

DECEMBER 2014

TARGETED COMPETITIVE INDUSTRY STUDY

PREPARED FOR THE GOVERNMENT OF THE US VIRGIN ISLANDS



ACKNOWLEDGMENTS

The TIP team acknowledges the strong support and guidance from Governor de Jongh and his team. His personal interest and involvement has helped to make this document especially relevant. In addition, our work was informed by the data and research available through the USVI Bureau of Economic Research and by the insights gained through our meetings with key stakeholders.

We would also like to thank the businesses who took part in the survey conducted as part of this work. Their participation greatly contributed to our understanding of the Territory's workforce, its challenges, and opportunities.



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ABOUT TIP

TIP Strategies, Inc. is a privately held Austin-based economic development consulting firm committed to providing quality solutions for public and private-sector clients. Established in 1995, the firm's primary focus is strategic economic development planning. In addition, TIP has experience with entrepreneurship, target industry analysis, workforce, and redevelopment. TIP's methods establish a clear vision for economic growth. Community leaders across the country have embraced the TIP model of Talent, Innovation, and Place to achieve successful and sustainable economies.

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EXECUTIVE SUMMARY

Economic growth in the United States Virgin Islands (“USVI” and “Territory”) has suffered due to a combination of negative factors over the last several years. Employment and investment in the Territory has been impacted by the 2012 closure of the HOVENSA oil refinery, US Treasury regulations contained in the 2004 Jobs Act, and the ongoing sluggishness in the global economy following the Great Recession. In addition, the Territory continues to face challenges to expanding and diversifying its economic base. In an effort to meet these challenges head-on Governor John P. de Jongh, Jr. has taken the bold step of calling for a comprehensive study of the USVI’s best prospects for recruitment and expansion. TIP Strategies, an economic strategy firm based in Austin, Texas, was selected to assist in this effort. The study’s objective is to identify opportunities for recruiting and developing new businesses that promote both job creation and private investment in the Territory, with an emphasis on St. Croix.

PURPOSE & SCOPE

This document is intended to serve as a roadmap for the USVI in targeting companies and industries for recruitment and expansion. More specifically, TIP was asked to give additional focus on understanding opportunities for promoting investment and employment on St. Croix, which has been severely affected by the refinery’s closure. Nevertheless, with a few exceptions, the recommended industries are broadly applicable to the entire Territory.

The pairing of growth industries to specific development opportunities on St. Croix and elsewhere requires an understanding of the Territory’s competitive advantages as well as the barriers to growth. The targeting process is also informed by existing economic development efforts. The Virgin Islands Economic Development Authority (“VIEDA”) is engaged in business recruitment and has an established track record in this area. In conjunction with this study, the USVI is also preparing an updated Comprehensive Economic Development Strategy (“CEDS”), which will identify funding priorities for the next five years. This target industry study is a separate exercise, but will need to be weighed against the opportunities and threats identified by the CEDS and aligned with priority projects identified by the planning process.

The report is divided into two sections. The first section provides a broad overview of factors that influence the USVI’s competitive position regarding corporate investment. The focus is on four areas: workforce and education, infrastructure, regulatory environment, and quality of life. The second section outlines the recommended targets and includes a discussion of constraints and strategic recommendations for support of the targeted sectors. In addition, a summary of findings from an employer survey is provided as Appendix A.

APPROACH

Target industry studies do not exist in a vacuum. They rely on an understanding of the opportunities and barriers unique to the Territory and to the cycles of the national economy. By design, they are action-oriented. They identify specific industries suitable for recruitment and expansion and provide specific guidance for leveraging assets and addressing challenges. Success is measured by knowing what industries can—and will—thrive in the US Virgin Islands.

