state of education in Baja California.

Perceptions of Public Education

Residents of San Diego rated public education quality higher than did residents of Tijuana, Tecate, and Playas de Rosarito. In San Diego, 62% indicated that the quality of education was good or excellent, while the corresponding figures in Tijuana, Tecate, and Playas de Rosarito were 38%, 40%, and 39%, respectively. An overwhelming majority of TTPR residents, however, rated educational quality as fair or good.

Table 4.9. Perceptions of Quality of Public Education

Education Quality	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	17%	1%	2%	1%	1%
Good	45%	37%	36%	39%	38%
Fair	21%	48%	49%	47%	43%
Poor	7%	9%	9%	9%	10%
Don't Know	10%	5%	4%	5%	7%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Suggestions to Improve Public Education

When asked what changes would improve public education, San Diego respondents offered a wide variety of suggestions. All but 305 respondents gave at least one suggestion for how public education could be improved.

Table 4.10. Suggestions to Improve Public Education for San Diego

Number	Percent	Suggestions
93	15.8	Reduce class size; more individual attention to students
84	14.2	More or better teachers
64	10.8	More emphasis on parents and neighborhoods
46	7.8	More emphasis on math and/or writing
46	7.8	Better pay for teachers
36	6.1	Increase school funding
33	5.6	Less emphasis on administrators
32	5.4	Concerns about discipline and safety in schools
29	4.9	Make curriculum more challenging
26	4.4	Incorporate more after school and extra-curricular activities (sports, arts, music)
23	3.9	Build more schools
18	3.1	More emphasis on speaking English
16	2.7	Better address needs of Spanish-speaking students
13	2.2	Improve technology in school
12	2.0	Provide vouchers to improve school choice
10	1.7	Improved transportation for students to and from school
9	1.5	Improve quality of school infrastructure

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey open-ended responses.

A substantial number of respondents indicated concern over class size and felt that class sizes should be reduced. More individual attention for students, more and better teachers, and better paid teachers were among the main suggestions to improve public education. A number of respondents emphasized the curriculum and thought it should be more challenging, and it should have a different focus, such as on math or writing. Others suggested incorporating more after-school and extracurricular activities, like sports, art, and music. Some respondents felt that the needs of Spanish-speaking students should be better addressed, while others emphasized the importance of speaking English.

Table 4.11 shows the TTPR responses regarding improvements to education. Some suggestions were fairly specific and from one municipality. These included building a local university in Tecate and providing school breakfasts to students in Playas de Rosarito. There was, however, agreement of respondents from all three municipalities on a number of suggestions. Most notably, respondents mentioned that teachers should be more qualified, have higher pay, and that the number of teachers should increase. In contrast with San Diegans surveyed, TTPR respondents, especially those from Tijuana, were not satisfied with teachers. Some of the recommendations to improve public education were fewer teacher absences, more dedicated teachers, and that teachers should think of teaching as a vocation rather than a job. Other recommendations included more attention to students, not too many holidays, teaching English, better school infrastructure quality, and more schools. Ten respondents were concerned about discipline, and another 13 about safety and security. Finally, 19 respondents desired a more active role for the government, and 17 suggested more parental involvement.

Table 4.11. Suggestions to Improve Public Education for TTPR

Number	Percent	Improvement
144	26.5	Teachers should be more qualified
75	13.8	More schools
61	11.2	Teachers should be more dedicated; vocation not just a job
40	7.4	Reduce absences of teachers
36	6.6	Higher pay for teachers
36	6.6	Students should receive more individual attention
29	5.3	More school and fewer holidays
19	3.5	More active role for the government
17	3.1	More parental involvement
16	2.9	Increase number of teachers
16	2.9	More money needed for schools
13	2.4	Better quality infrastructure needed
13	2.4	Safety and security concerns
10	1.8	Improve discipline
8	1.5	English should be taught
7	1.3	Build university in Tecate
4	0.7	Provide school breakfasts

Source: San Diego-TTPR Survey open ended questions.

Perceptions of Changes in Quality of Education

Most respondents in all of the communities indicated that the quality of education had remained the same over the previous year. More residents believed that it had improved than that it had worsened: San Diego (21% to 7%), Tijuana (19% to 14%), Tecate (21% to 9%), and Playas de Rosarito (25% to 10%). Far more San Diegans than residents of TTPR had no opinion regarding change in the quality of education, perhaps reflecting the larger percentage of San Diego families without school-aged children.

Table 4.12. Quality of Public Education in the Past Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	21%	20%	19%	21%	25%
Same	46%	57%	57%	63%	51%
Gotten Worse	7%	13%	14%	9%	10%
Don't Know	26%	10%	10%	7%	13%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Summary

Rated as the most important quality of life factor by TTPR respondents, education is crucial to the development of the region. Survey and census data show that San Diego residents have higher levels of education than TTPR residents but, surprisingly, survey results indicate only a weak relationship between educational attainment and perceived quality of life. However, the survey did show a predictably strong relationship between

educational attainment and personal economic situation, particularly for those with college degrees.

School enrollment rates are slightly lower in TTPR than in San Diego, while dropout rates, especially in secondary education, are significantly higher in TTPR than in San Diego. Such educational disparities across the border likely account for TTPR respondents' negative perceptions of the quality of public education. TTPR residents' doubts about the competence of public school teachers were reflected in their suggestions to improve public education, which primarily focused on improving teacher quality and dedication. San Diegans surveyed suggested decreasing class size and changing curriculum, as well as addressing questions of Spanish-speaking students. Despite negative feedback, however, the majority of residents across the border feel that the quality of public education has remained the same over the last year, and more think that it has improved than that it is worsened.

5. Economy

This section discusses responses of surveyed residents of the San Diego-TTPR region with respect to the economy and related issues. There is also discussion of some of the basic features of the regional economies of San Diego and TTPR, and of the linkages that increasingly bind the two economies together. When data are not available for the entire TTPR region, information for only Tijuana is used.

The economy is a central component in the quality of life of the residents of the greater San Diego-Tijuana-Tecate-Playas de Rosarito Region. The diverse benefits provided by a prosperous economy are well-understood by the residents of this region. San Diego respondents rated the economy as the most important factor in quality of life, while residents of Tijuana, Tecate, and Playas de Rosarito rated it second, behind education. Table 5.1 summarizes respondents' rankings of economy as an important quality of life factor.

Table 5.1. Importance of Economy for Quality of Life

Economy	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Ranking "Most Important"	24%	24%	22%	27%	30%
% of Residents Ranking "Second Most Important"	19%	27%	26%	24%	32%
% of Residents Ranking "Third Most Important"	14%	17%	19%	9%	19%
Total Mentioned	57%	69%	68%	59%	81%
Index Percent	21%	24%	23%	23%	29%
Cumulative Category Rank	1st	2nd	2nd	2nd	2nd

Source: San Diego-TTPR Survey.
Percentages may not add to 100% due to rounding.

The Regional Economy: An Overview

In absolute terms, San Diego and the TTPR have economies that differ greatly in total size and on a per capita basis. However, due partially to their interconnectedness, the regional economies do exhibit some similar trends. Both experienced rapid growth in the latter half of the 1990s. Although the effects of the most recent recession in the United States were felt on both sides of the border, San Diego managed to record positive economic growth, a trend it has exhibited every year since 1994 (SDRCC 2004). The growth rates of both San Diego and TTPR regional economies exceed the national growth rates of the U.S. and Mexican economies.

The two economies separated by the international boundary present strong contrasts. Employment by sector is quite different across the border. Over half of Tijuana's workforce (54%) works in the service sector, 32% work in industry, and only 6% work in

the primary sector in activities such as agriculture, livestock, and extractive industries (Gobierno del Estado de Baja California, Secretaría de Desarrollo Económico 2005). Tijuana manufacturing sector was 21.2% of Tijuana's Gross Regional Product (GRP) in 2000 (INEGI). In 2005, Baja California had 903 maquiladoras, 32.1% of Mexico's national total. Tijuana's maquiladoras comprised 63.7% of the state total, with roughly 575 maquiladoras that collectively employ 163,034 people (Gobierno del Estado de Baja California, Secretaría de Desarrollo Económico 2005).

In San Diego, although only 9% of the workforce is employed in manufacturing, the manufacturing sector generates more local dollars than any other sector in San Diego (SDRCC 2004). In terms of government employees as a percentage of the workforce, San Diego's 18% is much greater than Tijuana's 2% (California Employment Development Department 2003; INEGI).

San Diego's economic growth is also attributed to the defense, tourism, agricultural, and utility industries. The newest and fastest-growing economic activity in San Diego is the high-tech industry, including the biomedical, telecommunications, and biotech clusters. Additionally, San Diego has a strong, fast-growing venture capital base (SDRCC 2004).

Tijuana manufacturing grew to 21.2% of the Gross Regional Product (GRP) in 2000, an increase from 17.7% in 1993 (CESPT 2002). One of the most important elements of Tijuana's manufacturing industry is the substantial growth in heavy industrial production of metals and machinery, which accounted for 54% of manufacturing in 2000 (CESPT 2002). Investment from multinational corporations has been key to the growth of the manufacturing sector in TTPR.

Gross Regional Product (GRP)
The Gross Regional Product (GRP) is the total value of all goods and services produced in a region. When viewed over a number of years, it is a good measure of whether the economy is expanding, stagnating, or contracting. If sustained over time, growth in per capita GRP should lead to overall improvements in the quality of life of the region. However, there are some factors that prevent a direct correlation between quality of life and growth in GRP. Economic growth will lead to an improvement in quality of life if the benefits are shared widely among the population and not concentrated in a small percentage of the population. For example, despite economic growth in Mexico and the United States since the implementation of the North American Fair Trade Agreement in 1994, personal income has become more concentrated at the upper levels. In both countries, this growing income gap is evident. However, economic activity reflected in a growing GRP may also increase pollution, deplete local natural resources, or saturate infrastructure, such is the case with traffic congestion. All of these factors affect quality of life. In addition, economic growth must proceed at a faster rate than population growth in order to improve per capita income. Economic growth gives the region more resources with which to improve other quality of life factors, such as education, public safety, transportation, and the environment. For example, a wealthier region will be better able to afford the cost of environmental preservation and restoration projects, as well as the opportunity cost of withholding protected land from development opportunities.

The GRP on both sides of the border expanded dramatically during the latter half of the 1990s. In 1999, it was estimated that San Diego's Gross Regional Product exceeded $100 billion for the first time (SDRCC 2003); in 2002, San Diego's estimated GRP exceeded that of all but 30 countries, with an output similar to that of Greece, Finland, Thailand, Portugal, and Ireland, and well above Israel, Iran, South Africa, Argentina, and Malaysia. California's 2002 state economy was tied with the United Kingdom as the fourth largest economy in the world, topping France, China, and Mexico (SDRCC 2004a). San Diego County's GRP has been growing steadily since the second half of the 1990s, with a cumulative increase from 1993 to 2002 of 82% in nominal terms and 46% in real terms (SDRCC 2003). In 2002, San Diego ranked first among Metropolitan Areas in the United States in terms of Gross Metropolitan Product (SDRCC 2004a).

Table 5.2. GRP for San Diego, California, and the United States (Current Dollars)

Year	San Diego GRP ($ billions)	San Diego's GRP as Percentage of	
		California GSP	United States GDP
1990	$64.7	8.10%	1.12%
1991	$66.7	8.19%	1.11%
1992	$67.9	8.16%	1.07%
1993	$69.2	8.16%	1.04%
1994	$71.8	8.17%	1.02%
1995	$75.1	8.11%	1.01%
1996	$79.6	8.17%	1.02%
1997	$86.1	8.24%	1.03%
1998	$94.4	8.39%	1.08%
1999	$103.7	8.47%	1.12%
2000	$113.0	8.40%	1.15%
2001	$120.1	8.69%	1.19%
2002 (estimate)	$126.2	8.99%	1.21%
2003 (forecast)	$133.6	9.08%	1.23%

Source: SDRCC 2003.

Since 1993, Tijuana's Gross Regional Product has increased by 49% in real terms (CESPT 2002). In 2001, the municipality's GRP exceeded that of all but 84 countries, and roughly compared to that of Yemen and Uzbekistan (World Bank 2003).

Table 5.3. Gross Regional Product for Tijuana and Playas de Rosarito, 1993-2002, in Current Dollars

	Total (Millions)	GRP as Percentage of	
Year	**Tijuana-Rosarito GRP**	**Baja California**	**Mexico**
1993	$5,616	54.35%	1.52%
1994	$6,167	54.35%	1.56%
1995	$6,134	55.51%	1.61%
1996	$6,798	55.51%	1.64%
1997	$7,787	55.51%	1.72%
1998	$8,269	55.68%	1.72%
1999	$8,856	53.95%	1.74%
2000	$9,428	50.66%	1.68%
2001	$9,978	53.34%	1.73%
2002	$10,422	—	—

Figures in millions of dollars at current prices, with 1993 exchange rate of 3.124 pesos per dollar.
Source: CESPT 2002, INEGI, and internal calculations.

Economic Growth Rate

From these figures, the rates of economic growth in San Diego and Tijuana can be tabulated. The following figures are calculated using constant 1993 dollars to adjust for inflation and currency rate fluctuations.

Table 5.4. Annual Economic Growth Rates in San Diego and Tijuana, 1994–2002 (Constant Dollars)

Year	San Diego	Tijuana
1994	1.18%	7.07%
1995	1.68%	-3.29%
1996	2.89%	7.65%
1997	5.77%	11.99%
1998	7.99%	4.56%
1999	7.41%	4.79%
2000	5.46%	2.99%
2001	3.34%	2.90%
2002	3.42%	2.82%

Source: San Diego Regional Chamber of Commerce Economic Research Bureau 2003, CESPT 2002, and internal calculations.

Real annual growth rates in per capita GRP for San Diego and Tijuana were calculated and these demonstrate the effects of population growth.

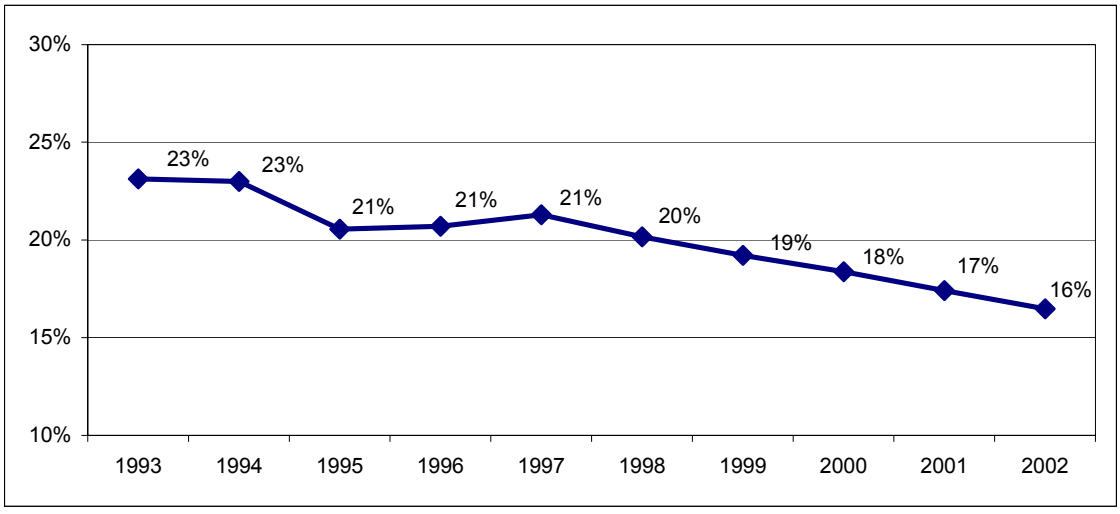
Table 5.5. Per Capita GRP, San Diego and Tijuana (Current Dollars)

Year	San Diego	Tijuana
1993	$26,684	$6,170
1994	$27,581	$6,344
1995	$28,743	$5,908
1996	$30,354	$6,285
1997	$32,444	$6,911
1998	$34,932	$7,044
1999	$37,677	$7,241
2000	$40,268	$7,399
2001	$42,046	$7,319
2002	$43,373	$7,146
2003	—	$7,379

Source: SDRCC 2003; CESPT 2002; Banamex; internal calculations.

In addition to GRP, another indicator of economic growth is per capita income. San Diego's stunning growth from 1996 to 2000 produced an increase of 21% in real per capita income. Although Tijuana's economy has grown as well, real growth has not been sufficient in recent years to keep up with population increases. As a result, real per capita income in Tijuana decreased by 8.6% from 1999 to 2002. The gap between per capita income in San Diego and Tijuana has increased. In 1993, the per capita income in San Diego County was 4.3 times that of Tijuana, and by 2002 it was six times greater. Figure 5.3 shows Tijuana's per capita income from 1992 to 2002 compared to that of San Diego.

Figure 5.1. Tijuana Per Capita Income as Percentage of San Diego Per Capita Income, 1993-2002, Constant 1993 Dollars



Source: CESPT 2002, SDRCC 2003, and internal calculations.

Personal Economic Situation

Current Personal Economic Situation
Survey results reflect the difference in per capita income across the border. A majority of San Diegans, 56%, felt their economic situation was "excellent" or "good." By contrast, only 30% in Tijuana, 19% in Tecate, and 29% in Playas de Rosarito felt the same way. A strong majority of TTPR respondents, 60% in Tijuana, 72% in Tecate, and 65% in Playas de Rosarito, rated their economic situation as "fair." Roughly the same percentage of respondents in San Diego and the TTPR region felt their economic situation was "poor." Table 5.7 lists the results.

Table 5.6. Current Personal Economic Situation

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	11%	1%	2%	0%	1%
Good	45%	27%	28%	19%	28%
Fair	33%	62%	60%	72%	65%
Poor	10%	9%	10%	9%	7%
Don't Know	1%	<1%	<1%	0%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Progress of Personal Economic Situation
When asked to compare their present economic situation with their economic situation 12 months prior, most residents of the transborder region felt that the situation had remained the same or had improved. There was, however, in all communities a group of 23% of the respondents who felt that the situation had worsened.

Table 5.7. Personal Economic Situation Compared to 12 Months Before

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	29%	22%	22%	25%	18%
Same	47%	55%	54%	51%	59%
Gotten Worse	23%	23%	23%	23%	23%
Don't Know	1%	<1%	<1%	0%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Because the survey was conducted during the recent economic downturn, most respondents felt that salary levels had fallen. The percentage of respondents in TTPR who felt salary levels had improved versus those who felt they had fallen were as follows: 9% to 45% for Tijuana, 3% to 43% for Tecate, and 7% to 43% for Playas de Rosarito. This contrasts with San Diego, where the responses were more equal—16% felt salaries had improved and 21% felt salaries had fallen. While all have been impacted by the recession, residents on the Mexican side of the border report that they were hit especially hard. Thus, the survey responses are largely in agreement with the external data.

Table 5.8. Salary Levels over Past Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	16%	8%	9%	3%	7%
Same	54%	44%	42%	50%	47%
Gotten Worse	21%	44%	45%	43%	43%
Don't Know	9%	4%	4%	4%	4%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Expectations of Future Personal Economic Situation

Regional economic growth in the recent past, except for the several years prior to the survey, has engendered a sense of optimism in the border community. In response to the survey, residents of both San Diego and Tijuana expected growth to continue in the upcoming year. Fifty-four percent of San Diegans surveyed felt their economic situation would improve in the year ahead, and 29% felt it had improved in the previous year. In Tijuana, 46% felt it would improve and 22% who said it had already improved. Forty-two percent of Tecate respondents thought the economy would improve in the future, a higher figure than the 25% who felt it had improved in the past year. Finally, in Playas de Rosarito, 40% were optimistic for the next year, and 18% believed the economy improved in the past year.

Table 5.9. Personal Economic Situation in Next Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Better	54%	45%	46%	42%	40%
Same	35%	30%	29%	34%	34%
Worse	8%	14%	14%	9%	17%
Don't Know	4%	11%	11%	15%	10%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

At the time of the survey, respondents both sides of the border were optimistic about the future, with San Diegans slightly more positive than TTPR respondents.

Personal Economic Situation and Quality of Life

In all four cities, respondents' perceptions of their current economic situation were clearly correlated with their perception of their quality of life. Thus, it appears that the personal income of residents is a critical indicator of quality of life. Tables 5.11-5.13 present correlations of respondents' perceptions of quality of life and current personal economic situation; those responding "don't know" or not responding for either question were omitted.

Table 5.10. Quality of Life and Current Personal Economic Situation, San Diego

Current Personal Economic Situation	Perception of Quality of Life				
	Excellent	Good	Fair	Poor	Total Respondents
Excellent	61%	33%	3%	3%	108
Good	33%	63%	4%	<1%	452
Fair	17%	59%	23%	1%	334
Poor	13%	37%	43%	8%	101
Total	28%	56%	14%	2%	995

Percentages may not total 100% due to rounding. N=995
Source: San Diego-TTPR Survey.

Table 5.11. Quality of Life and Current Personal Economic Situation, Tijuana

Current Personal Economic Situation	Perception of Quality of Life				
	Excellent	Good	Fair	Poor	Total Respondents
Excellent	54%	39%	8%	0%	13
Good	6%	82%	11%	0%	202
Fair	4%	41%	54%	1%	423
Poor	4%	20%	61%	14%	70
Total	6%	51%	42%	2%	708

Percentages may not total 100% due to rounding. N=708
Source: San Diego-TTPR Survey.