All target industry studies require a methodology: “Why these industries and not others?” TIP’s approach takes three things into consideration:

- 1. Legacy industries and the existing business base.** Fundamental to an understanding of how to attract new industry is an appreciation for what the current business structure looks like. This can be arrived at in two ways: first, by looking at what the companies do; and second, by the composition of the workforce (what the people do). For the USVI, the dominant industry base is tourism, as illustrated by employment concentrations shown in Figure 1. The most significant legacy business is the HOVENSA refinery. Tourism and the influence of the oil refinery will continue to dominate the USVI and heavily influence what new industries can be attracted. This is true primarily because of the composition of the workforce. New development options for Class A office and tech districts may also compete with tourism for land and infrastructure.
- 2. National growth industries.** Every region of the country feels the effects of industry growth, whether or not they can attract those industries themselves. This is true because growth industries draw investment dollars and they draw workers. We examine national trends for these reasons and also because they may present specific opportunities for the USVI. At the same time, national trends must be tempered by an understanding of the suitability of high-growth industries to a targeted marketing effort. Many of the industries with the strongest job growth nationally are population-driven and offer little in the way of lasting economic impact. Retail trade, for example, is an important amenity for residents and an essential part of a tourism strategy, but offers little in the way of wages and career advancement. Construction provides higher-wage opportunities, but impacts tend to be much shorter-lived and employment in the industry is highly cyclical. Healthcare-related industries offer both

FIGURE 1. USVI EMPLOYMENT CONCENTRATIONS

Top 15 location quotients (for industries at the 4-digit NAICS level employment at least 100 workers in 2013)

NAICS Code	Description	2013 Jobs	Chg. from 2008	2013 LQs (US = 1.00)	2013 Avg. Earnings Per Job	2013 Est.
4483	Jewelry, Luggage, and Leather Goods Stores	959	▼	25.46	\$35,925	134
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	229	▼	21.14	\$43,373	16
7211	Traveler Accommodation	3,411	▼	6.95	\$31,639	52
8113	Comm./Ind. Mach. & Equip. Repair & Maint. (exc. Auto/Electronic)	344	▼	6.47	\$46,354	24
7132	Gambling Industries	233	▲	6.23	\$25,230	6
3241	Petroleum and Coal Products Manufacturing	178	▼	5.73	\$243,144	2
7121	Museums, Historical Sites, and Similar Institutions	190	▲	4.93	\$19,923	12
3121	Beverage Manufacturing	230	▲	4.60	\$56,306	13
5321	Automotive Equipment Rental and Leasing	209	▲	4.17	\$30,704	30
4247	Petroleum and Petroleum Products Merchant Wholesalers	110	▲	4.14	\$194,529	6
4881	Support Activities for Air Transportation	172	▼	3.79	\$18,695	7
5171	Wired Telecommunications Carriers	556	▲	3.44	\$60,187	10
4532	Office Supplies, Stationery, and Gift Stores	283	▼	3.43	\$23,578	38
3273	Cement and Concrete Product Manufacturing	156	▼	3.30	\$50,577	6
5616	Investigation and Security Services	710	▼	3.03	\$15,965	30
6111	Elementary and Secondary Schools (Private)	773	▼	2.90	\$27,417	35

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

higher-wage and longer-lasting impacts. However, the healthcare sector does not lend itself to traditional recruitment strategies. For these reasons, retail, construction, and healthcare are not among the target sectors, despite their importance to the USVI economy and strong growth nationally. Rather, our focus for this work is on opportunities provided by export-driven industries which are growing on the national level, fit within a target marketing framework, and offer the best prospects for long-term employment and wage growth.

3. Emerging industries. Neither legacy businesses nor national growth industries provide a complete picture for targeting new recruitment and growth prospects. The reasons for this have everything to do with the speed at which new technologies are finding their way into the business mainstream. The challenge with incorporating emerging industries and technologies into the analysis is the difficulty in anticipating which industries/technologies will succeed and how long they will last. There is also the trap of chasing the “new thing” along with every other community, with little prospect for anchoring meaningful long-term investment. Such has been the case in recent years with Biotech and Alternative Energy. Nevertheless, every region of the country needs to be attuned to the potential represented by new and emerging technologies. Moreover, they must be aware the education and skills that employers in these sectors will require.

FINDINGS

Clearly, the closing of the refinery represents a singular challenge that the USVI must overcome. Here, the options are stark: attract a new operator for the refinery or face the prospect of an underutilized asset that may lay fallow for years as the Territory attempts to attract new businesses and diversify its economic base. The announcement of a tentative operating agreement to purchase the refinery is welcome news. As structured, the deal would provide a much-needed boost to the USVI economy generally and to St. Croix specifically. However, even the most ambitious timeline would still mean many months before the facility is operational and the projected hires are in place.

Beyond the challenge associated with the refinery, the study points to other barriers to corporate investment for St. Croix and for the USVI as a whole. Some of the findings will not come as a surprise, foremost among them being the USVI workforce and education issues. The business survey (presented as Appendix A), highlights other important considerations as well:

- access (and costs) associated with travel to the USVI
- lack of governmental coordination
- electricity costs
- regulatory environment

More broadly, *Site Selection* magazine surveys CEOs and site selectors to determine the most important factors in business expansion and relocation. Over the last decade, two themes have consistently traded places at the top of the chart: workforce and transportation access. In both these areas, the USVI faces significant challenges. The implications for a target industry study are clear enough: there are long-term systemic issues that must be addressed in order to seize the most rewarding business opportunities. And by “most rewarding” we mean those industry sectors that create jobs, pay higher wages, and make significant capital investment. In addition, hiring resident

workers would certainly benefit the local economy. Yet this additional goal needs to take into consideration the dynamics of education and workforce in the USVI.

These issues argue for identifying target industries according to short- and long-term needs and likelihood of success. There are sectors which would fit well into the USVI but require major improvements to the education and workforce system, to utility rate structures, and to transportation costs. At the same time, economic development cannot focus only on the long term. The challenge of identifying target industries centers on what can be done over the next 15 months, closing out 2014 and looking towards the beginning of 2016. While taking steps to reopen the oil refinery is a top priority, there are additional business opportunities that are realistic within that time frame that can take advantage of the available workforce.

In addition to tourism, there are higher value-added sectors that span a broad range of NAICS codes. These include Financial Services, Information Technology, and Agribusiness. Finally, there are traditional industry opportunities such as Manufacturing and Transportation & Logistics that the USVI should continue to pursue.

PRIORITY FINDINGS & RECOMMENDATIONS

- Alternative energy was not included in the final list of target industries due primarily to the difficulty in recruiting employers in this sector. Most of the employment growth in this sector is classified under Scientific and Technical Consulting Services as well as Power and Communications Line and Related Structures Construction. In addition, renewable energy power generation companies that are attracted to the island will likely require a Power Purchasing Agreement (“PPA”) with the USVI Water and Power Authority (“WAPA”), which can only support a limited number of such agreements. Therefore, rather than trying to recruit companies in these sectors using traditional methods, the USVI should continue working to incorporate renewables and alternatives into the Territory’s energy sourcing portfolio as laid out in the USVI Energy Road Map.

FIGURE 2. TARGET INDUSTRY OVERVIEW

Employment in the target sector (as defined) and assigned priority

Target Sector	Estimated USVI Employment*		Priority			Timeframe		
	2008	2013	Low	Med.	High	Short	Med.	Long
Financial Services	686	605			■	■		
Business Process Outsourcing (BPO)	212	264		■		■		
High-value Manufacturing**	1,497	183		■	■	■	■	
Transportation & Logistics	895	742			■			■
Information Technology	643	711			■	■		
Agribusiness	325	329			■	■		
Tourism	4,620	4,008			■	■		

Source: TIP Strategies, EMSI’s Covered Employment 2014.1. *Figures reflect employment in the 4-digit NAICS industries corresponding to the targets as defined in later sections of this report. **Separate priorities and timeframes are defined for petroleum and coal products manufacturing versus other segments.