Table 5.12. Quality of Life and Current Personal Economic Situation, Tecate

Current Personal Economic Situation	Perception of Quality of Life				
	Excellent	Good	Fair	Poor	Total Respondents
Excellent	N/A	N/A	N/A	N/A	0
Good	10%	83%	7%	0%	29
Fair	4%	25%	70%	1%	108
Poor	0%	8%	58%	33%	12
Total	5%	35%	57%	3%	149

Percentages may not total 100% due to rounding. N=149
Source: San Diego-TTPR Survey.

Table 5.13. Quality of Life and Current Personal Economic Situation, Playas de Rosarito

Economic Situation	Perception of Quality of Life				
	Excellent	Good	Fair	Poor	Total Respondents
Excellent	100%	0%	0%	0%	1
Good	4%	76%	20%	0%	46
Fair	3%	38%	58%	2%	106
Poor	0%	27%	46%	27%	11
Total	4%	48%	46%	3%	164

Percentages may not total 100% due to rounding. N=164
Source: San Diego-TTPR Survey.

Because most respondents rated their economic situation as either "good" or "fair," examining these two responses allows for a thorough picture of this correlation. In San Diego, 96% of those rating their economic situation as "good" said they had an "excellent" or "good" quality of life; only 76% of those having a "fair" economic situation said the same. This trend holds in Tijuana, Tecate, and Playas de Rosarito, where 88%, 93%, and 80%, respectively, of those who reported a "good" economic situation said they had a good or excellent quality of life. Forty-five percent, 29%, and 41% of those with a "fair" quality of life said the same in Tijuana, Tecate, and Playas de Rosarito, respectively.

The relationship is clearer if a universal numerical value is assigned to responses. In the following table, respondents in all four cities are grouped according to how they rate their personal economic situation. The responses for quality of life are each assigned a weighted numerical value, with the percentage of those responding "excellent" multiplied by three, the percentage of those responding "good" multiplied by two, and the percentage of those responding "fair" multiplied by one. The resulting figure, scaled from 0-3, represents a numerical aggregate of quality of life, with a figure of 0 representing a "poor" quality of life, 1 representing "fair", 2 representing "good", and 3 representing "excellent", with decimals representing somewhere in between.

Table 5.14. Personal Quality of Life Numerical Rating* and Personal Current Economic Situation

Personal Current Economic Situation	Personal Quality of Life Numerical Rating				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	2.50	2.50	2.46	N/A	3.00
Good	2.30	1.94	1.95	2.30	1.84
Fair	1.90	1.44	1.48	1.31	1.41
Poor	1.50	1.07	1.14	0.75	1.00
Total	2.10	1.56	1.60	1.40	1.51

Source: San Diego-TTPR Survey and internal calculations.
Numerical rating: 0 = poor, 1 = fair, 2 = good, 3 = excellent.

Unemployment

In all four cities, most respondents felt that the availability of jobs had worsened. As Table 5.15 shows, this was especially pronounced in Tecate, where 68% felt that job availability had worsened and only 4% felt it had improved. This may be attributable to the powerful influence of the *maquiladora* industry in Tecate's economy. In 2002, the *maquiladora* industry employment rate declined by 26.7% (3,332 jobs were lost) and 15% of Tecate's work force was adversely affected (Cuamea Velázquez and Gerber 2002). This pessimistic view is also evident to a lesser degree in Tijuana and Rosarito where 48% and 40% of respondents felt that job availability had worsened. In this case there was agreement across the border, as 45% of the San Diegans surveyed also indicated that availability of jobs had worsened. These responses coincide with external data on unemployment in the region.

Table 5.15. Availability of Jobs in the Past Twelve Months

Job Availability	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	13%	14%	16%	4%	15%
Same	36%	31%	30%	26%	38%
Gotten Worse	45%	50%	48%	68%	40%
Don't Know	6%	5%	5%	2%	7%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

The unemployment rate is an indicator of the economic health of a region. While some unemployment is inevitable as workers voluntarily change jobs, higher rates indicate that more workers are unable to find jobs, consistent with an economic downturn. As more workers are unable to find jobs, they cut back on spending and therefore further reduce the economic demand within a region.

Table 5.16 provides the unemployment figures for San Diego County, California, the United States, Tijuana, and Mexico. The United States and Mexico both use standard definitions for unemployment within state and local jurisdictions, so accurate comparisons within each country are possible. However, there are differences between the United States and Mexico's methods of calculating unemployment rates, and the social and economic contexts within which unemployment takes places are quite different. Thus, direct comparisons between San Diego and TTPR are not possible.

In the United States, all persons age 16 or older who are working or actively looking for work are considered part of the labor force; in Mexico, the defining age is 12 years old or older. Both countries define employed as someone who works at least one hour for pay in a given week, but in Mexico, those who work less than 15 hours in a family enterprise for no pay while actively looking for work are also considered employed, as are workers who have been laid off yet expect to start working again within a month. In the United States, both of these cases are defined as unemployed.

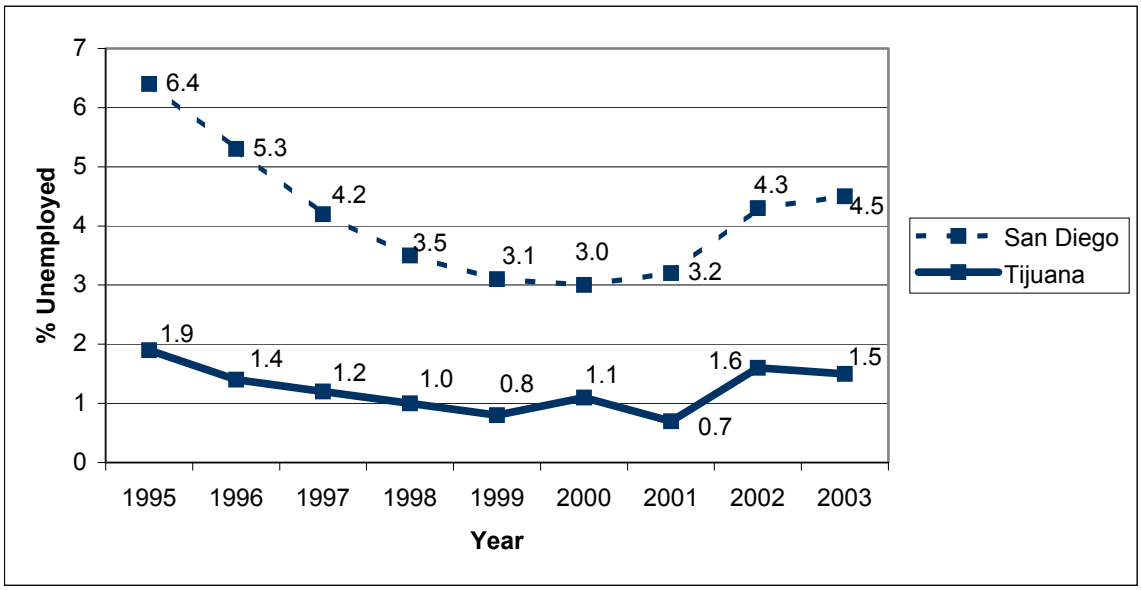
Social service factors also affect the rate of unemployment in Mexico and the United States. In the United States, unemployment insurance and compensation, along with other social services, enable workers to remain unemployed for periods of time. In Mexico, with no unemployment insurance, laid-off workers need to find employment as quickly as possible. In addition, in TTPR, the informal economy facilitates the ability of otherwise unemployed workers to find temporary, part-time work as street vendors. Thus, although the unemployment rate decreases the problem of underemployment remains unaddressed (Gerber 1999).

Table 5.16. Unemployment Rates in San Diego, Tijuana, USA, and Mexico*

Year	San Diego	CA	USA	Tijuana	Mexico
1995	6.4	7.9	5.6	1.9	6.2
1996	5.4	7.3	5.4	1.4	5.5
1997	4.3	6.4	4.9	1.2	3.7
1998	3.5	6.0	4.5	1.1	3.2
1999	3.1	5.3	4.2	1.0	2.5
2000	3.9	5.0	4.0	1.1	2.2
2001	4.2	5.4	4.8	0.7	2.4
2002	5.1	6.7	5.8	1.6	2.7
2003	5.2	6.8	6.4	1.8	3.3
2004	4.7	6.2		0.9	3.7

Source: CA Employment Development Department 2005; INEGI Banco de Información Económica, Encuesta Nacional de Empleo Urbano.
Note: No statistics were collected for Tecate and Playas de Rosarito.
* Data are not seasonally adjusted.

Figure 5.2. Unemployment Rates in San Diego and Tijuana



Source: CA Employment Development Department, Labor Market Information.
INEGI, Encuesta Nacional de Empleo Urbano
Note: No data were collected by the Encuesta Nacional de Empleo Urbano for Tecate and Playas de Rosarito.

After the recession in the early 1990s, the unemployment rate for San Diego County declined steadily, from an annual rate of 7.7% in 1993 to a record low of 2.6% in March 2001, the lowest rate recorded in several decades. However, the slowdown of the Mexican and American economies, beginning in 2000, nudged unemployment rates upward. By June 2003 the unemployment rate for San Diego County had increased to 4.5, a figure which was still below the state's 6.7 and the nation's 6.4 unemployment rates at the time (California Employment Development Department 2003).

Tijuana has one of the lowest unemployment rates in Mexico. The expansion of the *maquiladora* industry has helped to maintain the high employment rate in the region, despite considerable migration to the region. The service and trade industries are also important job providers in the city, as mentioned earlier in this report. Although one would expect the tight labor market to increase wages, over 63% of the economically active population in Tijuana earned fewer than five minimum wages in 2002, or just under $22 per day.

While the unemployment rates for San Diego and Tijuana are fairly low relative to their respective countries, the recent slowdown of the American and Mexican economies has increased unemployment slightly in these regions. The rise in unemployment is echoed by the worried sentiments of survey respondents on both sides of the border who felt that the job situation had deteriorated over the previous twelve months.

Cost of Living and Inflation

Residents on both sides of the border agree that the cost of living has increased. As Table 5.17 shows, only 6% of San Diegans surveyed felt the cost of living had improved in the past twelve months, compared to 67% who reported that it had gotten worse. The corresponding figures in Tijuana (3% to 78%), Tecate (1% to 83%), and Playas de Rosarito (3% to 84%) show that residents of these cities feel the same way. Data on regional cost of living and inflation support the respondents' perceptions.

Table 5.17. Cost of Living over the Past Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	6%	3%	3%	1%	3%
Same	25%	16%	18%	15%	12%
Gotten Worse	67%	80%	78%	83%	84%
Don't Know	2%	2%	2%	1%	1%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

While calculating cost of living indices for the binational region is rather difficult, it may be possible to approximate rising prices through the use of regional inflation indicators. Table 5.18 shows the inflation rates in San Diego and the United States as a whole. Based on these rates, a rough cost of living index, based on the Consumer Price Index (CPI), can be compiled that measures inflation in San Diego relative to that of the entire United States. This figure does not take into account previous cost of living differentials, nor does it use a comprehensive cost of living index. It is simply a rough gauge of this critical quality of life indicator.

As seen in Table 5.18, prices in San Diego declined relative to the rest of the country until 1998, after which they increased at a much more rapid pace than the remainder of the United States. In fact, San Diego's 2000 regional inflation rate was the highest metropolitan inflation rate in the United States, most likely due to increased housing and energy costs.

Table 5.18. Inflation Rates and Inflation Index, San Diego and the United States

	Inflation Rate		San Diego Inflation Index
	San Diego	United States	
1994	2.59%	2.56%	0.03%
1995	1.49%	2.83%	-1.28%
1996	2.61%	2.95%	-1.60%
1997	1.74%	2.29%	-2.14%
1998	1.95%	1.56%	-1.75%
1999	3.54%	2.21%	-0.48%
2000	5.79%	3.36%	1.86%
2001	4.60%	2.85%	3.59%
2002	3.50%	1.58%	5.55%

Methodology: 1993 is a base year, for which price levels are assumed to be equivalent in San Diego and the United States. In subsequent years, when inflation levels are factored in, the San Diego Index indicates the percentage differential between San Diego price levels and United States price levels.
Source: U.S. Bureau of Labor Statistics.

San Diego continues to have one of the highest inflation rates, or cost of living increases, in the country. This is primarily attributed to high housing, utility, and energy prices (SDRCC 2004a). The Council for Community and Economic Research (ACCRA), a non-profit organization dedicated to economic and community development, compiled a cost of living index for the 29 largest metropolitan regions in the United States in 2002. San Diego ranked as the sixth most expensive place to live among these regions, with a cost of living nearly 38% higher than the national average. Much of this difference was due to housing costs, which were 95% higher than the national average. However, grocery supplies (25% higher), transportation (22% higher), and health care (33% higher) were also more expensive than the national average, as were miscellaneous goods and services (12% higher). Only utilities, 20% lower than the national average, were more affordable in San Diego (ACCRA 2002).

As Table 5.19 indicates, Tijuana's rate of inflation soared after the economic crisis of 1994. It has steadily declined since 1999, reaching rates similar to those in San Diego. Tijuana's inflation rate stabilized more quickly than Mexico's national rate of inflation.

Table 5.19. Inflation Rates in Tijuana and Mexico and Tijuana Inflation Index, 1994-2002

	Inflation Rate		Tijuana Inflation Index
	Tijuana	Mexico	
1994	6.7%	6.8%	-0.1%
1995	45.1%	38.8%	4.4%
1996	34.9%	31.4%	7.2%
1997	19.0%	20.0%	6.3%
1998	15.7%	15.4%	6.6%
1999	17.2%	17.2%	6.6%
2000	9.0%	9.3%	6.3%
2001	5.3%	6.2%	5.4%
2002	3.1%	5.2%	3.3%

Source: Banco de Información Económica, INEGI. Calculations determined by using the median CPI for each year.

Summary

Although San Diego's and TTPR's economies exhibit some similar trends due partly to their interconnectedness and proximity, TTPR's economy is largely based on manufacturing while San Diego has experienced significant growth in biotechnology, telecommunications, and biomedical clusters. Tijuana, Playas de Rosarito, and San Diego County all experienced a growth in Gross Regional Product between 1993 and 2002. However, the TTPR region's economic growth has not been able to keep pace with the rapid population growth, and the per capita income has declined. Meanwhile, the San Diego's per capita income has recently grown at unprecedented rates, causing the gap between per capita incomes to widen across the border. Survey results reflect this profound dichotomy between income levels in San Diego and TTPR. In San Diego, 56% of respondents indicated a good or excellent economic situation, while only a minority in Tijuana, Tecate, and Playas de Rosarito—30%, 19%, and 29%, respectively—gave the same positive response. Survey results also indicate that personal economic situation is an important quality of life factor; overall, respondents reporting a higher economic situation reported a better quality of life. Respondents on both sides of the border felt that income levels had decreased in the past year, but were optimistic for the upcoming year; San Diegans surveyed were more optimistic in both cases.

Both San Diego and Tijuana have lower unemployment rates than the United States and Mexico, nationally. Yet a recent decline in the economic growth rate has contributed to the increase in unemployment rates in the San Diego and Tijuana areas. Thus, survey results show that respondents on both sides of the border feel that the employment situation has worsened in the last year. Furthermore, both survey results and external data indicate that the regional cost of living has increased in recent years, as have inflation rates on both sides of the border. After 1998, San Diego's inflation rate quickly surpassed than the U.S. average, and Tijuana's inflation rate has also inched ahead of the Mexican national average.

6. Health

This section discusses survey respondents' access to health care in the region, their satisfaction with their access to health care, and their perceptions of the severity of several public health risks in the border region.

Survey respondents rated health care as an important element in quality of life. Residents in San Diego and Tecate ranked it 3rd, behind education and the economy, while residents in Tijuana and Playas de Rosarito listed considered it 4th, behind education, the economy, and public safety.

Table 6.1. Survey Results: Health Care Quality of Life Indicator, Survey Results

Health Care	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Indicating "Most Important"	17%	12%	13%	13%	10%
% of Residents Indicating "Second Important"	17%	18%	17%	24%	15%
% of Residents Indicating "Third Important"	18%	16%	15%	25%	13%
Total Mention	52%	46%	45%	62%	38%
Index Percent	17%	15%	15%	19%	12%
Cumulative Category Rank	**3rd**	**4th**	**4th**	**3rd**	**4th**

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

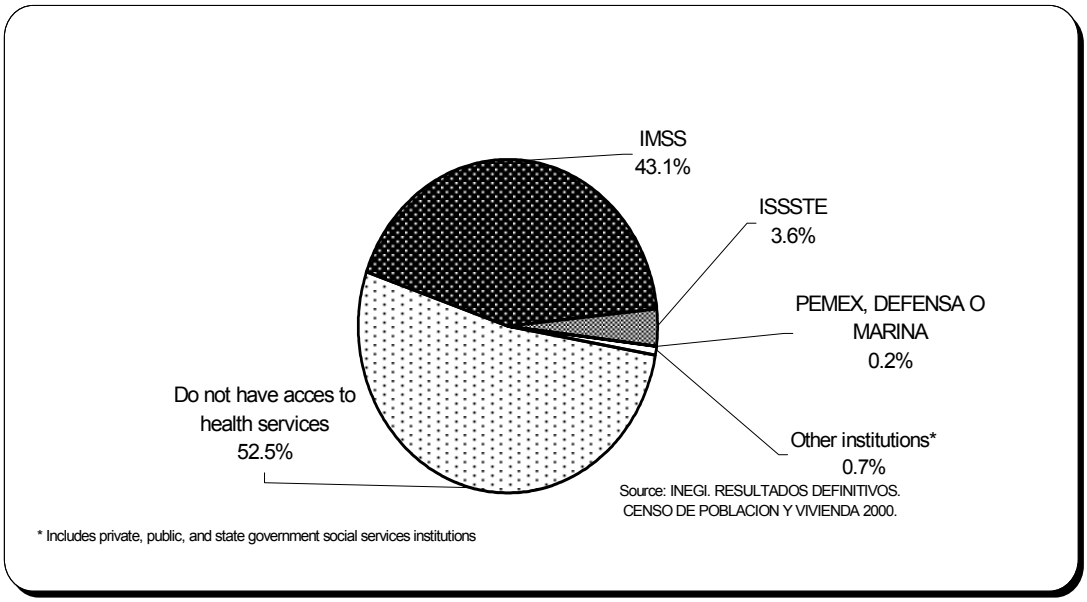
Access to Health Care

Access to health care in San Diego is provided mainly by health insurance in its various forms. However, in San Diego County about one quarter of the 2.8 million residents do not have health insurance coverage (San Diego HHS 2003). Many individuals use community clinics or hospital emergency rooms, where services rendered are often not paid for by the users. Some individuals pay in full or partially for health services

In TTPR there are also public and private institutions in the health care sector. The main government public health care providers in the municipalities are the Mexican Social Security Institute (Instituto Mexicano del Seguro Social-IMSS), and Social Security and Services Institute for State Employees (Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado-ISSTE). IMSS provides health services to private companies' workers and their families, and ISSSTE provides services to federal government workers and their families.

Despite the increasing coverage of the main health care providers in the TTPR region, 53 percent of the residents do not have access to health care plans or insurance. Those individuals who are not covered by any of these plans obtain health care through the community health clinics and public hospitals, as well though the advice of pharmacists.

Figure 6.1. Access to Health Care Plans, Tijuana



Satisfaction with Access to Health Care

Most respondents in the binational community felt "very satisfied" or "somewhat satisfied" about their ability to obtain health care. Residents of San Diego County were much more likely to be covered by health care insurance than residents of the TTPR region and, surprisingly, their satisfaction with their access to health care was only slightly higher. Nineteen percent of San Diego respondents were somewhat or very dissatisfied. Only 27% of Tijuana residents, 28% of Tecate residents, and 23% of Playas de Rosarito residents were somewhat or very dissatisfied with their ability to obtain health care, despite of the fact that nearly 53% were not covered by a health care system.

Table 6.2. Satisfaction with Ability to Obtain Health Care

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very Satisfied	38%	21%	23%	14%	20%
Somewhat Satisfied	41%	49%	47%	53%	55%
Somewhat Dissatisfied	12%	14%	14%	15%	12%
Very Dissatisfied	7%	12%	13%	13%	11%
Don't Know	3%	4%	4%	5%	3%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

Respondents gave a number of different reasons for being dissatisfied with their health care. In the TTPR region, 32 respondents cited a lack of availability of health care facilities. Forty-one respondents were dissatisfied with the cost of health care, 16 more were upset with the waiting times or other bureaucratic difficulties, and 127 simply said the quality was bad. In San Diego, respondents were more likely to say that access to health care was difficult rather than to criticize the quality of the care. Twenty-three

respondents had general complaints about quality, while 17 more were specifically annoyed by bureaucratic issues and 10 felt that wait times were too long. Twenty-five said there was limited availability, 9 were not satisfied with the extent of their coverage, while 8 more desired more choices for doctors. Finally, 73 simply said that health care was too expensive.

Respondents' perceptions of their ability to obtain health care were directly correlated to their perception of their economic situation, as seen in Table 6.3.

Table 6.3. San Diego Respondents' Satisfaction with Ability to Obtain Health Care According to Economic Situation

Economic Situation	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Excellent	51%	33%	9%	7%
Good	45%	42%	11%	3%
Fair	30%	46%	14%	10%
Poor	22%	41%	20%	17%
Total	38%	42%	12%	7%

Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" either to perceptions of their current economic situation or their ability to obtain health care were omitted.
Source: San Diego-TTPR Survey.

Table 6.4. TTPR Respondents' Satisfaction with Ability to Obtain Health Care According to Economic Situation

Economic Situation	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Excellent	62%	23%	15%	0%
Good	28%	54%	12%	7%
Fair	19%	54%	14%	13%
Poor	18%	30%	23%	29%
Total	22%	51%	14%	13%

Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" either to perceptions of their current economic situation or their ability to obtain health care were omitted.
Source: San Diego-TTPR Survey.

Public Health

Survey Respondents were asked whether the following public health issues were a problem in their community: tuberculosis, other respiratory diseases, HIV/AIDS, other STDs, drugs and alcohol, mental health, gastrointestinal diseases, and child malnutrition.

Some 63% of San Diego respondents considered drugs and alcohol as a large or moderate problem. In San Diego, 40% surveyed considered mental health a large or moderate problem, 34% said the same about HIV/AIDS, and 36% about other STDs. In Tijuana, meanwhile, 76% gauged drugs and alcohol as a large or moderate problem, 69%

responded as such for other respiratory diseases, 40% for tuberculosis, 44% for HIV/AIDS, 39% for other STDs, 41% for mental health, 39% for gastrointestinal diseases, and 45% for child malnutrition. In Tecate, residents had fewer complaints about public health, though 73% cited drugs and alcohol as a large or moderate problem, and 41% considered other respiratory diseases as such. Finally, in Playas de Rosarito, 65% regarded drugs and alcohol as a large or moderate problem, as did 59% with respect to other respiratory diseases and 32% with respect to mental health.

Tables 6.5-6.12 provide survey data for each potential public health problem listed above.

Table 6.5. Survey Results: Perceptions of Tuberculosis as a Problem, survey results:

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	4%	18%	23%	5%	8%
Moderate problem	10%	14%	17%	3%	12%
Small problem	26%	10%	10%	16%	7%
No problem	50%	42%	37%	51%	55%
Don't know	9%	16%	13%	25%	19%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

Tuberculosis was not generally considered a significant, or "large," public health problem, except in Tijuana, where 40% considered it a large or moderate problem, and only 37% said it posed no problem.

Table 6.6. Perceptions of other Respiratory Diseases as a Problem, survey results:

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	13%	34%	39%	18%	25%
Moderate problem	21%	30%	30%	23%	34%
Small problem	25%	20%	16%	32%	23%
No problem	33%	13%	12%	21%	13%
Don't know	8%	3%	3%	6%	4%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

Other respiratory diseases were frequently cited, and represent the second most significant public health concern of respondents in Tijuana, Tecate, and Playas de Rosarito. Other respiratory diseases were also of concern in San Diego, but to a lesser degree than in TTPR.

Table 6.7. Perceptions of HIV/AIDS as a Problem

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	16%	28%	36%	8%	9%
Moderate problem	18%	8%	8%	8%	9%
Small problem	21%	7%	7%	11%	7%
No problem	32%	39%	34%	53%	51%
Don't know	14%	18%	16%	21%	24%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

Thirty-four percent of respondents from San Diego and 44% from Tijuana perceived HIV/AIDS as a large or moderate problem, but this concern was not shared as widely in Tecate and Playas de Rosarito, where only 16% and 18%, respectively rated HIV/AIDS as a large or moderate problem.

Table 6.8. Perceptions of Other STDs as a Problem

	San Diego	Tijuana	Tecate	Rosarito
Large problem	14%	28%	5%	7%
Moderate problem	22%	11%	6%	9%
Small problem	20%	8%	9%	8%
No problem	28%	34%	49%	46%
Don't know	16%	19%	31%	31%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

As was the case with HIV/AIDS, other STDs were considered a large or moderate problem by 36% of those surveyed in San Diego and 39% in Tijuana. However, only 11% of Tecate respondents and 16% of Playas de Rosarito respondents said the same.

Table 6.9. Perceptions of Drugs and Alcohol as a Problem

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	30%	56%	63%	39%	42%
Moderate problem	33%	17%	13%	34%	23%
Small problem	16%	12%	10%	15%	18%
No problem	16%	13%	14%	10%	13%
Don't know	4%	2%	1%	3%	3%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

In all four cities, respondents consistently perceived drugs and alcohol as a public health problem. There was no city where more than 16% of respondents labeled drugs and alcohol as posing "no problem."

Table 6.10. Perceptions of Mental Illness as a Problem

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	14%	20%	25%	4%	14%
Moderate problem	26%	15%	16%	6%	18%
Small problem	25%	12%	10%	16%	17%
No problem	27%	47%	44%	61%	46%
Don't know	8%	7%	6%	13%	6%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

Mental illness was considered a large or moderate problem by 40% of San Diego respondents, 41% in Tijuana, and 32% in Playas de Rosarito. This opinion, however, was not shared in Tecate, where only 10% of those surveyed considered mental illness a large or moderate problem.

Table 6.11. Perceptions of Gastrointestinal Diseases as a Problem

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	4%	18%	22%	11%	11%
Moderate problem	11%	15%	17%	7%	13%
Small problem	23%	15%	16%	15%	9%
No problem	44%	43%	39%	52%	51%
Don't know	19%	9%	6%	14%	17%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

While the other three cities occasionally cited gastrointestinal problems as a large or moderate public health problem, concern was highest in Tijuana where 39% of respondents rated it as such.

Table 6.12. Perceptions of Child Malnutrition as a Problem

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Large problem	9%	28%	34%	9%	15%
Moderate problem	12%	10%	11%	11%	7%
Small problem	26%	12%	11%	15%	13%
No problem	45%	46%	41%	59%	58%
Don't know	8%	4%	2%	6%	7%

Source: San Diego-TTPR Survey.
Percentages may not total 100% due to rounding.

While there was concern about child malnutrition in all four cities, concern was most evident in Tijuana, where 45% of those surveyed considered child malnutrition to be a large or moderate problem, while only 41% labeled it as "no problem."

Summary

Despite the fact that about one-fourth of San Diegans and one-half of TTPR residents are not covered by health insurance plans, most were at least somewhat satisfied with their access to health care in general. The 20–25% who were not satisfied cited a lack of access to health care, a lack of facilities, high cost, long waits and bureaucratic processes, and those in TTPR cited poor quality care. Survey data show that respondents' satisfaction with access to health care is directly correlated with their personal economic situation, on both sides of the border.

At the same time, the significantly better access to health care in San Diego as measured by insurance coverage was not reflected in a corresponding level of satisfaction among respondents. In TTPR, despite a much lower level of insurance coverage, satisfaction

levels were surprisingly high. This suggests that there are qualitative type differences in health care in San Diego and TTPR that are reflected in users' satisfaction levels.

In terms of public health, respondents from all four cities rated drugs and alcohol as being the most significant problem. Respiratory illnesses, including tuberculosis, were also considered moderate to large problems across the border, followed by mental illness, which was also considered a large or moderate problem in all regions, to a lesser extent in Tecate. San Diegans and *tijuanenses* surveyed considered HIV/AIDS and other STDs to be more of a problem than did Tecate and Rosarito respondents. Finally, Tijuana respondents also expressed concern about gastrointestinal problems and child malnutrition. These public perceptions indicate that access to health care and public health concerns continue to be important issues that have the potential to seriously affect quality of life.

7. Public Safety

Adequate public safety is an important component of quality of life. Maintaining public order and low crime rates benefits residents and is a priority of local government. Crime has a negative economic impact on the binational region. For example, crime and perceptions of crime can negatively affect property values and the tourism industry. Crime imposes economic costs, reinforces social exclusion, and can hasten the decline of neighborhoods. Feeling safe from external threats to personal safety is a major factor in perceptions of quality of life. Fear of criminal activity tends to make people reluctant to walk to nearby destinations, use public transport, or go out after dark. Not surprisingly, residents of the region indicated that public safety is an important factor in their quality of life.

Crime is perceived as a larger problem in Tijuana, Tecate, and Playas de Rosarito than in San Diego. This may explain why residents of the TTPR region consider public safety a higher priority than do residents of San Diego County, ranking it as the third most important quality of life factor while San Diego respondents ranked it as fourth.

Table 7.1. Importance of Public Safety for Quality of Life

Public Safety	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Indicating "Most Important"	11%	14%	16%	11%	8%
% of Residents Indicating "Second Most Important"	14%	18%	20%	14%	15%
% of Residents Indicating "Third Most Important"	18%	26%	27%	28%	21%
Total Mention	43%	58%	63%	52%	44%
Index Percent	13%	17%	19%	15%	13%
Cumulative Category Rank	4th (Tied)	3rd	3rd	4th	3rd

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Crime Data and Perceptions

As shown in Table 7.2, in San Diego only 41% of residents felt crime was a severe or moderate problem, whereas in Tijuana, Tecate, and Playas de Rosarito, the figures were 75%, 62%, and 63%, respectively.

Table 7.2. Crime in Community

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Not a Problem	15%	7%	8%	7%	6%
Minor Problem	43%	21%	17%	29%	29%
Moderate Problem	34%	36%	35%	39%	40%
Severe Problem	7%	35%	40%	23%	23%
Don't Know	1%	<1%	<1%	1%	2%

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Perceptions of crime as a problem most likely effected feelings of insecurity while walking alone after dark. As Table 7.3 demonstrates, 70% of those surveyed in Tijuana, 63% in Tecate, and 55% in Playas de Rosarito felt they were not safe walking alone after dark, whereas only 23% in San Diego felt this way.

Table 7.3. Personal Safety Walking Alone after Dark

Safety	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very safe	29%	11%	9%	15%	17%
Somewhat safe	45%	21%	20%	22%	27%
Not safe	23%	67%	70%	63%	55%
Don't Know	2%	1%	2%	0%	1%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

External data on crime rates in the region complements the survey data explained above. Table 7.4 and Figures 7.1 and 7.2 present homicides and violent crime data.

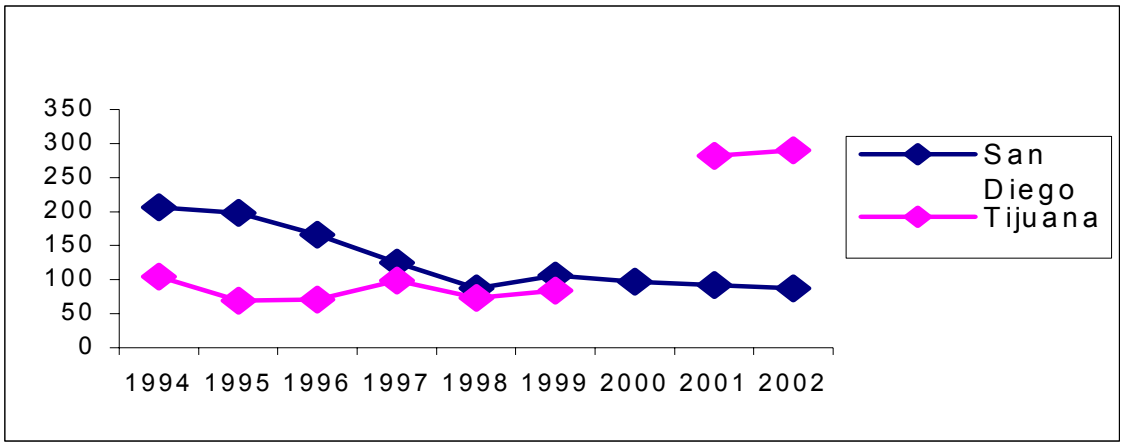
Homicides in San Diego County decreased significantly from 1994–1998, rose sharply in 1999, and have slowly declined again since. Homicides in the municipality of Tijuana were stable in the past, lower than San Diego numbers. However, recent years have seen an increase in homicides in Tijuana. The documentation of an increase plus prominent reporting of murders by media on both sides of the border recently has brought heightened attention to public safety at the border. Friction among contending groups to control the drug trafficking circles in the region are much reported in the press on both sides of the border, and the increase in homicides is purportedly related to drug trafficking and organized crime. The large increase in homicide rates in Tijuana after 2000 may reflect different methods of data collection under different administrations.

Table 7.4. Homicides in San Diego and Tijuana, 1994-2002

Year	San Diego County		Tijuana	
	Total	per 100, 000	Total	per 100,000
1994	206	7.6	104	11.0
1995	198	7.4	69	7.0
1996	166	6.2	71	6.8
1997	125	4.5	99	9.1
1998	87	3.1	73	6.4
1999	106	3.7	84	7.0
2000	97	3.4	—	—
2001	92	3.2	282	22.0
2002	87	3.0	290	21.9

Source: California Department of Justice; INEGI's Cuaderno Estadístico Municipal, Tijuana 1999, 2000, 2002, and 2003; INEGI. Calculations for Tijuana were made using INEGI and CONAPO population figures. Population for years 1994 and 1996-1999 were calculated using Tijuana's average growth rate of 4.9%.

Figure 7.1: Homicides in San Diego and Tijuana, 1994-2002

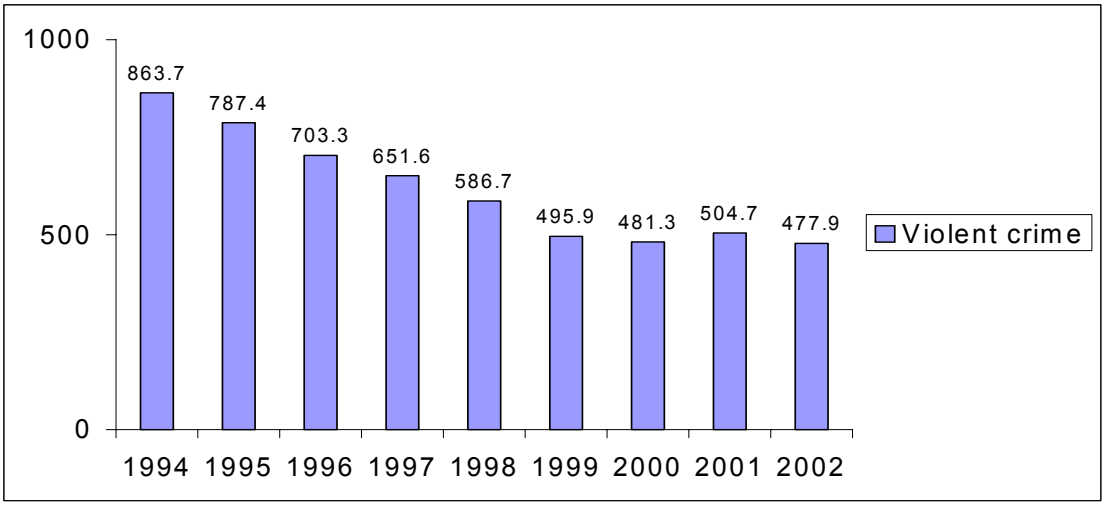


Source: California Department of Justice; Cuaderno Estadístico Municipal, Tijuana, 1999; INEGI.

According to survey data, there is in fact a connection between perceived safety and the border and willingness to cross. Sixteen percent of San Diego respondents who claimed not to cross the border cited fear of crime as the reason. In contrast, respondents from the TTPR region who did not cross into San Diego did not mention crime as a factor in their decision. The image of Tijuana as an unsafe region persists.

San Diego County records violent crimes rates, which include homicide, forcible rape, robbery, and aggravated assault. Violent crime rates decreased from 1994 to 2002. In 1994, the violent crime rate per 100,000 residents was 863.7; by 2002, the rate had dropped to 477.9, a 55% drop. Data is not gathered according to the same categories in TTPR, so it is not possible to make a direct comparison across the border. This is an area where comparable data would be useful.

Figure 7.2. Violent Crime Rates per 100,000 Residents in San Diego County, 1994-2002



Source: California Department of Justice.

Police Services

Crime rates and perception of compromised public safely likely influence levels of resident satisfaction with police services. Table 7.4 shows survey results regarding satisfaction with police services on both sides of the border. While 84% of San Diegans surveyed were satisfied with their police department, only 29% of respondents in Tijuana and 34% in Tecate were satisfied. Interestingly, 56% of the respondents in Playas de Rosarito approved of their police services.

Table 7.5. Satisfaction with Police Services

Satisfaction	San Diego	TTPR	Tijuana	Tecate	Rosarito
Satisfied	84%	33%	29%	34%	56%
Dissatisfied	13%	63%	69%	60%	43%
Don't Know	3%	3%	3%	6%	1%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Furthermore, the survey demonstrated a clear relationship between the perception of crime as a problem in the community and resident perception of police services. While this connection was evident in San Diego, it was especially striking for TTPR. Tables 7.6–7.10 present the results of correlating crime perceptions with levels of satisfaction with police services.

Table 7.6. Perception of Crime and Satisfaction with Police, Tijuana

Perception of Crime	Satisfied with Police	Dissatisfied with Police
Not a Problem	51%	49%
Minor Problem	43%	58%
Moderate Problem	33%	67%
Severe Problem	17%	83%
Total	29%	71%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of police or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Table 7.7. Perception of Crime and Satisfaction with Police, Tecate

Perception of Crime	Satisfied with Police	Dissatisfied with Police
Not a Problem	46%	55%
Minor Problem	58%	43%
Moderate Problem	30%	70%
Severe Problem	16%	84%
Total	36%	64%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of police or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Table 7.8. Perception of Crime and Satisfaction with Police, Playas de Rosarito

Perception of Crime	Satisfied with Police	Dissatisfied with Police
Not a Problem	70%	30%
Minor Problem	75%	25%
Moderate Problem	57%	43%
Severe Problem	30%	70%
Total	57%	43%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of police or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Table 7.9. Perception of Crime and Satisfaction with Police, TTPR

Perception of Crime	Satisfied with Police	Dissatisfied with Police
Not a Problem	53%	47%
Minor Problem	53%	47%
Moderate Problem	37%	63%
Severe Problem	18%	82%
Total	35%	65%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of police or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Table 7.10. Perception of Crime and Satisfaction with Police, San Diego

Perception of Crime	Satisfied with Police	Dissatisfied with Police
Not a Problem	95%	5%
Minor Problem	91%	9%
Moderate Problem	84%	16%
Severe Problem	58%	42%
Total	87%	13%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of police or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

These data show that satisfaction with police is lower in Tijuana and Tecate than in Playas de Rosarito and San Diego. In Tijuana, the level of dissatisfaction with police services, even among those who considered crime as "not a problem" (49%) or a "minor problem" (58%) still exceeds the level of dissatisfaction with police among San Diego respondents who considered crime a "severe problem" (42%). This holds true in Tecate as well, where 55% of those calling crime "not a problem" were dissatisfied with police services, as were 43% of those who consider crime a "minor problem." In Playas de Rosarito, there were much higher percentages of satisfaction with police. Seventy percent of those considering crime "not a problem" were satisfied with police services, while only 30% of those considering crime a "severe problem" were satisfied with police services. Thus, while there is undoubtedly a relationship between perception of crime and perception of police services in all four cities, it appears that in San Diego there is an initial positive bias toward the police; in Tijuana and Tecate an initial negative bias; and

in Playas de Rosarito, perceptions of the police tend to mirror perceptions of public safety.

Public Safety and Quality of Life

While there is a clear connection between the perception of crime as a problem and perspectives of police services, there is less of a correlation between crime and overall quality of life, at least in the TTPR region. In San Diego, there does, however, seem to be a significant correlation between quality of life and perception of crime as a problem. Among San Diego respondents who considered crime "not a problem," 39% rated their quality of life as excellent, while 11% rated it as fair. Among San Diegans surveyed who called crime a "severe problem," 14% rated their quality of life as excellent and 40% as fair.

Table 7.11. Perceptions of Quality of Life and Crime, TTPR

Perception of Crime	Perception of Quality of Life			
	Excellent	Good	Fair	Poor
Not a Problem	12%	47%	41%	0%
Minor Problem	5%	61%	34%	0%
Moderate Problem	3%	46%	50%	2%
Severe Problem	6%	42%	48%	4%
Total	5%	48%	45%	2%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of perception of personal quality of life or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Table 7.12. Perceptions of Quality of Life and Crime, San Diego

Perception of Crime	Perception of Quality of Life			
	Excellent	Good	Fair	Poor
Not a Problem	39%	50%	11%	0%
Minor Problem	29%	60%	10%	<1%
Moderate Problem	26%	56%	16%	3%
Severe Problem	14%	43%	40%	4%
Total	28%	56%	14%	1%

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to perception of perception of personal quality of life or perception of crime as a problem are omitted.
Source: San Diego-TTPR Survey.

Survey data show that residents on both sides of the border tend to identify public safety as a more important quality of life factor as their assessment of public safety declines, but the correlation is not overwhelming. In San Diego, public safety was rated as important by 21% of those who do not consider crime a problem and by 33% of those who consider crime a severe problem. In the TTPR region, 30% of respondents who considered crime "not a problem" and 40% of those who considered crime a severe problem rated public safety as an important quality of life indicator.

Summary

TTPR respondents ranked public safety as the third most important quality of life factor, slightly higher than San Diegans surveyed, who ranked it as fourth. Homicide and violent crime rates declined on both sides of the border in the 1990s, but rose again in San Diego County in 1999 and have been fluctuating since. Homicide rates have risen sharply in TTPR, and are usually attributed to drug trafficking and other organized crime at the border. Per capita homicide rates in TTPR have exceeded per capita rates in San Diego County, and survey results reflect such data. For example, TTPR respondents felt less safe walking after dark alone than San Diego respondents felt. The related issue of police satisfaction demonstrated a correlation with perception of crime as a problem; those perceiving crime as more of a problem were generally less satisfied with police. However, results showed a more positive perception of police in San Diego, more negative in Tijuana and Tecate, and neutral in Playas de Rosarito.

Survey results show a correlation between perception of crime and quality of life, but the correlation is stronger in San Diego than in TTPR. Additionally, results showed a weaker correlation between the ranking that respondents gave public safety and their perception of crime as a problem.