- Information Technology training should be a top priority of workforce development and education efforts in the USVI. It is critical not only to support the development of the IT sector, but industries across the board. Digital literacy is now a basic requirement for most every high wage job and is a realistic pathway for USVI residents to achieve a higher standard of living.
- The refinery closure exposed the need to diversify the Territory's economy and reduce dependence on refining for high-value manufacturing employment. Achieving some degree of diversification will require long-term efforts to bring down the cost of energy and improve the education and skill levels of the workforce.
- The Territory should continue efforts to seek federal and private funding to develop a large international transshipment port on St. Croix. Securing federal grant funding to pay for a feasibility study and master plan is the immediate priority. The results of these reports will determine the level and possible sources of funding required to develop the port's infrastructure. Indeed, the 2014 CEDS Update identified the St. Croix Transshipment Port Facility as the Territory's primary funding priority for the near future.
- St. Croix should continue to develop more specialized tourism products that appeal to overnight visitors, including adventure, ecotourism, arts and culture, sports, and festivals and events. In addition, VIEDA should work with the USVI Department of Tourism to more closely align its convention and meeting strategy to targeted industry sectors, associations, and occupations. This brings executives and people who fit talent needs to the Territory and exposes them to the USVI's amenities.
- Promote specialty foods and micro-batch luxury items such as craft rum to capture premium prices. These products would also tie in well with tourism as they could be souvenir items for visitors to purchase and would provide more variety in the local foods marketplace.

CONCLUSION

It is a tribute to the economic development leadership of the USVI that the closure of HOVENSA has not had an even more devastating effect on the Territory's economy. Consistent efforts to move beyond tourism and the refinery have been a hallmark of the current administration. Nevertheless, economic development in the USVI faces daunting challenges. A target industry recruitment strategy is a necessary component of any comprehensive approach, but its success remains dependent on addressing systemic issues of competitiveness. Foremost among these issues is the workforce. All sectors of the economy—even tourism—are becoming more technology-intensive. As an immediate consequence, the required education level of workers is increasing. When businesses make location decisions, the education and skill levels of the employment base are paramount.

ECONOMIC PROFILE

To help document the USVI’s competitive advantages and understand barriers and challenges, we began by compiling existing economic and demographic information. To avoid duplication of effort, much of the data presented here draws on the wealth of data resources available through the USVI Bureau of Economic Research (“BER”), as well as findings from prior studies.¹ Where there was value in updating or enhancing this information, the team conducted additional analyses.

ECONOMIC INDICATORS

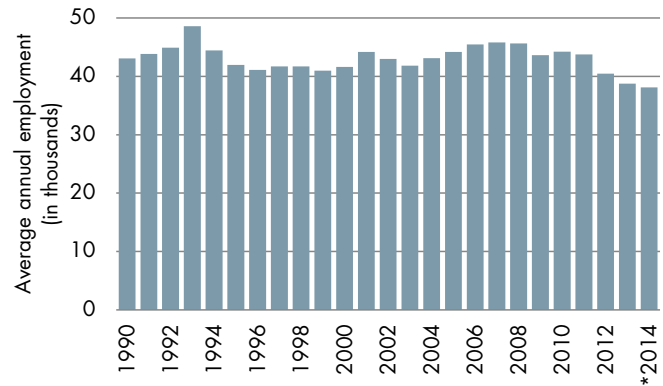
Like many areas, the USVI economy has struggled to recover from the Great Recession. The effects of the recession on the Territory have been compounded by enactment of the American Jobs Creation Act of 2004 (the “Jobs Act”) and the closing of HOVENSA in 2012. As shown in Figure 2, following a surge of employment in the lead-up to the economic crisis, employment levels in the Territory have been dropping steadily since 2010.

A look at the distribution of employment based on estimates prepared by private data provider EMSI² illustrates that employment losses have been highest on St. Croix (Figure 4). Since 2001, the beginning year for which EMSI’s estimates are available, the island’s share of total employment declined from 44 percent to just 37 percent in 2013. This decline reflects job losses on St. Croix, rather than any substantial change in employment levels on St. John and St. Thomas.