8. Housing

The TTPR and San Diego County regions both have chronic housing problems, particularly in the supply of affordable housing. In San Diego, as home prices increase, policymakers attempt to determine means of providing access to affordable housing. In Tijuana, Tecate, and Playas de Rosarito, rapidly growing populations have outstripped housing construction and urban infrastructure. As the population continues to grow in San Diego County, Tijuana, Tecate, and Playas de Rosarito, shortages of adequate and affordable housing will continue. This section will discuss home ownership rates and their effect on quality of life, housing affordability, housing quality, and reasons for dissatisfaction with housing in the region.

Not surprisingly, many survey respondents—slightly more in San Diego than in TTPR—mentioned housing as one of their top three concerns for quality of life in the region. Table 8.1 lists the results of the ranking.

Table 8.1. Importance of Housing for Quality of Life

Ranking of Housing	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Ranking "Most Important"	13%	6%	7%	2%	7%
% of Residents Ranking "Second Important"	14%	8%	8%	8%	9%
% of Residents Ranking "Third Important"	13%	15%	13%	18%	19%
Total Mention	39%	28%	27%	28%	35%
Index Percent	13%	8%	8%	7%	10%
Cumulative Category Rank	4th (Tied)	5th	5th	5th	5th

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

In the binational region as a whole, residents tended to be satisfied with their current housing situation. None of the three TTPR municipalities exhibited higher than a 15% housing dissatisfaction rate, and 46% of San Diego respondents said they were "very satisfied" with their housing. In the TTPR region, respondents tended toward "somewhat satisfied." These responses suggest that improvements to housing can be made, yet residents feel that other quality of life issues are more urgent.

Table 8.2. Satisfaction with Current Housing

Satisfaction Level	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very Satisfied	46%	34%	37%	25%	32%
Somewhat Satisfied	39%	51%	48%	60%	53%
Somewhat Dissatisfied	10%	12%	11%	13%	12%
Very Dissatisfied	5%	3%	3%	2%	2%
Don't Know	1%	<1%	1%	0%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Respondents were also optimistic about the future of their housing situation. In Tijuana, Tecate, and Playas de Rosarito, a large majority of residents believed that the quality of their housing would improve rather than get worse—70%, 60% and 61%, respectively. In San Diego, however, only 33% felt that their housing would improve.

Table 8.3. Quality of Housing in the Next Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improve	33%	67%	70%	60%	61%
Get Worse	3%	1%	1%	2%	1%
No Change	62%	29%	27%	31%	35%
Don't Know	2%	3%	3%	7%	3%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

When asked why they felt their housing situation would improve, a number of San Diego and TTPR residents felt matters would improve economically, either due to an improved employment situation or improved value of their home equity. In San Diego County, while many residents said they would make physical improvements to their property, others simply said they would move. In the TTPR region, fewer residents indicated they would move; rather, residents overwhelmingly indicated that they would make physical improvements to their current property. A significant part of TTPR's housing stock is self-constructed housing whose owners are constantly making improvements to their properties.

Home Ownership

As Table 8.4 indicates, home ownership rates have been slightly rising in San Diego County, mirroring small rises in state and national home ownership rates. However, home ownership rates in San Diego County and California remain well below the national level, most likely due to inflated and rising housing prices in San Diego and California. Currently, 59% of San Diegans are homeowners.

Table 8.4, Home Ownership Rates, 1990-2000

Year	San Diego County	California	United States
1990	51%	54%	64%
1995	58%	55%	65%
2000	59%	57%	67%

Source: U.S. Census 2000.

TTPR has a significantly higher rate of home ownership than San Diego. In both Tijuana and Tecate, 68% of residents own their homes, and in Playas de Rosarito 69%. High home ownership rates in the TTPR region are partially the result of the long-established Mexican practice of land invasions and self-constructed housing.

Table 8.5. Housing Occupancy in the TTPR Region, 2000

Municipality	Occupied Housing Units	Owned	Rented	Occupied under other Circumstances
Playas de Rosarito	13,134	69.1%	18.5%	12.4%
Tecate	17,080	67.5%	21.9%	10.6%
Tijuana	265,683	68.3%	24.6%	6.0%
TTPR	295,897	68.3%	24.2%	6.5%

Source: INEGI 2000.

Additionally, TTPR homes have more occupants per unit than San Diego homes have. Survey respondents reported that on average, three people lived in each San Diego household. In Tijuana, Tecate, and Playas de Rosarito, however, the figures were 8.7, 8.2, and 8.4, respectively. In addition, rather than either owning or renting a home, many residents in TTPR depend on family or other connections for housing. Of the 64 TTPR residents reporting "occupied under other circumstances," 33 said they lived with one or more family members, while another 25 said they were borrowing the home, a term that seems to imply an arrangement with an acquaintance rather than a landlord.

Home Ownership and Quality of Life

For San Diego residents, home ownership influences satisfaction with housing, and is therefore an especially important factor of quality of life. As Table 8.6 shows, 62% of San Diego homeowners surveyed said they were very satisfied with the current housing situation while only 26% of renters had the same perception.

Table 8.6: Housing Satisfaction and Housing Occupancy Status, San Diego

Housing Occupancy	Housing Satisfaction			
	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Own	62%	32%	5%	1%
Rent	26%	51%	16%	8%
Total	46%	40%	10%	4%

Note: Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" or "other" either to their satisfaction with their current housing situation or to whether they own or rent a home are omitted.
Source: San Diego-TTPR Survey.

Not surprisingly, 91% of respondents who owned a home in San Diego County rated their quality of life as excellent or good while only 76% of renters said the same.

Table 8.7. Personal Quality of Life and Housing Occupancy Status, San Diego

Housing Occupancy	Personal Quality of Life			
	Excellent	Good	Fair	Poor
Own	38%	53%	9%	<1%
Rent	16%	60%	21%	3%
Total	28%	56%	14%	2%

Note: Percentages may not total 100% due to rounding. For calculation purposes, those responding "don't know" or "other" are omitted. Source: San Diego-TTPR Survey.

Like San Diego respondents, TTPR homeowners surveyed generally reported a higher personal quality of life and greater satisfaction with housing than renters reported. However, the gap between renters and homeowners was not as significant as in San Diego. Tables 8.8 and 8.9 show TTPR respondents' housing satisfaction and quality of life according to housing occupancy status.

Table 8.8. Housing Satisfaction by Occupancy Status, TTPR

Housing Occupancy	Housing Satisfaction			
	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
Own	36%	51%	11%	2%
Rent	33%	47%	16%	4%
Total	34%	51%	12%	3%

Note: Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" or "other" either to their satisfaction with their current housing situation or to whether they own or rent a home are omitted.
Source: San Diego-TTPR Survey.

Table 8.9. Personal Quality of Life and Housing Occupancy Status, TTPR

Housing	Personal Quality of Life			
	Excellent	Good	Fair	Poor
Own (73%)	5%	52%	42%	2%
Rent (21%)	4%	37%	55%	3%
Total	5%	48%	45%	2%

Note: Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" or "other" either to their personal quality of life or to whether they own or rent a home are omitted.
Source: San Diego-TTPR Survey.

Housing Affordability

In the border region, housing affordability becomes a binational factor, effecting living and migration patterns in the cross-border regions. For instance, the San Diego's high cost of housing has forced some San Diegans to find housing in areas outside of the county, not only in Riverside and Imperial Counties, but also south of the border in Tijuana and Tecate. The lower housing prices in Tijuana have contributed to the increase in the number U.S. citizens living in Tijuana, a figure that is now estimated at 50,000-60,000 (*San Diego Union-Tribune* June 29, 2003). It is difficult to measure the number of U.S. citizens living in Baja California because U.S. citizens often do not obtain the correct visas and follow reporting procedures. However, the U.S. Consulate in Tijuana roughly estimates that 70,000 U.S. citizens live in the state of Baja California. Rosarito estimates that 6,000 live in that municipality alone (U.S. Consulate). Numerous residents of the San Diego-Tijuana region have dual nationality, speak both languages, and/or have relatives and friends on both sides of the border. We know from anecdotal evidence that some of these individuals move from one side of the border to the other due to changing economic circumstances or other factors. Given the significant long term increase in

housing prices in San Diego, it is likely that the movement of these individuals is largely north to south.

Table 8.10 shows the survey results regarding the financial burden of home ownership on both sides of the border. Despite the higher relative home prices in San Diego County, residents of the TTPR region generally find home ownership more burdensome than do residents of San Diego County. In Tijuana (79%), Tecate (74%), and Playas de Rosarito (81%), more residents regarded housing as a moderate or large burden than did residents of San Diego (49%).

Table 8.10. Financial Burden of Home Ownership

Financial Burden	County, Municipality, Region				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
None	26%	6%	7%	5%	2%
Small	24%	14%	12%	20%	17%
Moderate	32%	55%	55%	51%	60%
Large	17%	23%	24%	23%	21%
Don't Know	1%	2%	3%	2%	1%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

The following two tables indicate the financial burden of housing according to housing occupancy status. Homeowners surveyed in San Diego expressed a smaller financial burden in comparison to San Diego renters. Forty percent of owners and 62% of renters indicated either a moderate or large financial burden from housing.

Table 811: Financial Burden of Housing and Housing Occupancy Status, San Diego

Housing Occupancy	Financial Burden of Housing			
	None at All	Small Burden	Moderate Burden	Large Burden
Own	33%	27%	30%	10%
Rent	16%	21%	36%	26%
Total	26%	24%	32%	17%

Note: Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" or "other" either to their financial burden of housing or to whether they own or rent a home are omitted.
Source: San Diego-TTPR Survey.

In contrast to San Diego, where renters reported higher financial burdens of housing than owners reported, in TTPR both homeowners and renters were faced with high financial burdens.

Table 8.12. Financial Burden of Housing and Occupancy Status, TTPR

Housing Occupancy	Housing Burden			
	None at All	Small Burden	Moderate Burden	Large Burden
Own	6%	14%	59%	21%
Rent	3%	14%	50%	33%

Total	6%	14%	56%	24%

Note: Percentages may not total 100% due to rounding. For purposes of calculation, those responding "don't know" or "other" either to their financial burden of housing or to whether they own or rent a home are omitted.
Source: San Diego-TTPR Survey.

Housing Quality

Overall, San Diego County is characterized by a high quality of housing that includes basic construction and access to urban services. In 1990, 98.7% of San Diego residents relied on a public or private water company for their water needs, 1.3% relied on wells, and 0.1% relied on "some other source." With respect to sewage, in 1990 93.2% of residents relied on a public sewer, 6.5% on a septic tank or cesspool, and 0.3% on "other means" (U.S. Census 2000). Residents of San Diego County have nearly universal access to fuel, water, sewer systems, plumbing facilities, and telephone services.

San Diego's strong infrastructure can be attributed to housing codes that are established to assure that each household is equipped with basic amenities such as plumbing and heating as well as proper construction materials and design. San Diego County enforces national and state housing codes to ensure the basic quality of housing. The county enforces the Uniform Building, Mechanical, and Plumbing Codes (all 1997) and the National Electric Code (1996). Furthermore, the county utilizes state and county codes such as the San Diego County Zoning Ordinance and the California Building Code (San Diego County Department of Planning and Land Use 2000).

TTPR faces a chronic shortage of water and sewage connections in many residential areas. The limited municipal and state budgets and insufficient revenue transfers from the federal government are not enough to keep up with the demands of a rapidly increasing population. Inadequate access to potable water and sewage connector lines present significant problems for at least 20 percent of the homes in the region.

Despite significant demographic pressures and rapid urbanization, the percentage of homes in Tijuana, Tecate, and Rosarito with basic infrastructure services has significantly improved over the last thirty years. Clearly, the public agencies responsible for these services have been quite successful in carrying out their missions. The following tables and figure depict the great increase in accessibility to basic services in all three municipalities.

Table 8. 13. Homes in Tijuana with Access to Water, Sewage, and Electricity

Year	Running Water	Sewage	Electricity
1970	63.9%	48.0%	83.1%
1980	72.1%	63.8%	89.1%
1990	70.5%	65.1%	85.8%
1995	83.0%	80.3%	95.9%
2000	87.7%	84.7%	97.5%

Source: INEGI 2000

Table 8.15. Homes in Tecate with Access to Water, Sewage, and Electricity

Year	Running Water	Sewage	Electricity
1970	55.4%	52.8%	61.8%
1980	61.4%	52.1%	74.5%
1990	72.4%	62.5%	78.2%
1995	82.6%	78.5%	92.0%
2000	80.5%	85.0%	94.7%

Source: INEGI 2000.

Table 8.16 Homes in Playas de Rosarito with Access to Water, Sewage, and Electricity.

Year	Running Water	Sewage	Electricity
1995	49.9%	72.1%	88.8%
2000	67.3%	80.7%	95.1%

Source: INEGI 2000.

Tijuana, Tecate, and Rosarito all had at least 95% housing electrification by 2000 (97.5%, 94.7%, and 95.1% respectively). Sewage connections reach more homes in Tijuana (84.7%) and Tecate (85%) than in Rosarito (80.7%). Rosarito only has a 67.3% water service coverage compared to Tecate's 80.5% and Tijuana's 87.7% coverage. This lower level of potable water service may explain why 25% of Rosarito respondents (see Table 8.24 below) were discontent with housing quality.

Dissatisfaction with Housing

Fourteen to 15% of respondents of the three Baja California urban areas and San Diego County indicated that they were either somewhat dissatisfied or very dissatisfied with their current housing. When asked why, those respondents gave answers that highlighted the somewhat different challenges facing each side of the border.

Table 8.17: Reason for Dissatisfaction with Current Housing

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Too Crowded	22%	22%	25%	22%	13%
Unsafe Neighborhood	6%	26%	27%	35%	13%
No Sewage Connection	0%	26%	12%	39%	71%
No Water Connection	1%	6%	3%	0%	25%
Inadequate Structure	14%	22%	25%	13%	17%
Long Commute	2%	8%	9%	9%	4%
Noisy Location	3%	3%	4%	4%	0%
Too Expensive	34%	14%	16%	17%	0%
Other	44%	16%	18%	4%	17%
Don't Know	3%	3%	3%	4%	0%
Total Respondents	139	148	101	23	24
Total Responses	175	210	139	33	38

Note: Percentages may exceed 100% due to multiple responses.
Source: San Diego-TTPR Survey.

San Diegans surveyed were far more concerned about the cost of housing than were respondents from the TTPR region, yet had almost no concerns over basic infrastructure, such as sewage and water. Among "other" concerns, 6 TTPR residents and 11 San Diego County residents felt their residences were too small, and in San Diego, 4 desired home ownership, 2 were unhappy living with family, and 14 were displeased with their landlord, property management, or condominium regulations.

Tijuana survey respondents were more dissatisfied with the safety of their neighborhood and the construction of the housing (27% and 25% of Tijuana respondents, respectively), than they were with household size. In contrast, San Diego residents were generally less concerned with safety and structural adequacy. San Diegans indicate general satisfaction with housing that is built following municipal, state, and federal codes.

Tecate residents also voiced concerns about over crowding (22% of respondents) yet were even more concerned with the lack of sewage connections to their housing. A large majority of Rosarito residents also expressed dissatisfaction with sewage services (71% of respondents).

Summary

While almost 40% of San Diegans surveyed and almost 30% of TTPR respondents ranked housing among the top three quality of life factors, large majorities in all four cities reported satisfaction with their current housing. Furthermore, a majority of TTPR respondents and one-third of San Diegans surveyed were optimistic that their housing would improve in the next year, primarily due to improvements in personal economic situations.

Home ownership rates, at 68%-69% in TTPR, are higher than in San Diego, where only 59% of the population owns a home. In San Diego, homeowners indicated a better quality of life and less financial burden from housing compared to those who rented homes. In contrast to San Diego respondents, TTPR homeowners and renters generally have the same perception of the quality of life. In comparison to renting respondents, only a slightly higher percentage of home owners surveyed indicated a good quality of life. Grievances about the housing situation in San Diego tended to focus on prices and the administration of property by landlords. In the TTPR region, respondents tended to complain about a lack of public services such as sewage and water connections. Respondents in both the San Diego and TTPR regions were often dissatisfied with the size of homes and overcrowding. Both the TTPR and San Diego regions have been challenged to meet the housing demand produced by a growing population.

9. Environment

There are numerous factors that effect environmental quality of life. A few of these factors, discussed in this section, are air quality, beach pollution, solid waste disposal, and open space and habitat preservation, with emphasis throughout on effects on quality of life and public health.

Environmental issues are of concern to many residents of the San Diego-TTPR region. Thirty-two percent of San Diegans surveyed rated environment as one of the top three categories for quality of life, while 15% of TTPR respondents perceived it as one of the top three (see Table 9.1). Given the ongoing concern about environmental issues in the San Diego-TTPR region, it is surprising that environment as a quality of life indicator ranked sixth out of the seven top categories in the survey.

Table 9.1. Importance of Environment for Quality of Life

Importance of Environment	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Ranked "Most Important"	9%	2%	2%	0%	4%
% of Residents Ranked "Second Important"	10%	4%	4%	2%	7%
% of Residents Ranked "Third Important"	13%	8%	8%	10%	10%
Total Mention	32%	15%	14%	12%	20%
Index Percent	10%	4%	4%	2%	6%
Cumulative Category Rank	6th	6th	6th	6th	6th

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Air Quality

This section first presents survey data on residents' perceptions of air quality and its risks to public health, and then turns to objective data on current air quality conditions, standards, and monitoring systems in the region. Tables 9.2 and 9.3 show that both San Diego and TTPR respondents seemed concerned with the effects of air pollution on their health. In San Diego, 55% indicated some or a great deal of concern and 43% thought air quality was fair or poor. In Tijuana, 81% indicated some or a great deal of concern about air pollution and their health while 77% classified their air quality as fair or poor. In Playas de Rosarito, the percentages were 87% and 64%. In Tecate 76% indicated a great deal or some concern, while 57% believed their air quality was excellent or good.

Table 9.2. Concern about Effects of Air Pollution on Health

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Great Deal	21%	56%	56%	46%	63%
Some	34%	25%	25%	30%	24%
Not Much	25%	9%	9%	15%	5%
None at All	20%	9%	10%	9%	8%
Don't Know	<1%	<1%	1%	1%	0%

Percentages may not total 100% due to rounding. Source: San Diego-TTPR Survey.

Table 9.3. Perceptions of Air Quality

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	9%	2%	1%	3%	3%
Good	47%	28%	21%	54%	32%
Fair	37%	57%	62%	40%	51%
Poor	6%	13%	15%	3%	13%
Don't Know	<1%	<1%	<1%	0%	0%

Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Table 9.4 depicts the relationship between the level of concern about air quality and perceptions about the quality of the air in San Diego and TTPR.

Table 9.4. Perception of Air Quality and Concerns about Air Pollution and Health

County / Municipality	Perception of Air Quality	Concern about Air Pollution and Health				
		Great Deal	Some	Not Much	Not at all	Total Respondents
San Diego	Excellent	14%	17%	26%	44%	94
	Good	12%	35%	30%	22%	472
	Fair	26%	39%	21%	14%	366
	Poor	68%	24%	5%	3%	62
	Total	21%	34%	25%	20%	994
TTPR	Excellent	42%	32%	11%	16%	19
	Good	42%	30%	12%	15%	283
	Fair	59%	25%	9%	7%	583
	Poor	74%	16%	4%	6%	132
	Total	56%	26%	9%	9%	1,017
Tijuana	Excellent	22%	33%	22%	22%	9
	Good	42%	28%	12%	18%	149
	Fair	57%	26%	9%	8%	439
	Poor	76%	15%	3%	6%	106
	Total	56%	25%	9%	10%	703
Tecate	Excellent	60%	20%	0%	20%	6
	Good	36%	36%	17%	11%	81
	Fair	58%	25%	12%	5%	59
	Poor	75%	0%	25%	0%	4
	Total	46%	30%	15%	9%	149
Rosarito	Excellent	60%	40%	0%	0%	5
	Good	55%	28%	6%	11%	53
	Fair	68%	21%	5%	6%	84
	Poor	64%	23%	5%	9%	22
	Total	63%	24%	5%	8%	164

Percentages may not total 100% due to rounding. For purposes of this calculation, those responding "don't know" either to concern over air pollution or perspective of air quality were omitted from this calculation, with the percentages derived from those who remained.
Source: San Diego-TTPR Survey.

Seventy percent of San Diego respondents who felt the air quality was excellent were not much or not at all concerned about air pollution and their health. On the other end of the spectrum, 92% of those who indicated that air quality was poor had a great deal or some concern about air pollution and their health. TTPR respondents were more concerned about air quality and health effects than San Diegans surveyed. In Tijuana, 70% of those who characterized air quality as good also had a great deal or some concern about the effects of air pollution on their health. Similar to San Diego residents, however, 91% of those who felt the air quality was poor also had a great deal or some concern about air pollution. The same trend was present in Tecate and Rosarito where most residents were concerned about air pollution but did indicate that the overall quality of air was good. This was especially the case in Playas de Rosarito, where 100% of respondents reported excellent air quality but also felt a great deal or somewhat concerned about air pollution and their health.

There are a variety of air contaminants that contribute to poor air quality, including ozone, particulate matter (PM-10), carbon monoxide, nitrogen dioxide, sulfur dioxide, breathable particles, and lead. Ozone and PM-10 present the most serious problem for the San Diego-TTPR region. Particulate matter consists of tiny solid or liquid particles of soot, dust, smoke, fumes, or mists (San Diego County Air Pollution Control District 2002).