The volatility of employment on St. Croix can be seen in Figure 5, which shows the estimated percentage change in employment from the prior year. Impacts

FIGURE 3. USVI EMPLOYMENT (IN THOUSANDS)

Total Non-farm Employment, 1990-2014 (first 8 months)



Source: Annual averages based on US Bureau of Labor Statistics data through August 2014 (*prelim.)

FIGURE 4. DISTRIBUTION OF EMPLOYMENT

Estimated share of total employment by island

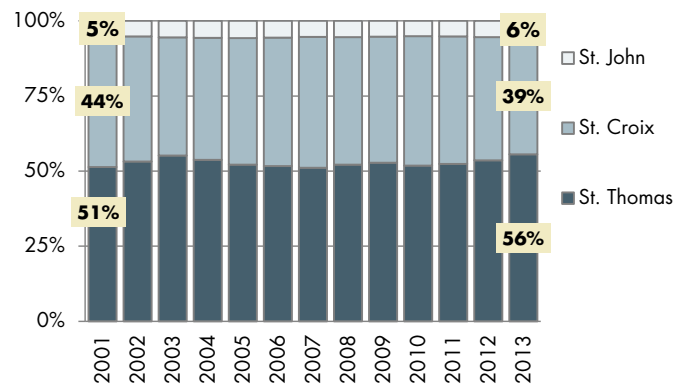
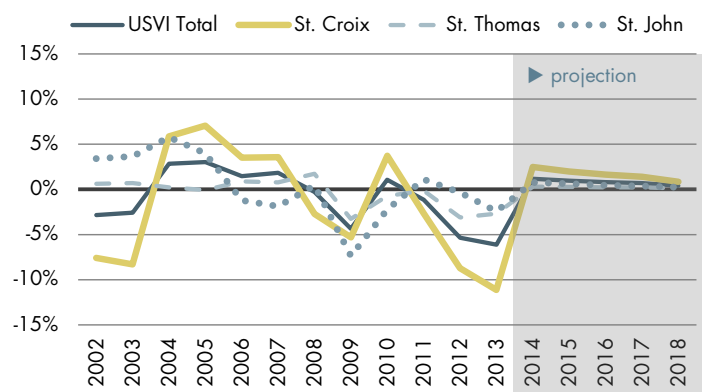


FIGURE 5. EMPLOYMENT TRENDS

Percent change in employment from prior year



Source (Figures 2&3): Calculated from EMSI’s Covered Emp. 2014.1

of the recession can be seen across all three islands in 2009, followed a few years later by steep declines in St. Croix’s employment levels, reflecting the loss of employment at HOVENSA and related impacts.

Tourism-related employment dominates the USVI job base, with related activities accounting for 8,225 jobs in 2013 according to the most recent figures published by BER. Figure 6 shows employment trends for industries most closely associated with tourism. While employment in lodging and retail trade has remained relatively steady, employment in property-related industries and arts, entertainment, and recreation have been more volatile. Other significant sources of employment include the public sector, professional services, and transportation and trade.

Manufacturing employment has declined from a peak of 2,300 in the mid- to late-2000s to roughly 800 in 2013. Employment in the sector is concentrated on St. Croix and was largely dependent upon petroleum refining, which represented between 50 and 60 percent of the USVI’s total manufacturing employment until the start of this decade. Figure 8 (page 8) shows employment levels for significant manufacturing industries.

Though neither match the petroleum refining industry in scale, nonmetallic mineral processing and food and beverage manufacturing have maintained a relatively stable base of employment in the Territory since 2001. Nonmetallic mineral processing, an industry which includes concrete manufacturing, has consistently employed between 150 and 200 workers.

The Territory’s food and beverage employment has remained at roughly 300 jobs over the same timeframe. Products in this category include distilleries, soft drinks, bakery products, and dairy products. Distilleries represent the fastest-growing

FIGURE 6. TOURISM-RELATED EMPLOYMENT

Percent change in employment from prior year

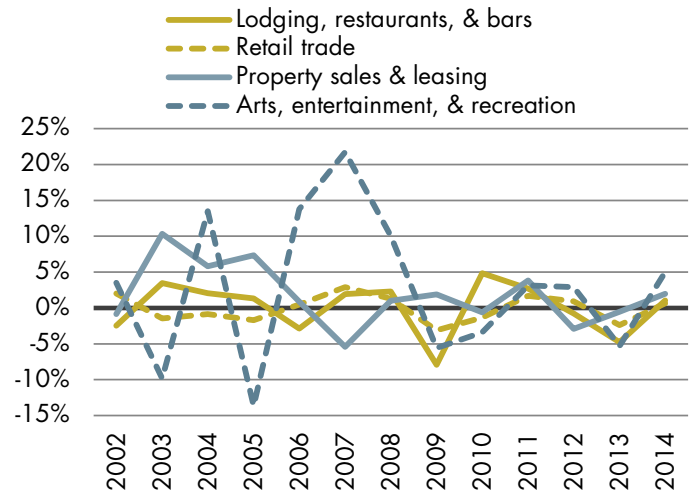
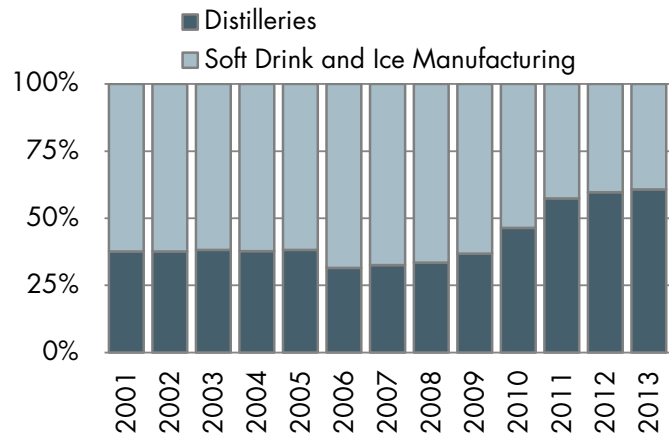
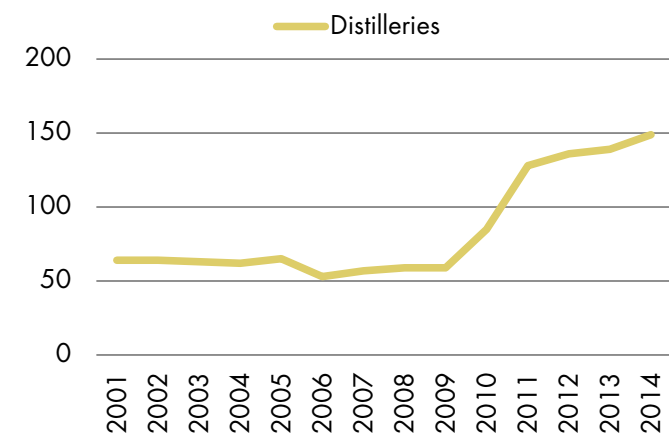


FIGURE 7. BEVERAGE EMPLOYMENT

Distribution of jobs in beverage segments



Trends in distilleries employment



Source (all figures): EMSI’s Covered Employment 2014.1

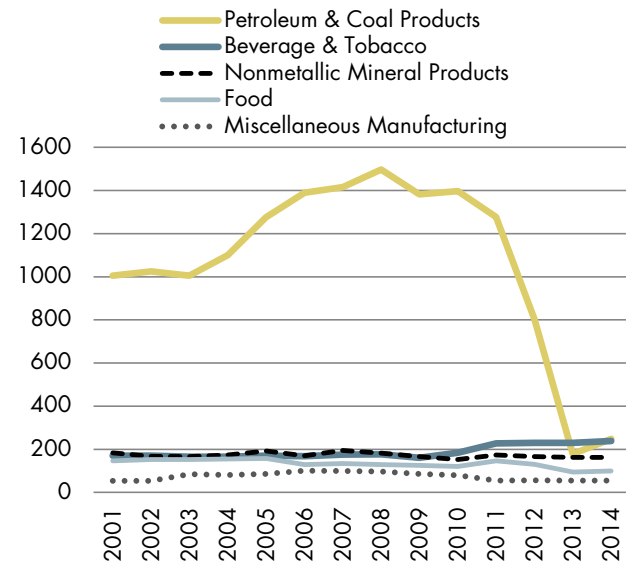
segment of the Territory's beverage manufacturing employment, adding roughly 80 jobs since 2008 (an increase of 136 percent). According to EMSI, the industry employs nearly 150 workers.