Motor vehicles and industrial point source emissions are the primary causes of ozone concentration, and cars also contribute to carbon monoxide pollutants. Unpaved roads and windblown emissions contribute to particulate matter, or PM-10 (CARB 2005). Air quality tends to be slightly lower in TTPR due to an older vehicle fleet that is not subject to emissions control and to numerous unpaved roads. The State of Baja California, in conjunction with the North American Development Bank, has attempted to lessen PM-10 concentration through the US$65 million Air Quality Improvement and Street Paving Program (Programa Integral de Pavimentación y Calidad del Aire-PIPCA). The program is dedicated to paving roads throughout Baja California and lessening PM-10 concentrations.

Each of these pollutants has direct health implications on residents of the San Diego-TTPR border region. Pollutants in the airshed cause a wide range of health problems from minor eye or throat irritations to respiratory problems such as asthma, reduced lung capacity and stamina, cancer, and birth defects. Ozone is known for causing decreased lung capacity and stamina, and particulate matter, which consists of tiny particles that can bypass the body's natural filters in the nose and throat, can cause or aggravate asthma, bronchitis, and other lung diseases (San Diego County Air Pollution Control District 2002). Children, senior citizens, individuals with a history of respiratory illness, and those who are active outside, such as road workers, are most susceptible to the negative affects of these air contaminants. Acknowledging the health risk to children, California state legislature passed the California Children's Environmental Protection Act in 1999. The law reconfigured state air quality standards to levels more suitable for the safety of children (CARB 1999). State standards are now more stringent than U.S. federal standards. Mexico's federal standards are roughly equal to U.S. federal standards.

However, air pollution is not measured in the same ways on both sides of the border, making direct comparisons difficult in some cases. Cooperative binational efforts are currently underway to improve air quality in the binational airshed.

Table 9.5 outlines California, U.S., and Mexico ambient air quality standards.

Table 9.5. California, U.S., and Mexico Ambient Air Quality Standards

Pollutant	Averaging Time	Standard		
		Mexico	U.S.	California
Carbon monoxide (CO)	8-hour	11 ppm	9 ppm	9.0 ppm
	1-hour	—	35 ppm	20 ppm
Nitrogen dioxide (NO2)	Annual	—	0.053 ppm	—
	1-hour	0.21 ppm	—	0.25 ppm
Ozone (O3)	8-hour	—	0.08 ppm	—
	1-hour	0.11 ppm	0.12 ppm	0.09 ppm
Sulfur dioxide (SO2)	Annual	0.030 ppm	0.030 ppm	—
	24-hour	0.13 ppm	0.14 ppm	0.04 ppm
Particulate matter smaller than 2.5 micrometers (PM2.5)	Annual	—	15 $\mu g/m^3$	12 $\mu g/m^3$
	24-hour	—	65 $\mu g/m^3$	—
Particulate matter smaller than 10 micrometers (PM10)	Annual	50 $\mu g/m^3$	50 $\mu g/m^3$	20$\mu g/m^3$
	24-hour	150 $\mu g/m^3$	150 $\mu g/m^3$	50$\mu g/m^3$
Total suspended particulate matter (TSP)	Annual	75 $\mu g/m^3$	—	—
	24-hour	260 $\mu g/m^3$	—	—
Lead (Pb)	Quarterly 30-day average	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

Source: EPA-CICA Border Air Quality Data, Health-Based Ambient Air Standards; California Air Resource Board 2005a.

It is important to note that in late 2005 the U.S. EPA was phasing out the U.S. 1-hour ozone standard and replacing it with an 8-hour standard, which protects better against long duration exposures. However, San Diego and other cities that have not met the 1-hour standards for three consecutive years were still undergoing transition in late 2005 (EPA/CICA).

Table 9.6 lists both San Diego County and Tijuana exceedances of U.S. federal ambient air quality standards, or EPA standards.

Table 9.6 Number of Exceedances of U.S. Federal (EPA) Standards, San Diego and Tijuana

Pollutant	County	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
CO	Tijuana	0	**3**	**2**	**1**	**2**	**3**	**1**	**1**	0	0
NO2	Tijuana		0	0	0	0	0	0	0	0	0
O3	Tijuana	0	0	0	0	0	**1**	**1**	0	**1**	**1**
PM10	Tijuana		**18**	**39**	**33**	**51**	**4**	**31**	**24**	**60**	**30**
Pb	Tijuana	0	0	0	0	0	0	0	0	0	0
SO2	Tijuana		0	0	0	0	0	0	0	0	0
CO	San Diego	0	0	0	0	0	0	0	0	**1**	0
NO2	San Diego	0	0	0	0	0	0	0	0	0	0
O3	San Diego	**1**	**3**	**1**	**4**	**1**	**1**	**1**	**1**	**1**	0
PM10	San Diego	0	0	0	0	0	0	0	0	0	0
PM25	San Diego					0	0	0	0	0	0
Pb	San Diego	0	0	0	0	0	0	0	0	0	
SO2	San Diego	0	0	0	0	0	0	0	0	0	0

Source: EPA-CICAa, Border Air Quality Data - Monitor Trends Report.

Both San Diego County and Tijuana have monitoring systems that measure air contaminants. Each city has several monitoring stations dispersed throughout the region. For the first three quarters of 2005, Tijuana exceeded EPA standards for PM-10, with peak levels of 172 $\mu g/m^3$ or the 24-hour average, and 80 $\mu g/m^3$ for the annual mean. Both San Diego and Tijuana's exceeded EPA ozone standards in 2005, with peak levels of 0.086ppm and 0.088ppm respectively, for the 8-hour average (EPA-CICAb).

Despite some problems, particularly with ozone and PM-10 exceedances, San Diego County and TTPR are in attainment or near attainment for most air pollutants.

Beach Pollution

Beaches are an important aspect of quality of life in San Diego and TTPR. Beaches provide residents with recreational opportunities and are important to some in terms of quality of life. The beaches of the region attract residents from all areas of San Diego along with tourists from outside the region, mainly during the spring and summer months. The beaches are an important component of the tourism industry, providing revenue for coastal businesses and related activities It is estimated that Southern California beaches attract over $1.7 billion in revenues from tourists each year (California State Water Resources Control Board). Water pollution can cause beach closures that can inhibit the recreational use of the beaches, impact the tourism industry, and have negative health effects. The survey data and external data provided in this section examine pollution along regional beaches.

Survey respondents were asked about polluted bodies of water and health effects. They were also asked about water quality at the region's beaches. Tables 9.7 and 9.8 provide the responses.

Table 9.7. Health Concerns about Polluted Streams and Beaches

Concerns	San Diego	TTPR	Tijuana	Tecate	Rosarito
Great Deal	37%	56%	57%	45%	62%
Some	38%	24%	25%	19%	27%
Not Much	14%	9%	7%	9%	1%
None at All	11%	5%	8%	9%	10%
No Response	1%	5%	4%	17%	1%

Note: Percentages may not total 100% due to rounding
Source: San Diego-TTPR Survey.

Table 9.8: Quality of Beach Water

Beach Water Quality	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	2%	<1%	0%	0%	4%
Good	21%	7%	7%	4%	11%
Fair	45%	31%	32%	7%	48%
Poor	29%	46%	54%	17%	33%
No Response	4%	16%	7%	71%	4%

Note: Percentages may not total 100% due to rounding
Source: San Diego-TTPR Survey.

Both tables indicate that residents of the region are concerned about marine and fresh water pollution. When those not responding to the question are taken into account, beach water quality is given a fair or poor rating by 74% of San Diegans surveyed, 86% of Tijuana respondents, and 81% of the respondents of Rosarito. Inland Tecate residents indicated less concern for the quality of beaches; only 28% of respondents even expressed opinions about beach water quality. Some 75% of San Diegans surveyed were either a great deal or somewhat concerned about the effects of polluted waters on their health, as were 82% in Tijuana, 64% in Tecate, and 89% in Rosarito.

External data legitimizes survey respondents' high levels of concern. Beaches in San Diego County are usually closed for three reasons: (1) After a rainstorm, when runoff causes temporary high levels of contamination; (2) After a sewage spill; and (3) When bacteria from local wildlife and/or decaying vegetation contaminate the water. Government agencies such as the San Diego County Department of Environmental Health monitor beaches for contamination and close them if levels of contamination exceed state standards (SDCDEH). State regulation stipulates that water is considered contaminated when it contains 10,000 total coliforms per 100 milliliters of water, or when there are 400 fecal coliform bacteria per 100 milliliters of water (California Department of Health Services). County researchers use membrane filtration (MF)[ii] or the Most Probable Number[iii] methods to determine the density of bacteria in the water. Given the importance of beaches as contributors to the economy and recreation, high coliform contamination levels and subsequent beach closures can impede an ideal level of quality of life in the region.

Health authorities can either close polluted beaches or post warnings at such beaches. In the state of California, the effects of warnings and closures are measured in beach mile days (BMDs). For this measurement, one mile of beach closed for one day contributes one BMD to the total. Thus, 4 miles of beach closed for 2 days or 2 miles of beach closed for 4 days will each contribute 8 BMDs to the total. In 2000, San Diego County experienced a total of 168.9 BMDs in beach warnings and 187 BMDs in beach closures. The warnings were generally due to bacteria levels exceeding standards, and sewage spills were a primary cause of the closures.

The non-governmental organization Heal the Bay provides annual report cards on beaches in California. The 2004-2005 Annual Beach Report Card showed that most beaches in California had very good water quality. Statewide, 278 of 346 or 80% of state locations receiving very good-to-excellent (A and B) grades for the year during dry weather. However, the disparity between water quality in dry and wet weather conditions continues. Because 2004-2005 was one of the wettest years on record in California, 90% of the 346 locations monitored during wet weather received fair-to-poor (C – F) grades, making 2004-2005 the most polluted wet weather season on record since the monitoring program began in 1999. Furthermore, only 7% of Southern California beaches received A's or B's in wet weather conditions (Heal the Bay 2005).

For San Diego County, dray weather water quality was fair—78% of beaches received good-to-excellent water quality. However, the stretch of beach from Imperial Beach to the U.S.-Mexican border fence tied for first place as "Beach Bummer," the beach with the most area degraded and the worst water quality in the state. Additionally, San Diego had a considerable increase in the number of sewage spills in the last year, up 35% from last year for the number of sewage spills that caused beach closures. This increase is attributed to the heavy rainy season. Forty percent of the 50 spills in 2004-2005 were associated with sewage contaminated runoff events of unknown volumes from the Tijuana River/Estuary (Heal the Bay 2005).

Regular monitoring of ocean water quality and dissemination of results for Tijuana and Playas de Rosarito beaches is not taking place. Intermittent efforts by NGOs and university researchers suggest that there are serious beach contamination problems along the coast of Tijuana and Playas de Rosarito.

Solid Waste Disposal

Both San Diego County and the TTPR regions are faced with the large task of solid waste disposal for growing urban areas and industrial activities.

Environmental effects from landfills can include harmful methane gas emissions[iv], other air pollution, groundwater contamination, and land erosion (U.S. EPA 2003a). These environmental issues have helped justify the need to lessen landfill use and continue regulation of sites. Both sides of the border face limited sanitary landfill capacity, and developing new facilities is financially expensive and politically difficult.

Nearly all respondents had an opinion on the quality of trash collection and only one percent or less indicated that services were not available. This suggests that TTPR governments have made progress in recent years at improving coverage in the rapidly growing urbanized areas. However, a sizeable minority in Tijuana, Tecate, and Playas de Rosarito (39%, 33%, and 36%, respectively) indicated that waste management services were fair or poor.

Table 9.9. Survey Results: Quality of Trash Collection Services

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	38%	7%	7%	5%	6%
Good	48%	55%	54%	62%	57%
Fair	10%	25%	25%	22%	30%
Poor	3%	12%	14%	11%	6%
Not Available	1%	1%	1%	0%	1%
No Response	1%	<1%	<1%	0%	0%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Additional data provide more information about solid waste disposal on both sides of the border.

Table 9.10. Solid Waste in San Diego County (Landfilled), 1995-2002

Year	Local Waste Disposed (tons)	Per Capita (lbs)
1995	2,330,897	1,753
1996	2,405,772	1,794
1997	2,543,019	1,864
1998	2,653,604	1,898
1999	2,814,071	1,971
2000	3,206,055	2,279
2001	3,609,378	2,522
2002	3,648,661	2,500

Note: 1 ton=2,000 lbs
Source: California Integrated Waste Management Board 2003.

San Diego County's locally disposed waste has increased since 1995. Per capita pounds production of waste in the county has generally increased since 1995 with the exception of 2002, when recycling efforts likely contributed to a slight decline. However, due to the growing human population, total solid waste generation in the region continues to increase.

Active landfills are monitored by cities within San Diego County. The San Diego County Department of Public Works monitors the environmental impact of inactive sites. Inactive and closed landfills are monitored for gas emissions, the flow of surface waters and erosion (San Diego County Department of Public Works). San Diego's system of waste management is less centralized in comparison to TTPR waste management, despite

some oversight from state and federal authorities such as the EPA and California Integrated Waste Management Board.

Cities within San Diego County have been challenged to find landfill space for an ever-growing population. Currently, solid waste is disposed of in seven landfills including Borrego Springs, Miramar, Otay Mesa, Ramona, Sycamore, Prima Desecha (Orange County), and Copper Mountain (Arizona). North County cities must currently transfer waste to other city landfills within and outside of San Diego County because of the absence of a landfill site to replace the San Marcos facility that closed in 1997 (SDCDEH 2003). However, the Gregory Canyon landfill and recycling facility, owned and operated by a private corporation, is scheduled to open by 2007 and will serve as North County's main source for refuse disposal (*San Diego Union-Tribune* Oct. 26, 2005). Additionally, a growing shortage of capacity in sanitary landfills has led the Campo Band of Kumeyaay Indians to revive a proposal to construct a landfill on tribal lands in East San Diego County. Since 1980s', they have made three attempts to build a landfill on reservation land. Efforts have been cut short by opponents, who claim that any landfill, regardless of precautions taken, will leak and contaminate the groundwater supply that residents depend on (*San Diego Union-Tribune* Dec. 16, 2004).

The limited landfill space has encouraged efforts to reduce refuse levels and increase recycling programs In 1990, the California Integrated Waste Management Act (AB 939), required that all state cities and counties reduce solid waste levels by 50 percent by the year 2000. This act spurred the creation of new recycling programs and systems of collection at the local level. For example, the San Diego County Integrated Waste Plan (1996) was created to reduce waste and more efficiently utilize landfill space while improving recycling programs in the region. According to the California Integrated Waste Management Board, 7 of 19 San Diego County cities had met the new guidelines by 2000 (CIWMB 2003).

Tijuana's local waste generation and disposal has increased, with the exception of 1999 and 2001 levels. Per capita levels have fluctuated from year to year between 1995 and 2001, with a high of 614 lbs per capita in 2000 and a low of 535 lbs in 2001. Tijuana's total per capita refuse generation is much less than San Diego County's. Solid waste disposal is coordinated by a number of federal, state, and local government agencies in Mexico (SEMARNAT 2003).

Table 9.11. Solid Waste in Tijuana (Landfilled), 1995-2001

	Local Waste Disposed (tons)	Per Capita (lbs)
1995	274,750	554
1996	284,044	545
1997	322,642	589
1998	351,295	610
1999	328,218	542
2000	371,830	614
2001	340,432	535

Note: 1 ton=2,000 lbs.
Source: Gobierno Municipal de Tijuana 2002.

Tijuana, Tecate, and Playas de Rosarito have insufficient landfill space for the amount of solid waste produced each year. It is not surprising that the Tijuana and Tecate Municipal Development plans for 2002-2004 (Tijuana and Tecate Municipal Governments 2003) call for new landfills. In Tijuana, the lack of solid waste management has contributed to the creation of informal, unregulated landfills that create an unhealthy environment for local inhabitants. However, recent reports indicate some improvement in Tijuana in the form of a 54,381 house increase in weekly garbage pick-up and 374 unit increase in the number of eradicated illegal landfills during 2002 (Gobierno Municipal de Tijuana 2002). Tijuana's active landfill is run by a company from Monterrey. It is built well and was functioning well as of late 2005 (IMPLAN).

Tecate does not yet have a landfill; it uses only a dump. The Tecate Municipal Development Plan (2002-04) is also proactive in its call for increased management coverage, improved efficiency through the establishment of new routes for garbage collection, and the improvement of transfer stations.[v] Efforts to build a new landfill for Tecate are also moving forward. Both Tijuana's and Tecate's development plans indicate the desire to improve awareness and foster recycling within the respective municipalities. Recycling has traditionally been less prevalent as a tool to reduce landfill use in Tijuana and Tecate due to the lack of financial incentive to establish recycling programs. In fact, Tecate's management system is currently more focused on collecting trash and forming new landfills than on lessening the amount of waste generated (Medina 2003).

Despite efforts to improve solid waste disposal in TTPR, non-landfilled solid waste is an ongoing problem for Tijuana, Tecate, and Playas de Rosarito. Abandoned and dismantled cars as well as used tires are significant local problems. And, as with many other municipalities along Mexico's northern border, there are significant problems with improper disposal of waste tires. Since TTPR imports used tires from California, accumulation of waste tires is rapid and their disposal is a growing problem in the border region.

Green Space and Habitat Preservation

The amount of open space and preservation of habitats is important to environmental quality and quality of life. Open areas provide a setting for outdoor recreation, vegetation that gives shade and oxygen to the urban area, habitat for wildlife, and an esthetically pleasing setting for human residents. The United Nations suggests that the minimum amount of green open space per city dweller is 9 square meters (United Nations Human Settlements Programme 2001).

In San Diego County, respondents had mixed feelings about the availability of open green areas, but generally gave the region a good rating; 57% of residents felt availability was good or excellent while 42% believed it was fair or poor. These mixed feelings may be attributable to the increased development of vacant land and continuing urban sprawl.

At the same time, only 23% of Tijuana respondents, 10% in Tecate, and 4% in Rosarito felt that access to green areas was good or excellent. A strong majority—67% of those

surveyed in Tecate 73% of respondents in Rosarito—said open green area availability was poor.

Table 9.12. Availability of Open Green Areas

Availability	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	15%	2%	2%	3%	0%
Good	42%	16%	21%	7%	4%
Fair	28%	26%	28%	21%	21%
Poor	14%	54%	47%	67%	73%
Don't Know	1%	2%	2%	2%	2%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Table 9.13. Protection of Endangered Plants and Animals

Protection	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	13%	<1%	1%	0%	0%
Good	41%	8%	9%	7%	2%
Fair	25%	17%	21%	5%	12%
Poor	12%	52%	50%	54%	58%
Don't Know	9%	23%	19%	35%	28%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Table 9.14. Availability of Natural and Protected Habitats

Availability	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	10%	1%	2%	0%	1%
Good	41%	6%	8%	3%	3%
Fair	28%	16%	20%	5%	8%
Poor	12%	48%	46%	51%	54%
Don't Know	9%	29%	25%	41%	34%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

In San Diego, most respondents had an opinion about efforts to protect endangered plants and animals and to preserve natural areas and habitats. These respondents generally gave government agencies and others a good rating for the efforts. Fifty-four percent of San Diegans said protection of endangered plants and animals was good or excellent, while 51% said the same about natural and protected habitats.

By contrast, in the TTPR region a sizable minority of respondents had no opinion. However, those who did respond were sharply critical of their region's efforts. Only 31% of those surveyed in Tijuana, 12% in Tecate, and 14% in Playas de Rosarito gave local efforts at least a fair rating for protecting local endangered plants and animals, while 30% or respondents in Tijuana, 8% in Tecate, and 12% in Playas de Rosarito said the same about natural and protected habitats.

In Tijuana, almost 72 % of the area within the urbanized zone is used for residential purposes. Commercial and services use occupies 8% of the land, and industry another 8%. Such statistics may explain the above-mentioned discontent of Tijuana residents who felt that the availability of natural and protected habitats was poor. As can be seen in Table 9.18, Tijuana's per capita green areas have remained between one and two square meters (1992–1998). The urbanization of the region has come at the expense of green and open areas.

Table 9.15. Green Areas* in Tijuana, 1992-1998

	1992	1993	1994	1995	1996	1997	1998
M²	880,000	1,039,809	1,114,809	1,372,781	1,590,000	2,150,000	2,150,000
Square feet	9,504,000	11,229,937	12,039,937	14,826,035	17,172,000	23,220,000	23,220,000
m² per capita	1.1	1.2	1.2	1.4	1.5	2.0	1.9
Square feet per capita	11.9	13.0	13.0	15.1	16.2	21.6	20.5

Source: Gobierno Municipal de Tijuana, Informes Municipales 1992-1998.
*Open areas (usually within the urban setting) that contain green vegetation, shrubbery, etc.

According to Table 9.19, there were 699 acres per 1,000 San Diegans in 1990 and 695 by 2000. This is a small decline in acreage yet significant enough to be noticed by San Diego County respondents who expressed some discontent with the lack of green areas.

Table 9.16: Green Areas* in San Diego County

	1990	1995	2000
Acres	2,002,807	1,994,454	1,992,000
Square Meters	8,105,070,000	8,071,270,000	8,061,340,000
Acreage per 1,000 Residents**	699	696	695

*Calculation made by combining the amount of land classified as used for parks and recreation and undeveloped space.
**Based on 2001 population of 2,862,819 people. Figures are per 1,000 people.
Sources: SANDAG 2002.

Most analyst agree that urban Tijuana and Tecate are deficient in green areas. San Diego, on the other hand, is known for its green areas, both in the County as well as within San Diego city limits.

Summary

Though respondents ranked the environment sixth as a major quality of life issue, over 32% of San Diegans and 14% of Tijuanenses surveyed ranked it within their top three factors. The majority of respondents in both San Diego and TTPR were concerned with air quality and its affect on their health, and many considered air quality to be only fair or poor. In San Diego, there was a correlation between those who perceived air quality as

negative and those who were concerned about air quality and their health. In TTPR, the correlation was not present, as many respondents were concerned with air quality and their health, regardless of their perception of air quality. Ground level ozone and particulate matter (PM-10) both represent environmental health risks in the region.