Employment trends for selected broad sectors, including manufacturing, are shown in Figure 8 (page 8). Figures are indexed to show changes in employment in the industry relative to levels in 2001.³ The figures illustrate the Territory's lackluster employment growth, with employment levels remaining stagnant or declining in six of the nine sectors shown. Even the modest growth seen by a handful of sectors—transportation and warehousing, professional and technical services, and finance and insurance—evaporated at the outset of the current decade.

Annual unemployment rates prepared by the VI Department of Labor tell the tale of the Territory's economic troubles. From rates of less than 3 percent in the early 1990s, unemployment rolls have swelled to double-digits due to the recession, a reduction in tourism, after-shocks from HOVENSA's departure, and the impact of the 2004 Jobs Act. According to a February 2013 report by IHS, Inc., dozens of beneficiaries of the Economic Development Commission's tax incentive program curtailed their expected hiring following passage of the legislation.⁴

These events are also mirrored in the USVI's gross domestic product ("GDP") shown in Figure 10. According to the accompanying press release⁵ by the US Bureau of Economic Analysis ("BEA"), declines in GDP reflect decreased petroleum exports (resulting from the HOVENSA closure) and reductions in consumer spending on nondurable goods and services. The BEA analysis states that if petroleum-related impacts were excluded GDP would have risen by 0.6 percent in 2013, driven by growth in tourism and rum exports.

FIGURE 8. MANUFACTURING TRENDS, 2001-2014
USVI employment in significant industries



Source: EMSI's Covered Employment 2014.1

FIGURE 9. UNEMPLOYMENT RATE (%)
Average annual figures through 2012

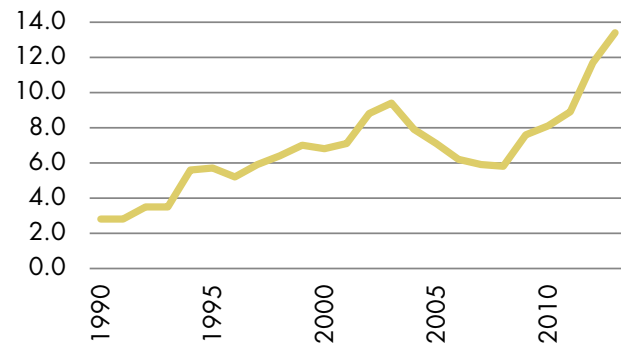
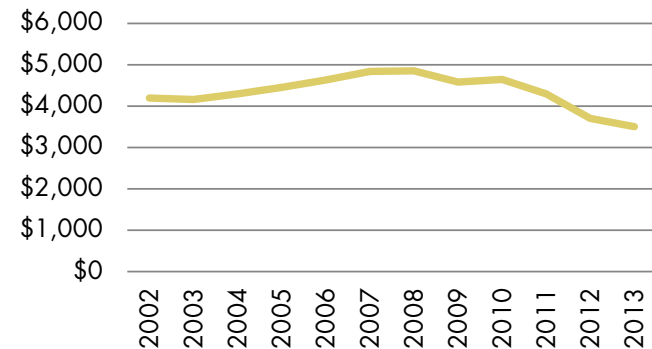


FIGURE 10. USVI GROSS DOMESTIC PRODUCT
In millions of 2005 dollars



Source: US Bureau of Economic Analysis (as reported by the USVI BER)

FIGURE 11. USVI EMPLOYMENT TRENDS, SELECTED NAICS SECTORS

Change in employment for selected sectors in USVI indexed to 2001 levels (2001= 1.0)



Source EMSI's Covered Employment 2014.1

WORKFORCE/EDUCATION

The presence of a skilled workforce continues to be the number one factor in site location decisions. Findings from prior studies,¹ as well as the employer survey conducted as part of this work, point to serious challenges with regard to employers’ perceptions of the local workforce.