Additionally, the majority of respondents in both San Diego and TTPR were concerned with beach water quality, and objective data regarding beach pollutants justifies their concern. Both environmental health and tourism revenues are compromised due to beach pollution. Furthermore, although local governments on both sides of the border are making progress, waste management continues to challenge local government agencies on both sides of the border.

Finally, respondents in the TTPR region generally were not content with the management of endangered plants and animals or availability of open green areas. In contrast, over half of San Diego respondents were happy with the protection of endangered plants and animals and the availability of protected yet public green areas. However, a strong minority (42%) of San Diegans rated green area availability as fair or poor. External data shows much higher per capita acreage of green areas in San Diego County than in the TTPR region.

10. Transportation

Transportation is a crucial issue in the border region, as it effects environmental health and influences the degree of cross-border integration that is possible. Binational discussions about coordinating public transportation across the border are currently underway. In 2005, SANDAG's Committee on Binational Regional Opportunities (COBRO) examined the possibilities for such coordination at the Otay Mesa-Mesa de Otay border crossing region. This section discusses the importance of transportation as a quality of life factor, the means of transportation that survey respondents use, traffic congestion, local views on public transportation, and transportation's effects on quality of life.

When asked to rank quality of life indicators, residents of both San Diego and the TTPR region considered transportation the least important of the seven indicators mentioned in the survey. San Diego respondents were, however, more likely to rate transportation as a concern than were residents of the TTPR region. Twenty-one percent of San Diegans surveyed rated transportation as one of the three most important quality of life indicators as compared to only 10% of respondents in Tijuana, 5% in Tecate, and 5% in Playas de Rosarito.

Table 10.1. Survey Results: Transportation as a Quality of Life Factor

Transportation	San Diego	TTPR	Tijuana	Tecate	Rosarito
% of Residents Indicating "Most Important"	2%	1%	1%	1%	1%
% of Residents Indicating "Second Important"	7%	3%	3%	3%	1%
% of Residents Indicating "Third Important"	12%	4%	5%	1%	2%
Total Mention	21%	9%	10%	5%	5%
Index Percent	5%	2%	3%	2%	1%
Cumulative Category Rank	7th	7th	7th	7th	7th

Source: San Diego-TTPR Survey.

Means of Transportation for Regional Residents

Survey respondents reported on the means of transportation used, both in general and for commutes. San Diego respondents are heavily dependent on their automobiles; 93% of those surveyed listed automobile as their preferred transportation for general use. The high ownership and use of automobiles is supported by a system of over 300 miles of freeways and 7,150 miles of local roads in the San Diego region. In Tijuana, Tecate, and Playas de Rosarito, however, only a slight majority of respondents reported using a car for general use.

Table 10.2. Transportation Types Used, General Use

Transportation Type	San Diego	TTPR	Tijuana	Tecate	Rosarito
Motorcycle	1%	<1%	<1%	1%	0%
Automobile	93%	60%	59%	61%	63%
Foot/Walk/Skate	5%	4%	3%	9%	3%
Bicycle	3%	<1%	<1%	0%	1%
Private Taxi	2%	2%	2%	1%	1%
Trolley	6%	N/A	N/A	N/A	N/A
Bus	9%	13%	11%	34%	2%
Train	1%	0%	0%	0%	0%
Public Taxi	N/A	30%	33%	4%	43%
Calafia*	N/A	12%	17%	0%	2%
Other	1%	1%	1%	0%	1%
Don't Know	0%	1%	1%	0%	2%
Total Responses	1,209	1,242	889	163	190

Percentages may exceed 100% due to multiple responses.
* Small public vans that use fixed routes.
Source: San Diego-TTPR Survey.

When respondents were asked specifically about the type of transportation used for commuting, automobile use was the most important means in all four cities. It remained the large majority in San Diego, with 86% surveyed reporting automobile use for commutes, and a slight majority in TTPR, where 56%, 62%, and 57% of Tijuana, Tecate, and Rosarito respondents, respectively, using automobiles to commute.

In Tijuana, 38% use percent public transportation, in Tecate 30%, and in Playas de Rosarito, 36%. Only 9% of survey respondents in San Diego reported regularly using public transportation for their commutes.

Table 10.3. Transportation Used for Commute to Work or School

Transportation Type	San Diego	TTPR	Tijuana	Tecate	Rosarito
Motorcycle	1%	<1%	<1%	1%	0%
Automobile	86%	57%	56%	62%	57%
Foot/Walk/Skate	2%	6%	6%	3%	8%
Bicycle	1%	0%	0%	0%	0%
Private Taxi	0%	1%	2%	1%	0%
Trolley	2%	N/A	N/A	N/A	N/A
Bus	6%	8%	5%	26%	0%
Train	1%	0%	0%	0%	0%
Public Taxi	N/A	17%	17%	4%	34%
Calafias	N/A	7%	10%	0%	1%
Other	3%	4%	4%	4%	0%
Don't Know	0%	1%	1%	0%	0%
Total Respondents	710	713	510	110	93

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

The overwhelming reliance of San Diego commuters on the automobile is confirmed by U.S. Census data. Table 10.4 includes figures for 1990 and 2000 that demonstrate that the use of private vehicles for commuting is increasing.

Table 10.4. Means of Commuting in San Diego County, 1990-2000

Commute Means	2000	1990
Drive Alone	74%	71%
Carpools	13%	14%
Public Transportation	3%	3%
Other Means	2%	3%
Walk or Work at Home	6%	10%

Sources: U.S. Census 1990; U.S. Census 2000.

Given the minimal use of public transportation in San Diego, the key element of quality of life with respect to transportation in San Diego is the level of traffic congestion, whereas in TTPR, access to and quality of public transportation often plays a role.

Traffic Congestion

Traffic congestion and commute times are transportation factors directly related to perceptions of quality of life in the San Diego-TTPR region. Survey responses regarding commuting times and congestion are reported in Table 10.5 and Table 10.6.

Table 10.5. Traffic Congestion Problems When Commuting to Work or School

Commute Congestion	San Diego	TTPR	Tijuana	Tecate	Rosarito
Not a Problem	28%	26%	21%	41%	34%
Minor Problem	22%	22%	18%	36%	30%
Moderate Problem	27%	29%	33%	16%	23%
Severe Problem	22%	22%	27%	6%	12%
Don't Know	1%	1%	1%	2%	1%
Total Respondents	710	713	510	110	93

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Table 10.6, which indicates how respondents perceive change in commuting times, demonstrates that a small majority of residents surveyed on both sides of the border reported that traffic congestion had stayed the same over the last year. Large percentages, 35% in San Diego and 42% in Tijuana, claimed, however, that traffic congestion has increased in the last twelve months. Only 16% of Tecate respondents and 30% of Playas de Rosarito respondents felt that traffic congestion had increased.

Table 10.6. Commute Time to Work or School over Past Twelve Months

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Increased	35%	36%	42%	16%	30%
Decreased	5%	4%	4%	3%	5%
No Change	59%	57%	52%	75%	63%
Don't Know	1%	3%	2%	6%	1%
Total Respondents	710	713	510	110	93

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Available data indicate that congestion in the region is increasing. San Diego ranks as the 8th most congested urban area in the United States (Transportation California 2002). Congestion in the area has increased dramatically, and the cost to commuters has therefore increased as well. In the last twenty years, the population of San Diego County has increased by 52%, but miles of freeway have only increased by 32%. This, along with continued urban sprawl, has significantly increased congestion, as indicated in Table. 10.7. In 2000, the average peak time road traveler incurred a cost of $1,015 per year in lost time, compared to $85 per year in 1980 (Transportation California).

Table 10.7. Traffic Congestion in San Diego

	1980	1990	2000
Population	1,780,000	2,295,000	2,710,000
Metro Area Square Miles	610	710	755
Freeway Lane Miles	1,365	1,610	1,795
Principal Arterial Lane Miles	1,430	1,715	1,830
Travel Time Index	1.06	1.25	1.37
Annual Delay Per Person	4 hours	17 hours	24 hours
Annual Delay Per Peak Road Traveler	8 hours	35 hours	51 hours
Total Cost of Delay	$70 million	$565 million	$1,295 million
Cost Per Peak Road Traveler	$85	$525	$1,015

Source: Transportation California.

Although such qualitative traffic congestion indicators are not available for TTPR, respondents in Tijuana reported that traffic congestion in their city is more of a problem than respondents in San Diego reported. Sixty percent 60% of those surveyed in Tijuana rated traffic congestion as a moderate or severe problem, compared to 49% of San Diego respondents. In Tecate and Playas de Rosarito, only 22% and 35% of those surveyed, respectively, responded in the same way.

Public Transportation

Residents of the TTPR region are far more reliant on public transportation than are San Diegans, with about 16% (9% for commute to work or school) of San Diego respondents and 35% of TTPR using public transportation for general use. However, TTPR residents surveyed rated the quality of public transportation in their cities lower than San Diego respondents did. Sixty-five percent surveyed in Tijuana, 64% in Tecate, and 58% in Playas de Rosarito rated public transportation as fair or poor, while only 37% of San Diego respondents gave the same rating. Table 10.8 shows all of the results.

Table 10.8. Quality of Public Transportation

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	15%	5%	5%	3%	5%
Good	33%	28%	28%	27%	32%
Fair	23%	42%	40%	49%	45%
Poor	14%	22%	25%	15%	13%
Don't Know	15%	4%	3%	7%	5%

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

One factor that influences resident perceptions of the quality of public transportation is the number of transfers needed to arrive at the desired destination. In this survey, residents using public transportation were asked how many transfers, on average, they needed. In San Diego County, 121 respondents needed an average of 1.5 transfers. In Tijuana, 253 respondents needed 1.6 transfers. In Tecate, 51 respondents needed 1.4 transfers. In Playas de Rosarito, 60 respondents needed 1.7 transfers.

In San Diego County, public transportation consists of the San Diego Transit Bus Service; North County Transit District (buses); Coaster train line; San Diego Trolley light rail system. Of all forms of public transportation, the system of buses is the most widely used in the county. In Tijuana, public transportation includes 7,940 units of taxis, buses, and vans. Tijuana's *Plan Maestro de Vialidad y Transporte* is designed to establish good, cheap, and environmentally sound public transportation in the region. The plan intends to replace old taxis with public buses.

Transportation and Quality of Life

Perceptions of San Diego residents about traffic congestion problems were directly related to their overall quality of life assessment and the relative importance they assign to transportation as a factor in quality of life. In the TTPR region, this relationship was not as evident. This can be clearly seen when a universal numerical value is assigned to responses. Table 10.9 correlates respondents' quality of life perceptions with the degree to which traffic congestion was rated as a problem. The responses for quality of life are each assigned a weighted numerical value, with the percentage of those responding "excellent" multiplied by three, the percentage of those responding "good" multiplied by two, and the percentage of those responding "fair" multiplied by one. The resulting figure, scaled from 0-3, represents a numerical aggregate of quality of life, with a figure of 0 representing a "poor" quality of life, 1 representing "fair," 2 representing "good," and 3 representing "excellent."

Table 10.9 Personal Quality of Life and Traffic Congestion, Universal Index*

Traffic Congestion	Index of Personal Quality of Life				
	San Diego	TTPR	Tijuana	Tecate	Rosarito
Not a Problem	2.18	1.69	1.77	1.51	1.69
Minor Problem	2.05	1.56	1.67	1.43	1.43
Moderate Problem	2.04	1.59	1.62	1.47	1.48
Severe Problem	1.98	1.59	1.60	1.40	1.55
Total, Commuters	2.06	1.61	1.66	1.47	1.54
Total	2.11	1.61	1.60	1.41	1.52

* 0=poor; 3=excellent.

Source: San Diego-TTPR Survey. For purposes of calculations, those responding "don't know" either to their perceptions of traffic congestion as a problem or perceptions of their personal quality of life were omitted. Only those who said they commuted to work were included in the calculation, with the exception of the final row, "Total."

Summary

Survey respondents ranked transportation as the least important of the seven quality of life indicators. San Diego respondents were more likely to rank it as important. Results show a significant difference across the border regarding forms of transportation used by residents. San Diegans are generally dependent upon automobile transportation, with 93% using a car either for their commute or for other purposes. Only slight majorities in Tijuana, Tecate, and Playas de Rosarito (59%, 61%, and 63%, respectively) use cars, which reflects lower levels of car ownership in TTPR.

Despite different rates of automobile use, traffic congestion on both sides of the border affects quality of life. Survey responses and external data indicate that congestion has increased in recent years. In the TTPR region, respondents rated traffic congestion worse than San Diego respondents did. Generally, respondents in all four cities who saw traffic as a severe problem had perceptions of a lower quality of life, but this correlation was strongest in San Diego.

TTPR residents are mostly dependent upon public transportation, and rated their public transportation of worse quality than San Diego respondents rated their public transportation. The most common form of public transportation in San Diego is by bus, while buses, taxis, and vans are used in TTPR.

11. Public Services

Residents were not asked to rank public services as a quality of life indicator, but delivery of public services effects the seven most important quality of life indicators. This section provides perspectives of San Diego-TTPR residents concerning public services, including sewage, potable water, trash collection, street lighting, telephone service, postal services, fire department, and road maintenance, and as well as residents' suggestions to improve quality of life.

Most respondents felt that the quality of public services had remained the same in the past twelve months. By a factor of three to one, residents of San Diego, Tecate, and Playas de Rosarito said public services had improved rather than worsened; in Tijuana only twice as many saw improvement as saw a decline in services.

Table 11.1. Quality of Public Services over the Past Twelve Months

Public Services	San Diego	TTPR	Tijuana	Tecate	Rosarito
Improved	18%	24%	23%	25%	26%
Remained the Same	75%	65%	65%	67%	67%
Gotten Worse	6%	10%	12%	7%	7%
Don't Know	1%	1%	1%	1%	1%

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Sewage Services

Residents of Playas de Rosarito were especially likely to mention sewage or drainage as a quality of life issue in need of improvement; 41 residents mentioned sewage concerns. Tijuana respondents, too, felt it was important; 33 respondents mentioned it. In Tecate, only 8 residents made this suggestion, while only 2 in San Diego did likewise. The high number of Playas de Rosarito respondents recommending such improvements is not surprising as 56% of respondents said sewage services were not available to them. In contrast, San Diego, Tijuana, and Tecate respondents were much more content with the quality of sewer services in the region; 69% surveyed in San Diego, 64% in Tijuana, and 68% in Tecate rated sewer service as good or excellent. Despite these differences, a majority of respondents in each municipality had an opinion about sewage services. Only four percent in San Diego and just over one percent in Tijuana did not respond to the question, while all Tecate and Playas de Rosarito respondents had opinions about sewer services.

Table 11.2. Quality of Sewage Services

Sewage Services	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	23%	7%	8%	5%	2%
Good	46%	52%	56%	63%	25%
Fair	17%	18%	20%	17%	8%
Poor	6%	8%	8%	6%	9%
Not Available	4%	16%	8%	8%	56%
No Response	4%	<1%	<1%	0%	0%

Source: San Diego-TTPR Survey. Percentages may not total 100% due to rounding.

Trash Collection

Few respondents highlighted trash collection as a major quality of life issue. This is not surprising, as 86% or more of the respondents in every city rated trash collection "fair" at a minimum.

Table 11.3. Quality of Trash Collection Services

Trash Collection	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	38%	7%	7%	5%	6%
Good	48%	55%	54%	62%	57%
Fair	10%	25%	25%	22%	30%
Poor	3%	12%	14%	11%	6%
Not Available	1%	1%	1%	0%	1%
No Response	1%	<1%	<1%	0%	0%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Street Lighting

The majority of residents in San Diego, Tijuana, and Playas de Rosarito considered street lighting to be excellent or good, but only 46% of respondents in Tecate were satisfied with public lighting. Several respondents from Tijuana and San Diego mentioned street lighting as an element of public safety.

Table 11.4. Quality of Street Lighting

Street Lighting	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	17%	7%	7%	4%	7%
Good	41%	52%	54%	42%	55%
Fair	24%	27%	27%	23%	29%
Poor	14%	14%	11%	29%	9%
Not Available	3%	1%	1%	1%	0%
No Response	1%	<1%	<1%	0%	0%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Telephone Services

Table 11.5. Telephone Service

Telephone Service	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	31%	7%	8%	3%	10%
Good	49%	66%	68%	59%	65%
Fair	15%	15%	13%	23%	15%
Poor	4%	5%	5%	5%	2%
Not Available	0%	5%	5%	9%	5%
No Response	<1%	2%	2%	1%	3%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Residents were for the most part satisfied with telephone services. Only one San Diego respondent and three Tijuana respondents suggested telephone services as a means to improve quality of life. Overall, San Diego had the highest number, or 31%, of respondents rating the telephone service quality as excellent. Only 8% in Tijuana, 3% in Tecate, and 10% in Rosarito believed telephone services were excellent.

Postal Services

A strong 86% majority of San Diego respondents felt that postal services were good or excellent while 66% of Tecate respondents felt the same. Tijuana and Rosarito respondents were more varied in their views. Only 50% of Tijuana respondents felt that postal services were good or excellent while the rest of the opinions were divided among fair, poor, or not available. Only 34% of all Playas de Rosarito respondents were content with postal services while 20% deemed it fair, 22% saw it as poor, and 18% indicated that it was not available.

Table 11.6. Quality of Postal Services

Postal Services	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	38%	4%	5%	3%	2%
Good	48%	46%	45%	63%	32%
Fair	11%	18%	18%	20%	20%
Poor	3%	16%	17%	7%	22%
Not Available	<1%	12%	12%	5%	18%
No Response	<1%	3%	3%	3%	6%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Fire Departments

As Table 11.7 demonstrates, 93% of San Diego respondents rated their fire department as good or excellent. In Tijuana, 61% surveyed gave the fire department excellent or good marks while 66% of all Tecate respondents felt the same. In Playas de Rosarito, 58% of respondents rated their fire department as excellent or good.

Table 11.7. Fire Department Services

Fire Departments	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	52%	8%	8%	5%	10%
Good	41%	53%	53%	61%	48%
Fair	4%	16%	15%	18%	17%
Poor	1%	7%	6%	7%	13%
Not Available	<1%	2%	2%	1%	2%
No Response	3%	14%	17%	7%	10%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Sizeable percentages of TTPR responses rated the fire departments as fair or poor. Twenty-five percent of Tecate residents, for example, felt that the fire department was fair or poor. This sizable minority may explain why the 2003-2004 Tecate Municipal Development Plan calls for a modernization of fire fighting equipment and techniques, along with the establishment of residential and rural substations and the strengthening of communication between the municipal chief and State Director of Civil Protection (Tecate Municipal Government 2002).

Tijuana's 21% of fair or poor responses may explain the recent call for the improvement of contingency plans and protocols to coordinate cooperative efforts among private, social, and government sectors in the case of a natural disaster or emergency (COPLADEM 2003). These reforms will directly involve the Tijuana Fire Department.

Playas de Rosarito respondents were least likely to classify their fire department as excellent or good, with only 58% responding that way. Another 30% of respondents stated that the fire department was fair or poor. Although a majority of respondents spoke highly of the fire department, this large minority may suggest the need for civil protection and fire department reforms such as those seen in Tecate and Tijuana.

Road Maintenance

Road maintenance was clearly the public service that respondents most frequently suggested as needing improvement. In Playas de Rosarito, 65% of respondents said road maintenance was "poor" or "not available"; not surprisingly, 46% brought up road maintenance or pavement as a means to improve quality of life. In Tijuana, 51% said road maintenance was "poor" or "not available," while 65% suggested improvements. Tecate's ratings were also fairly low, with 56% considering road maintenance "poor" or "not available." However, less than 1% of respondents on both sides of the border—11 TTPR respondents and 22 San Diegans surveyed—brought up road maintenance as an area in need of improvement. Only 19% of San Diego respondents said road maintenance was poor or unavailable. However, it is estimated that 42% of San Diego County's roads are in need of repair due to pavement in substandard condition (Transportation California 2002).

Table 11.8. Road Maintenance Services

Road Maintenance	San Diego	TTPR	Tijuana	Tecate	Rosarito
Excellent	12%	1%	1%	1%	1%
Good	36%	18%	19%	15%	14%
Fair	34%	26%	28%	27%	18%
Poor	18%	46%	45%	48%	51%
Not Available	<1%	8%	6%	8%	14%
No Response	<1%	1%	1%	1%	2%

Note: Percentages may not total 100% due to rounding.
Source: San Diego-TTPR Survey.

Summary

Although survey respondents were not asked to rank public service provision, it clearly effects other quality of life indicators such as transportation, the environment, and public health, for example. Overall, most respondents indicated that public services had remained the same over the last year, and some felt that they had improved. Sewage coverage in the region was generally rated as good, although over half of Playas de Rosarito respondents said sewage was not available to them. Street lighting was mentioned as a public safety concern, and Tecate residents were not satisfied with current lighting. Trash collection was not reported as a problem, although external data may suggest otherwise. Telephone services were rated well on average, and were given higher ratings in San Diego. Postal services and fire departments were also rated well in San Diego, but TTPR respondents were not content with the services there. Road maintenance received fairly negative reports across the border. Currently there are several local plans in place to improve some of the poorly rated public services, and more work will need to be done in order to improve quality of life in the region.

12. Border Crossings and Crossborder Connections

This report provides survey results and indicators for comparison of quality of life on both sides of the border. The connections and interactions across the border are features of the region that were also surveyed in the questionnaire. Growing economic interdependence and increasing social linkages are creating more and more ties between TTPR and San Diego. Many have come to describe the binational area as one cross-border, urban metropolis rather than as four separate cities. This section provides four indicators related to crossborder interactions: border crossings; telecommunications; language; and health care.

Border Crossings

The region has three major international ports of entry. The San Ysidro-Puerta México international border crossing is one of the busiest international ports of entry in the world. This port of entry is used exclusively for passenger vehicles and pedestrians, while the Otay Mesa border crossing eight miles east is also used for commercial crossings. A third border crossing, which accommodates both commercial and private vehicles, is located in Tecate. All three crossings have seen significant increases in traffic in recent years.

In 2004 and 2005, the San Diego Association of Governments (SANDAG) conducted an in-depth study of border crossings at the three ports of entry (POEs) listed above. Their data, based on a four-month study and 3,603 interviews of northbound crossers, indicate that there are 60 million trips across the three POEs in both directions each year. Over half are for recreational or retail purposes, 10 million are for work purposes, and 90% are local trips that originate or finish in San Diego County or the Tijuana-Tecate region (SANDAG 2005: 2). Roughly 71% of northbound border crossers surveyed by SANDAG lived in Mexico, and 29% in the United States (SANDAG 2005a).

SANDAG's data on the number of crossings are for both northbound and southbound crossings. The following data from the U.S. Department of Transportation (DOT) show the trends in the number of *northbound* personal vehicle crossings at the three regional ports of entry from 1997–2003. Crossings declined in 2001 due to increased security after the September 11th, 2001, terrorist attacks in New York City and Washington, D.C.—waits for vehicles and pedestrians became significantly longer, often reaching two hours or more. This situation discouraged many residents of San Diego and TTPR from crossing the border. However, despite continued security measures, crossings increased again in 2002 and 2003 in the San Diego County-Baja California region. Border-wide rates, however, decreased in 2003.

Table 12.1. Northbound Personal Vehicle Crossings, by Year, in Millions

Port of Entry	1997	1998	1999	2000	2001	2002	2003
San Ysidro	13.2	14.5	15.3	14.1	15.0	16.4	17.4
Otay Mesa	3.8	4.3	4.5	4.8	4.0	4.1	4.9
Tecate	1.0	1.0	1.2	1.2	1.1	1.2	1.3
Regional Total	18.1	19.8	21.0	20.1	20.1	21.8	23.6
U.S.-Mexican Border Total	80.1	83.9	89.5	91.2	89.5	89.8	88.1
Region as Percentage of U.S.-Mexican Border	22.6%	23.6%	23.4%	22.1%	22.5%	24.2%	26.8%

Source: U.S. DOT Table 8, BTS based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database

In 2003, there were 17,408,481 personal vehicle crossings at San Ysidro, 4,912,899 at Otay Mesa, and 1,284,525 at Tecate. This represented a 9.4% increase at San Ysidro, an 8.4% increase at Otay Mesa, and a 9.2% increase at Tecate. The regional total continues to represent an increasing percentage of total crossings along the entire U.S.-Mexican border. In other words, crossings at these three ports of entry are increasing at a faster rate than in other areas along the border.

The total number of people crossing the border has also increased in recent years.

Table 12.2. Northbound People Crossing the Border, by Year, in Millions

Port of Entry	1997	1998	1999	2000	2001	2002	2003
San Ysidro	37.0	39.6	42.0	39.4	45.3	45.3	48.7
Otay Mesa	9.2	10.4	10.9	12.2	9.9	11.3	12.8
Tecate	3.4	3.2	3.3	3.7	2.5	2.8	3.2
Regional Total	49.6	53.3	56.2	55.2	57.7	59.4	64.7
U.S.-Mexican Border Total	261.1	274.1	293.1	290.4	264.0	253.2	246.0
Region as Percentage of U.S.-Mexican Border	19.0%	19.4%	19.2%	19.0%	21.9%	23.5%	26.3%

Source: U.S. DOT Tables 7, 9, 11, and 12, BTS based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.
Note: This includes all people arriving in passenger vehicles, buses, and trains, and as pedestrians. Those arriving by train are included with the San Ysidro figures.

The number of individual persons crossing in 2003 represented a 9.3% increase at San Ysidro, an 8.8% increase at Otay Mesa, and an 8.8% increase at Tecate. The same holds true for individual persons crossing as does for personal vehicle crossings—regional crossings continue to represent an increasing percentage of border-wide crossings, meaning that rates of crossing in this region are growing higher than elsewhere on the border.

Frequency of Crossing

Despite the large number of border crosses each year between San Diego and TTPR, only a small percentage crosses the border on a regular basis. About 60% of San Diego-TTPR Survey respondents, or 600 individuals, reported crossing the U.S.-Mexican border for various reasons, but only 13% of San Diegans surveyed cross at least monthly, while 73% indicated they cross less than several times per year. In the TTPR region, 44% of respondents said they never cross the border, but those who do cross more often, with 24% indicating that they cross at least once per week.

Table 12.3. Frequency of Respondents Crossing the Border

Frequency	San Diego	TTPR	Tijuana	Tecate	Rosarito
Every Day	<1%	3%	3%	3%	3%
Several/Week	1%	9%	11%	5%	5%
Once a Week	1%	11%	12%	12%	7%
Few/Month	5%	11%	10%	16%	12%
Once a Month	5%	9%	8%	13%	7%
Several/Year	15%	6%	7%	7%	4%
Less Often	33%	6%	7%	5%	6%
Never	40%	43%	41%	38%	57%
Don't Know	<1%	1%	1%	0%	0%

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

While residents of Tijuana, Tecate, and Playas de Rosarito cross with greater frequency than their San Diego counterparts, a slightly smaller percentage of the overall TTPR population crosses.

While the 2002 San Diego-TTPR Survey interviewed both border crossers and non-border crossers, the SANDAG study interviewed border crossers only. Of those who do cross the border, the majority cross 2–5 times per month, both crossers from the United States and Mexico. Higher numbers of Mexican crossers made the trip more frequently than that, while more U.S. residents crossed only occasionally (SANDAG 2005a).

Reasons for Crossing

Crossing the border has become a routine necessity for many people from both sides of the border. People cross for access to shopping, employment, education, health care services, and entertainment. They also cross for business and to work and for visits with family and friends.

Survey data show that half of San Diegans surveyed cross the border for recreation and 19% for vacation, which are occasional activities rather than activities that would be done on a regular basis. In contrast, over three-quarters of respondents in Tijuana, Tecate, and Rosarito said they crossed the border for shopping or gas,[vi] activities that would occur on a regular basis, but not every day. This difference partially accounts for the greater frequency of crossing by residents of Tijuana, Tecate, and Rosarito. It should be noted that some percentage of Mexicans crossers state that they go to San Diego for shopping

or to visit friends or relatives, but actually are employed in the San Diego region without work permits. Thus, they are hesitant to report work as the reason for crossing into the United States.

Surprisingly, only 3% of respondents in San Diego County crossed the border for business appointments and 1% for work. Tijuana, Tecate, and Playas de Rosarito also had small numbers crossing for business appointments—5%, 12%, and 7%, respectively, as well as for work—9% in Tijuana, 8% in Tecate, and 10% in Playas de Rosarito). Mexican data suggest that 7.3% of the economically active population of Tijuana is employed in the United States in 2000, and these people commute regularly. They account for approximately 33,000 regular border crossers (INEGI Censo General 2000; INEGI Encuesta Nacional de Empleo Urbano).

In San Diego, a number of "other" responses were given for crossing the border. The 51 respondents who crossed the border for "other" reasons gave a variety of reasons. Eight people went to take guests for a visit or to send money to family members. Seven crossed the border for charity, missionary, or humanitarian reasons, while seven sought medical services. Five needed auto repair, four others had property concerns, three wanted to gamble, two went to see family, and two went to church.

Tables 12.4 and 12.5 provide information from the survey on why people cross or do not cross the border.

Table 12.4 Purposes for Crossing the Border

Purpose	San Diego	TTPR	Tijuana	Tecate	Rosarito
Shopping/Gas	26%	78%	78%	76%	83%
Medical Treatment	7%	5%	5%	1%	9%
Business/Appointments	3%	6%	5%	12%	7%
Work	1%	9%	9%	8%	10%
Vacation	19%	4%	4%	9%	0%
Recreation	50%	10%	12%	3%	10%
Study/School	0%	3%	3%	2%	0%
Friends/Family	16%	33%	34%	23%	40%
Postal Services	<1%	0%	0%	0%	0%
Airport Services	1%	1%	1%	0%	0%
Phone Services	0%	<1%	1%	0%	0%
Other	8%	<1%	1%	0%	0%
No Response	<1%	2%	2%	1%	1%
Total Respondents	600	576	413	93	70
Total Responses	784	860	625	124	111

Percentages may not total 100% due to multiple responses.
Source: SD-TTPR Survey.

Most residents in Tijuana, Tecate, and Playas de Rosarito who do not cross the border are unable to do so because they lack a passport. Obtaining a Mexican passport requires a certain amount of effort and expenses for Mexican citizens. Even more important, U.S.

visa requirements are quite stringent and include documentation of a bank account, proof of employment and salary, a background check, and a face-to-face interview. Thus, most residents of TTPR cannot obtain a U.S. visa. In San Diego, only 4% of non-crossers reported this obstacle for crossing into Mexico. Since there is no visa inspection entering Mexico, it is likely that some of these individuals may be in the United States without a valid U.S. visa and thus would not cross into Mexico due to concerns about being unable to cross back into the United States.

Seventy-one San Diego respondents gave "other" reasons for not crossing the border, some of whom noted more than one reason. Thirty-eight respondents did not cross because of a negative impression of the TTPR region. Twenty-three mentioned personal safety as a reason for not traveling, while nine people cited concerns about Mexican government officials. Five people were worried about sanitation and disease, while nine people did not cross due to the traffic, the potential for accidents, and long wait times on the return to the United States. Six people cited reasons related to terrorism and the September 11, 2001, attacks for not traveling. Three gave legal reasons, such as being on parole or not being a citizen of the United States. Finally, eight had health reasons, such as age or disabilities, four had concerns about travel distance and transportation, while three cited financial concerns for not traveling. While these numbers are not statistically significant in the overall sample number, these cases do reveal the range of motives for San Diegans not crossing the border into Mexico.

Table 12.5. Reasons for Not Crossing the Border

Reason	San Diego	TTPR	Tijuana	Tecate	Rosarito
No Need/Interest	59%	8%	8%	4%	10%
No Passport	4%	87%	86%	86%	88%
Crime	16%	0%	0%	0%	0%
Long Wait Time	3%	1%	2%	0%	0%
Other	18%	<1%	<1%	0%	0%
No Response	0%	4%	4%	11%	2%
Total Respondents	400	444	293	57	94

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

Data from the SANDAG study complements survey data regarding reasons for crossing the border. Because the SANDAG study interviewed about 3,600 *border crossers,* their data differ slightly from survey data; their categories were also less specific. They found that 63% Mexican crossers cited shopping or errands as their primary reason for crossing, followed by work or business (17.1%), and visiting friends or family (5.9%). Regarding U.S. crossers, 55.7% crossed to visit friends or family, 12.7% for shopping or errands, 9.1% for work or business, and 8.9% for recreation or vacation (SANDAG 2005a).

Border Wait Times

Survey respondents reported relatively low satisfaction with border wait times, especially in Tijuana, where 81% were very or somewhat dissatisfied, and in Playas de Rosarito, where 80% said the same. While the long wait time was rarely cited as a reason for not

crossing the border, many respondents, especially those on the Mexican side, said they would cross more if wait times could be shortened.

Table 12.6. Satisfaction with Usual Northbound Wait Times at U.S.-Mexican Border

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very Satisfied	17%	5%	5%	9%	0%
Somewhat Satisfied	31%	16%	12%	30%	19%
Somewhat Dissatisfied	20%	22%	19%	32%	24%
Very Dissatisfied	28%	55%	62%	25%	56%
Don't Know	5%	3%	3%	4%	1%
Total Respondents	600	576	413	93	70

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

Survey results show that those who crossed the border more frequently would cross even more if wait times were reduced, while those who crossed sporadically would not necessarily cross more often. In San Diego, 39% of the respondents said they would cross more often, only 27% of those who crossed "less often" would cross more, while 62% of those crossing once per month or more would cross more with shorter waiting times. In the TTPR region, with the exception of those who crossed "less often," respondents across the board said they would cross more often with reduced waiting times.

Table 12.7. Survey Results: Would you cross more often if northbound wait times were reduced to twenty minutes?

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Yes	39%	72%	78%	52%	66%
No	59%	23%	18%	39%	30%
Don't Know	2%	5%	4%	10%	4%
Total Respondents	600	576	413	93	70

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

Table 12.8. Percent, By Crossing Frequency, of Those Who Would Cross More Often if Border Wait Times Were Reduced to 20 Minutes

Crossing Frequency	San Diego	TTPR
Every Day	67%	64%
Several times per week	73%	78%
Once a week	67%	76%
A few times per month	57%	78%
Once a month	64%	79%
Several times per year	46%	71%
Less often [than what?]	27%	44%
Total	39%	72%

Table indicates the number of "yes" responses to the question of whether respondents would cross more often if wait times were reduced to 20 minutes, with respondents broken into categories of crossing frequency before a percent is calculated. "TTPR" is a numerical aggregate of Tijuana, Tecate, and Playas de Rosarito; thus, Tijuana, having more respondents, carries more weight.
Source: SD-TTPR Survey.

The SANDAG study focused on the economic impact of increased border wait times, particularly since September 11, 2001. The average wait time is 45–60 minutes, according to their data, with wait times climbing much higher on weekends, holidays, and during rush hours. Increased wait times and the resulting "impaired movement of workers reduces spending and productivity on both sides of the border" (SANDAG 2005: 8). San Diego County loses over 8 million trips a year due to long wait times that discourage people from crossing, as indicated in the SD-TTPR survey as well. These lost trips could result in $1.28 billion in additional revenue for San Diego—primarily effecting the retail sector—after adjusting for revenue gains because of forgone trips to Mexico (SANDAG 2005: 2). Baja California loses 2 million trips a year, which could bring in $120 million in additional revenue that would primarily impact the retail and food and lodging sectors (SANDAG 2005: 4).

In addition to potential lost revenue, millions of work hours and productivity are wasted due to border waits. San Diegans waste over 3 million potential working hours due to border waits, which could mean as much as $42 million in wages lost (SANDAG 2005: 2). Baja Californians lose over a half a million working hours, or over $10 million in possible productivity loss (4). Although the absolute numbers of the impact on the Mexican side are smaller, the overall economic impact could be more devastating for Baja California than for San Diego when comparing the relative size and scope of their economies.

More dramatic data result after accounting for the indirect and induced impact of revenue losses on both sides of the border. SANDAG calculates that the overall economic impact is more than $2.2 billion in production losses, or 1.2% of San Diego County's total regional product. Additionally, over 31,000 jobs, or 1.7% of the county's labor force, are also lost, mainly in the retail sector (2005: 3). When these considerations are taken into account for Baja California, the productions losses amount to $170 million, or 2% of the total regional output, and 1,300 jobs lost, primarily from food and lodging sectors (SANDAG 2005: 5).

The future looks bleak if the steady growth in border crossings and the increase of wait times continue. Delays longer than the current average of 45 to 60 minutes are predicted to generate significantly larger losses (SANDAG 2005: 8).

Border Communication

An important element of a binational community is the ability of residents to communicate with each other. Unfortunately, cross-border communication through telephone and fax has not yet become as seamless as might be expected within the NAFTA region. Only 23% of San Diego respondents to the survey ever make a phone call or fax across the border. However, the percentage of crossborder users of telephone and fax is nearly twice as high for the TTPR region—55% in Tijuana, 47% Tecate, and 50% in Playas de Rosarito.

Table 12.9. Frequency of Telephoning of Faxing Across the Border

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Every Day	1%	3%	3%	1%	2%
Several Times/week	2%	8%	10%	3%	6%
About Once a Week	3%	6%	6%	3%	6%
Few Times/Month	4%	10%	9%	13%	10%
About Once a Month	3%	7%	7%	7%	7%
Several Times/Year	4%	6%	6%	9%	4%
Less Often	6%	14%	14%	11%	17%
Never	77%	46%	44%	52%	49%
Don't Know	<1%	<1%	1%	0%	0%

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

Among those who do communicate across the border, satisfaction with the cost and quality of the call is moderate, with residents of TTPR expressing slightly more satisfaction. With respect to the cost of a call, 43% of San Diegans were either somewhat or very dissatisfied; the corresponding figures were higher in TTPR—54% in Tijuana, 66% in Tecate, and 68% in Playas de Rosarito. Clearly, NAFTA has not brought sufficient competition and lower rates for telecommunication services across the border between Baja California and San Diego.

Table 12.10. Satisfaction of Cost of Calls across the Border

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very Satisfied	13%	7%	8%	6%	2%
Somewhat Satisfied	38%	32%	33%	27%	29%
Somewhat Dissatisfied	25%	28%	24%	33%	44%
Very Dissatisfied	18%	30%	30%	33%	24%
Don't Know	7%	4%	5%	2%	2%
Total Respondents	171	404	294	55	55

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

Despite the high cost of calls, residents were generally satisfied with the quality. Seventy-six percent of San Diegans surveyed were very or somewhat satisfied with the quality, while 83% of those surveyed in Tijuana, 86% in Tecate, and 87% Playas de Rosarito were also satisfied.

Table 12.11. Satisfaction with Quality of Service for Crossborder Telephone Calls

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Very Satisfied	26%	46%	51%	20%	47%
Somewhat Satisfied	50%	38%	32%	66%	40%
Somewhat Dissatisfied	17%	8%	8%	13%	7%
Very Dissatisfied	5%	6%	8%	0%	4%
Don't Know	2%	2%	2%	2%	2%
Total Respondents	171	404	294	55	55

Source: SD-TTPR Survey.
Percentages may not total 100% due to rounding.

Language

Adequate telecommunications services are obviously important to the residents of a binational region. An important indicator of whether such a region can successfully integrate is the degree to which residents on each side speak a common language. In this survey, residents were asked to identify their native language, as well as any language(s) subsequently learned. As might be expected, English and Spanish are by far the most prevalent languages in the region. It should be noted, however, that this survey was only given in English and Spanish.

Table 12.12. Native Languages

	San Diego	TTPR	Tijuana	Tecate	Rosarito
English	80%	1%	1%	1%	2%
Spanish	13%	98%	98%	98%	97%
Vietnamese	1%	0%	0%	0%	0%
Chinese	1%	0%	0%	0%	0%
Tagalog	1%	0%	0%	0%	0%
Farsi	<1%	0%	0%	0%	0%
Other	4%	<1%	<1%	0%	1%
Nahuatl	0%	<1%	<1%	0%	0%
Mixteco	0%	<1%	0%	0%	1%
Don't Know	<1%	<1%	<1%	1%	0%

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey

San Diegans know a surprisingly large number of second languages; in the survey, 18% spoke Spanish as a second language, 16% spoke English as a second language, and 11% spoke yet a different second language. TTPR respondents' primary second language was English; 23% of respondents in the region reported it as their second language. Overall, a smaller percentage of TTPR respondents spoke more than one language than San Diegans surveyed.

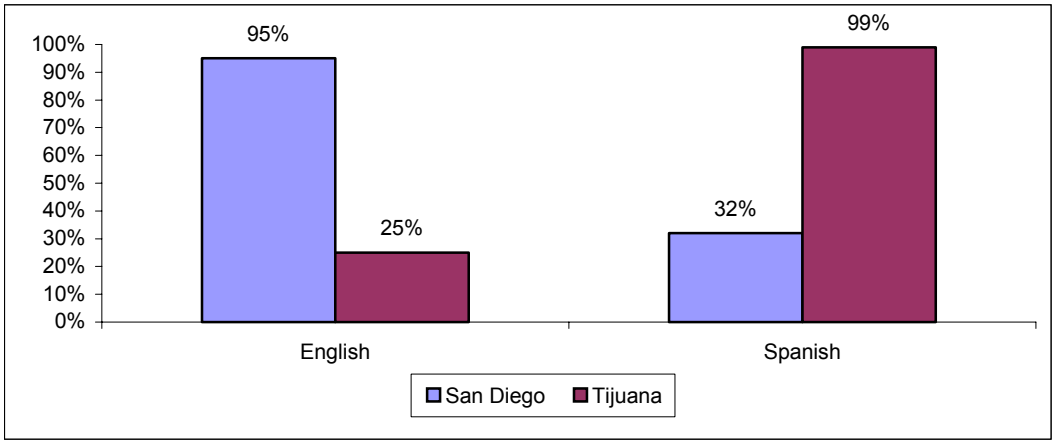
Table 12.13. Second Language(s) Spoken

	San Diego	TTPR	Tijuana	Tecate	Rosarito
English	16%	23%	26%	17%	21%
Spanish	18%	1%	1%	1%	2%
Vietnamese	<1%	0%	0%	0%	0%
Chinese	<1%	0%	0%	0%	0%
Tagalog	1%	0%	0%	0%	0%
Other	10%	1%	1%	0%	2%
Nahuatl	0%	<1%	<1%	0%	0%
Mixteco	0%	<1%	<1%	1%	0%
None	60%	73%	71%	81%	77%
Don't Know	3%	2%	3%	1%	0%
Total Responses	1063	1015	699	148	167

Percentages may not total 100% due to multiple responses.
Source: SD-TTPR Survey.

It is also possible, based on survey results, to estimate the number of respondents in each region who can speak Spanish and English. In San Diego County, 95% of respondents could speak English and 32% could speak Spanish; a total of 25% reported that they could speak both. In the TTPR region, 99% said they could speak Spanish, 25% said they could speak English, and 24% reported speaking both.[vii] It should be noted again that the survey was only administered to a persons over 18 years of age.

Figure 12.1. Language Convergence in San Diego County and the TTPR Region



Source: SD-TTPR Survey.

As figure 12.1 indicates, despite significant language barriers that still exist, a sizable minority on each side of the border can take full advantage of the binational possibilities of the region.

The U.S. Census collected data in 1990 and 2000 on language spoken in San Diego County. For 2000, only 11% of residents in San Diego County reported they could speak both English and Spanish. This contrasts with the 25% reported in the 2002 San Diego-TTPR Survey. The discrepancy is likely due to the fact that the San Diego-TTPR Survey collected data on only one person, 18 years or older, from each household contacted, and did not obtain information about additional household members.

Table 12.14. Languages Spoken in San Diego County, 1990–2000

	1990	2000
English Only	75%	67%
Spanish Only	8%	10%
English and Spanish	8%	11%
Total English (English only + bilingual)	89%	85%
Total Spanish (Spanish only + bilingual)	16%	22%
Neither English nor Spanish	4%	5%

Source: U.S. Census.
Note: "Total English" includes those, in addition to "English Only" and "Spanish and English," who speak English and a language other than Spanish.

The ability to speak the language of the other side of the border was clearly correlated with the frequency with which residents crossed. Nearly half of San Diegans unable to speak Spanish never cross the border, but only 24%t of those who can speak Spanish never cross. Of those who speak Spanish, 28% cross at least once per month, but only 5T of those who cannot speak Spanish do likewise.

Table 12.15. Relationship between Border Crossing Frequency and Language, San Diego

Frequency of Crossing	Speak Spanish	No Spanish	Total
Every Day	1%	0%	<1%
Several times per week	3%	<1%	1%
Once a week	3%	<1%	1%
A few times per month	11%	2%	5%
Once a month	10%	3%	5%
Several times per year	18%	13%	15%
Less often	30%	34%	33%
Never	24%	47%	40%

Source: SD-TTPR Survey.
Percent speaking Spanish calculated by adding those who spoke Spanish as a first language with those who spoke it as an additional language. Percentages may not total 100% due to rounding.

In the TTPR region, over half, 55%, of those who cannot speak English never cross the border, but only 11% of those who do speak English never cross the border. Eighty percent of those speaking English cross at least once per month, as opposed to 31% of those who speak no English. While the correlation between speaking the language of the other side of the border and crossing the border is very strong, it is especially strong for residents of the TTPR region.

Table 12.16. Relationship between Border Crossing Frequency and Language, TTPR

Frequency of Border Crossing	Speak English	No English	Total
Every Day	9%	1%	3%
Several times per week	22%	5%	9%
Once a week	20%	8%	11%
A few times per month	17%	9%	11%
Once a month	12%	8%	9%
Several times per year	5%	7%	6%
Less often	4%	7%	6%
Never	11%	55%	44%

Source: SD-TTPR Survey.
Percent speaking English calculated by adding those who spoke English as a first language with those who spoke it as an additional language. Percentages may not total 100% due to rounding.

Health Care

Different systems of health care across the border provide a range of options for people in the greater San Diego-TTPR region. Survey respondents were asked whether they

crossed the border to obtain health care services, and if so, for what type of health care-related issue. In the survey, health care included the purchase of prescription drugs.

Table 12.17. Survey Results: Do you cross the U.S.-Mexican border to receive health care?

	San Diego	TTPR	Tijuana	Tecate	Rosarito
Yes	10%	13%	13%	15%	10%
No	90%	87%	87%	85%	90%
Don't Know	<1%	<1%	<1%	0%	1%
"Yes" Responses	139	133	95	22	16

Percentages may not total 100% due to rounding.
Source: SD-TTPR Survey.

A significant minority of respondents on both sides of the border crosses to receive medical care, although reported reasons varied for respondents from San Diego and the TTPR. San Diegans surveyed reported seeking lower cost dental care and prescription and non-prescription drugs in Tijuana.

In fact, a large pharmaceuticals market catering to Americans has developed in Baja California. Many of the purchases are made by cost-conscious elderly seeking alternatives to the high pharmaceutical costs in the United States. These are usually purchased with cash or through some health care plans that provide coverage on both sides of the border (Millman 2002).

TTPR residents primarily reported seeking general medical care in San Diego, although many also mentioned acquiring medications. In the TTPR region, a number of respondents gave "other" reasons for crossing the border to receive health care. Six indicated childbirth as a reason, while another four gave other reasons related to pregnancy. Five more crossed the border for vaccinations, and three others for surgery.

Table 12.18. Health Care Received When Crossing the Border

	San Diego	TTPR	Tijuana	Tecate	Rosarito
General Medical Care	29%	66%	64%	64%	81%
Dental Care	41%	8%	8%	0%	19%
Eye Care	9%	5%	4%	5%	6%
Medications	54%	23%	19%	27%	38%
Unavailable Treatments	1%	8%	8%	0%	13%
Alternative Medicines	3%	2%	2%	0%	6%
Other	1%	15%	18%	5%	13%
Don't Know	1%	4%	4%	5%	0%
Total Respondents	102	133	95	22	16
Total Responses	139	168	118	22	28

Percentages may exceed 100% due to multiple responses.
Source: SD-TTPR Survey.

The cross-border nature of health care is now addressed by insurance companies on both sides of the border. In 2000, Mexican managed care company Sistemas Médicos Nacionales became one of the first companies to receive a license to operate in California (*San Diego Union-Tribune* Feb. 22, 2000). Since then, crossborder health care has become more common, and the three largest providers in the region are SIMNSA, Bule Shield of California/Access Baja, and Health Net of California (*San Diego Union-Tribune* Oct. 16, 2005). The availability of cross-border health care allows American employers to offer a greater variety of compensation packages to their Mexican employees. For example, one plan under Blue Shield offers coverage for the employee in the United States and for the family in Mexico. The covered employee can also access care in Mexico and the family can access specialists in the United States that are not available in Mexico (*San Diego Union-Tribune* Feb. 22, 2000).

Enrollment in these plans has skyrocketed since 2001. Health Net of California currently has the most members, 19,000, a number that has more than doubled since 2001. SIMNSA had just over 8,000 members in 2001, and had 14,485 in 2005. Blue Shield/Access Baja has fewer members, but the highest growth rate—3,118 members in 2005, up from about 500 in 2001 (*San Diego Union-Tribune* Oct. 16, 2005).

Down the line, these programs could be extended to cover other prospective clients. Roughly 250,000 American citizens cross from the San Diego region into Baja California annually to acquire discounted health treatment; the availability of cross-border insurance will regularize a now largely cash-based industry. As health care has long been recognized as a potential beneficiary of cross-border collaboration, the results now seem imminent (Millman 2000).

Summary

Border crossings at the three regional ports of entry (POE)—San Ysidro, Otay Mesa, and Tecate—declined slightly after September 11, 2001, due to increased security, but border traffic has increased again since. A 2004-2005 SANDAG study estimates that the three ports of entry are crossed 60 million times annually, counting crossings in both directions. According the San Diego-TTPR Survey, about 60% of San Diegans surveyed and 56% of TTPR respondents cross the border, but TTPR crossers do so more frequently than San Diego crossers. The SANDAG study reports that the average border crosser, from either the United States or Mexico, crosses 2–5 times per week, with other Mexican nationals crossing more and U.S. nationals crossing less. Part of reason for the higher frequency of crossings by TTPR residents is that TTPR respondents reported crossing for gas, shopping, or routine errands that are frequent but not daily excursions. San Diego respondents reported crossing for vacation or recreation, activities that are less frequent. Survey results reported small percentages of respondents reported crossing for work, although this data may not be accurate due to fear of reporting working without a visa in San Diego. The SANDAG study found that almost a fifth of crossers from Mexico cross for work.

Border wait times are steadily increasing, and a majority of survey respondents on both sides of the border were dissatisfied with wait times. Frequent crossers and most TTPR

residents would cross more if wait times were reduced, but only a minority of occasional crossers and San Diego crossers said the same. The SANDAG study estimates that the binational region loses literally billions of dollars in lost production and revenues and millions of work hours each year due to border wait times.

Communication across the border is essential. While there are indications of progress, telecommunications integration within the San Diego-TTPR region remains fairly limited. Language did prove to be somewhat of a barrier to further binational integration. According to the San Diego-TTPR Survey, those who speak the language of the other side of the border tend to cross the border more frequently. One reason that some residents cross the border is to receive health care. While this is currently a minority , new trends involving binational health care plans and other innovations will make this a more accessible option for residents in the future.

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Appendix 1: Survey Description and Methodology

Randomly selected San Diego County residents (who were at least eighteen years of age and residents for one year or more) were administered a survey between October 31 and December 13, 2001. The survey was completed with one thousand telephone interviews (ninety-two of which were in Spanish) conducted by San Diego State University's Social Science Research Laboratory (SSRL). The telephone interviews were conducted from Diego State University's campus and telephone numbers were generated by Scientific Telephone Samples of Santa Ana, California. The telephone numbers were selected from a pool of unlisted, listed, and recently listed San Diego residents. The sampling error for the San Diego study is +/-3.1percent with a confidence of accuracy of 95 percent.

Individuals with busy signals or who did not answer phones were contacted a maximum of three times or until reached for interview. To ensure the accuracy and precision of the data, interviewers were trained in proper survey administration techniques and the survey tested prior to the phone interviews. Interviews in progress were selectively monitored by supervisors and a computerized phone system used to collect data. After the data were collected, the Statistical Package for the Social Sciences was used as the analysis software.

Tijuana, Tecate, and Playas de Rosarito

Though Baja California is one of the most affluent states in Mexico, each of its municipalities should be studied at the micro-level to understand the true quality of life in this relatively young region (Ranfla, et al 2001). Recent studies (Ranfla, et al 2001) have utilized AGEBS (áreas geo-estadísticas básicas) or basic geo-statistical areas to divide each municipality into small sectors based upon socio-economic characteristics. Researchers are able to use this form of organization to determine public opinion in the context of the standard of living (e.g. access to plumbing, literacy rates, number of rooms in each house, etc.) This provides a context for each socio-economic level or group of the fast growing population in the TTPR region. Contextualization is important in the study of this region, where urban infrastructure is challenged to meet the demand of a growing and increasingly stratified population (Ranfla, et al 2001).

In the TTPR region, researchers from the Autonomous University of Baja California divided the region into twenty-nine basic urban geo-statistical areas (AGEBS), based upon thirty-five variables determined by the Instituto Nacional de Estadística Geografía e Informática (INEGI).[viii] The twenty-nine AGEBS were then rated according to this information with (1) indicating a better relative degree of urban socio-economic characteristics and a (5) indicating a lower stratum of the urban community. Fifteen of the twenty-nine AGEBs were randomly selected to represent each level of socio-economic development. Fifty blocks of houses were randomly selected among the fifteen groupings and divided by strata level. Finally, every third household was administered a survey once (a total of three surveys per block) between April and May 2002. If there was not a response at the third household, then the survey would be administered at the

next dwelling and the count recommenced. This pattern continued until three surveys had been answered for the block (total of 150 surveys).

Like the survey administrations in San Diego County, respondents had to be at least eighteen years of age and a resident of the area for at least a year. Tecate, Tijuana, and Playas de Rosarito carried sampling errors of +/-8.0 percent, +/-3.7 percent, and +/-7.6 percent, respectively. All three had a rate of 95 percent confidence in accuracy.

Appendix 2: Quality of Life Indicators Importance Index

Quality of Life Indicators Importance Index

San Diego	1st	2nd	3rd	Total	Index	Percent	Weighted Percent	Rank
Education	23.2	18.8	13.6	55.6	120.8	40%	20%	2
Economy	24.3	19.0	13.9	57.2	124.8	42%	21%	1
Health Care	17.0	17.4	17.9	52.3	103.7	35%	17%	3
Environment	9.1	10.4	12.7	32.2	60.8	20%	10%	6
Public Safety	11.0	14.2	17.5	42.7	78.9	26%	13%	4t
Housing	13.1	13.5	12.6	39.2	78.9	26%	13%	4t
Transportation	2.4	6.7	11.8	20.9	32.4	11%	5%	7
TTPR Region	**1st**	**2nd**	**3rd**	**Total**	**Index**	**Percent**	**Weighted Percent**	**Rank**
Education	40.0	21.8	13.3	75.1	176.9	59%	29%	1
Economy	24.2	26.9	17.5	68.6	143.9	48%	24%	2
Health Care	12.5	17.8	16.1	46.4	89.2	30%	15%	4
Environment	2.2	4.3	8.4	14.9	23.6	8%	4%	6
Public Safety	13.7	18.5	26.0	58.2	104.1	35%	17%	3
Housing	6.0	7.9	14.5	28.4	48.3	16%	8%	5
Transportation	1.4	2.8	4.3	8.5	14.1	5%	2%	7
Tijuana	**1st**	**2nd**	**3rd**	**Total**	**Index**	**Percent**	**Weighted Percent**	**Rank**
Education	38.6	21.2	13.3	73.1	171.5	57%	29%	1
Economy	22.4	26.4	19.1	68.0	139.3	46%	23%	2
Health Care	13.1	17.0	14.9	45.0	88.1	29%	15%	4
Environment	2.3	4.2	7.7	14.2	23.0	8%	4%	6
Public Safety	15.5	20.3	26.9	62.8	114.2	38%	19%	3
Housing	6.6	7.7	12.8	27.2	48.1	16%	8%	5
Transportation	1.4	3.2	5.3	9.9	15.9	5%	3%	7
Playas de Rosarito	**1st**	**2nd**	**3rd**	**Total**	**Index**	**Percent**	**Weighted Percent**	**Rank**
Education	39.8	21.0	16.1	76.9	177.5	59%	30%	1
Economy	30.1	31.5	19.1	80.7	172.3	57%	29%	2
Health Care	9.9	15.4	13.0	38.2	73.3	24%	12%	4
Environment	3.7	6.8	9.9	20.4	34.6	12%	6%	6
Public Safety	7.9	15.4	21.0	44.3	75.6	25%	13%	3
Housing	7.3	8.6	18.5	34.5	57.8	19%	10%	5
Transportation	1.2	1.2	2.4	4.9	8.5	3%	1%	7
Tecate	**1st**	**2nd**	**3rd**	**Total**	**Index**	**Percent**	**Weighted Percent**	**Rank**
Education	46.0	25.6	10.1	81.8	199.4	66%	33%	1
Economy	26.7	23.6	8.8	59.1	136.1	45%	23%	2
Health Care	12.7	24.3	25.0	62.0	111.8	37%	19%	3
Environment	0.0	2.0	10.1	12.2	14.2	5%	2%	6
Public Safety	11.3	13.5	27.7	52.4	88.5	30%	15%	4
Housing	2.0	8.1	17.5	27.6	39.7	13%	7%	5
Transportation	1.3	2.7	0.7	4.7	10.1	3%	2%	7

Quality of Life Index

The preceding table was derived from the survey taken for this study. In administering the survey, a respondent was asked to consider the following quality of life categories: education, the economy, health care, housing, public safety, the environment, and transportation. The respondent was asked to state which indicator, in the respondent's opinion, were the first, second, and third most important for determining quality of life. The survey results were tabulated, and the percentage of respondents assessing a quality of life indicator as first, second, or third most important are listed above in the columns titled "1st," "2nd," and "3rd." Each of these percentages was multiplied by 100 for purposes of this calculation. Next, these percentages were totaled, to see what percentage of respondents considered a given quality of life indicator as one of the three most important for evaluating quality of life; this figure is listed under "Total."

To evaluate which quality of life indicators were most important to the respondents as a whole, it was necessary to calculate an index based on diminishing weights for 1st, 2nd, and 3rd place votes. Therefore, the percentage of respondents who felt a particular indicator was most important was multiplied by three; the percentage of respondents who felt this indicator was second most important was multiplied by two; and the percentage perceiving it as third most important was multiplied by one. These three numbers were totaled to derive an index figure, which could be used to rank respondent perceptions of quality of life indicators. The index figure is listed under the "Index" column. The ranking of importance derived from this figure is listed under the "Rank" column.

For any indicator, there was a total of 300 points that could be received, if all respondents in the survey picked that particular indicator as most important. To see what percentage of possible points an indicator received, the actual index score was divided by 300. The resulting figured is listed under the "Percent" column. This is the primary figure referred to throughout the paper when mention is made of an indicator's importance to respondents.

Finally, a weighed percent column was calculated such that all of the percentages for a particular region totaled 100%. The index scores for all of the indicators in a region were totaled. Each individual index figure was then divided by this total to derive a figure of its relative importance for the region. This figure is listed under the "Weighed Percent" column.

Appendix 3: San Diego State Research Laboratory Methodology

Binational Quality of Life Indicators Survey

(San Diego County, November 2001)

Methodology

This study was administered by San Diego State University's Social Science Research Laboratory (SSRL) on behalf of SDSU's Institute for Regional Studies of the Californias. The data were derived from telephone interviews with randomly selected adults, eighteen years of age or older, who had resided in San Diego County for at least one year. Telephone interviews were completed with one thousand respondents between October 31 and December 13, 2001. A Spanish language version of the survey instrument was administered to 92 respondents or 9% of the total sample. All of the telephone interviews were conducted at SSRL's facility on the campus of San Diego State University from 4:00 to 9:00 p.m. on weekdays, from 12:00 to 5:00 p.m. on Saturdays, and from 1:00 to 6:00 p.m. on Sundays.

The sample of telephone numbers used in this study was generated by ***Scientific Telephone Samples*** of Santa Ana, California, using a random digit selection technique. This technique ensures that unlisted, listed, and recently listed numbers all have an equal probability of inclusion in the sample.

The sampling error associated with a random sample of one thousand respondents from the population of San Diego County adult residents is +/- 3.1%, at a confidence level of 95%. For example, 28% of the respondents feel that the quality of education in their community has improved over the past 12 months (Q2). This means that there is a 95% chance that the true proportion of the population who feel that quality of education in their community has improved over the past 12 months is between 25% and 31% (28% +/- 3.1%). A weighting procedure was used to adjust the sample distributions with respect to the known distributions of age and gender characteristics for the San Diego County adult population. The cooperation rate among participants was 87% (calculated

by comparing the number of complete interviews with the number of completes, the number of interviews terminated in progress and the number of qualified refusals).

Final Disposition Of All Telephone Numbers Attempted

Disconnected/Wrong Number	737
Unusable (Business, Government, FAX/Modem)	1128
Refusal (unable to qualify)	1387
Qualified Refusal	79
Language Barrier	104
Not Qualified (Age or Residence)	154
Call Back	4490
Over Quota	40
Terminated in Progress	69
Completed	1001
Total Numbers Attempted	**9191**

A variety of quality control measures were employed throughout the interviewing and data reduction phases. The survey instrument was thoroughly pilot tested in order to identify any measurement problems. Each interviewer was trained in proper techniques, obtaining respondent participation, accurately recording responses and in the importance of confidentiality. A minimum of three call back attempts were made in the case of a busy signal, an unanswered phone or an answering machine. These call backs were made on different days and at different times to maximize the chance of reaching a randomly selected, eligible respondent. All terminations in the course of an interview were re-attempted at a later date and time. Interviews in progress were selectively and unobtrusively monitored by supervisors. All of the interviews were conducted using a computer assisted telephone interviewing software system that is designed to reduce the possibility of error during the data collection phase. The ***Statistical Package for the Social Sciences*** was the computer software used to perform the data analysis.

Notes

[i] Net-migration is the total number of persons moving to a region minus those moving out.
[ii] Membrane filtration involves the use of a thin membrane to filter water and separate bacteria. The separated substance is then cultured and examined for the gold-green coliform bacteria. Source: Wilkes University Center for Environmental Quality, Geo Environmental Sciences and Engineering Department. 2003. "Total Fecal Coliform Bacteria." Wilkes (cited 29 July), http://wilkes.edu/~eqc/coliform.htm.
[iii] The Most Probable Number technique uses a series of test tubes to test for carbon dioxide gas that is produced by coliform bacteria. The test tubes that produce carbon dioxide after 24 hours at a temperature of 35 degrees Celsius are counted and a statistical analysis used to determine the most probable number of bacteria present. Source: Wilkes University Center for Environmental Quality, Geo Environmental Sciences and Engineering Department. 2003. "Total Fecal Coliform Bacteria." Wilkes (Cited 29 July), http://wilkes.edu/~eqc/coliform.htm.
[iv] However, this methane gas and other gas emissions from the site can be beneficial if harnessed to produce electric energy. This method has been used at facilities across the United States and Mexico, including the Miramar landfill in San Diego County and the Tijuana landfill. Sources: U.S. EPA 2003 and Ganster 2003.
[v] Transfer stations are used on both sides of the border to transfer city, county or municipal solid waste to trucks that carry the garbage to landfills (that are usually far removed from the city).
[vi] The need to purchase gas on the other side of the border can be attributed to the rising cost of Mexican fuel during the first half of 2000 (when the survey was taken). Individuals in Tijuana, Tecate, and Rosarito crossed the border to take advantage of U.S. gas prices. This fact does not apply to the second half of 2000 when the Mexican Federal government set border gas station prices to U.S. levels to avoid losing Mexican customers.
[vii] This was based on a cross-tabulation analysis of survey results for native language and second language.
[viii] These variables include housing quality (e.g. plumbing, structural integrity), literacy levels, and age of population. A complete list with statistical information for Baja California is available at www.inegi.gob.mx/difusion/espanol/niveles/jly/nivbien/variables/bc2.html.