Office and administrative support workers comprise the largest group of occupations in the Territory, accounting for 17 percent of total employment in 2013. However, this occupational category—which encompasses a range of clerical workers, such as computer operators, receptionists, dispatchers, and bank tellers—saw sharp declines between 2013 and 2008, shedding nearly 1,000 jobs. Sales positions and food service workers round out the top three largest groups, accounting for 13 percent and 10 percent, respectively, of total employment. These occupations experienced much smaller declines over the past five years. Following office and administrative workers, the largest job losses were seen in occupations tied to the Territory’s industrial segments. Hundreds of jobs were lost among the Territory’s production workers, installation and maintenance positions, and construction and extraction jobs, with each of the three occupational groups shedding approximately 700 to 900 jobs between 2008 and 2013.

FIGURE 12. USVI EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP, 2013

Including net job change 2008-2013 and median hourly wage

SOC Code	Description	2013 Jobs	Share of total jobs	2008 Jobs	Change in Jobs 2008 to 2013	Median Hourly Earnings
43-0000	Office and Administrative Support	6,620	17%	7,618	-998	\$12.91
41-0000	Sales and Related	4,944	13%	5,315	-371	\$12.10
35-0000	Food Preparation and Serving Related	3,904	10%	4,042	-138	\$9.64
25-0000	Education, Training, and Library	2,620	7%	3,102	-482	\$23.67
53-0000	Transportation and Material Moving	2,139	6%	2,382	-243	\$14.21
37-0000	Building and Grounds Cleaning and Maintenance	2,127	5%	2,506	-379	\$10.37
13-0000	Business and Financial Operations	2,059	5%	2,461	-402	\$22.11
33-0000	Protective Service	1,876	5%	2,096	-220	\$12.84
11-0000	Management	1,866	5%	2,244	-378	\$29.80
49-0000	Installation, Maintenance, and Repair	1,691	4%	2,427	-736	\$16.46
29-0000	Healthcare Practitioners and Technical	1,478	4%	1,587	-109	\$25.99
47-0000	Construction and Extraction	1,381	4%	2,057	-676	\$15.62
51-0000	Production	1,019	3%	1,915	-896	\$9.09
39-0000	Personal Care and Service	963	2%	1,009	-46	\$9.81
21-0000	Community and Social Service	848	2%	991	-143	\$17.75
15-0000	Computer and Mathematical	767	2%	885	-118	\$23.62
31-0000	Healthcare Support	618	2%	632	-14	\$12.77
19-0000	Life, Physical, and Social Science	542	1%	698	-156	\$19.31
17-0000	Architecture and Engineering	486	1%	737	-251	\$23.34
23-0000	Legal	485	1%	561	-76	\$38.49
27-0000	Arts, Design, Entertainment, Sports, and Media	371	1%	441	-70	\$16.54
45-0000	Farming, Fishing, and Forestry	67	0%	94	-27	\$10.29
Total		38,870	100%	45,797	-6,927	\$15.86

Source: EMSI Covered Employment - 2014.1. Shaded cells indicate occupational groups with above-average median hourly wage rates.

Attitudes toward the Territory’s workforce were largely negative among respondents to the employer survey (presented as Appendix A.). Participants were asked to rate the Territory’s workforce on a range of characteristics, such as productivity, reliability, and communication skills. For 11 of the 12 categories listed, one-half or more of responding firms gave the local workforce a “poor” rating. The one exception was trainability, where more than one-half (59 percent) gave a “fair” or “good” rating. However, none of the responding firms rated the workforce as “excellent” on any of the characteristics queried and only a handful of firms applied a “good” rating to any categories. In fact, more than 85 percent of respondents found the workforce either fair or poor on every characteristic listed.

The subject of “middle skills” jobs has garnered significant attention in recent years. Defined as jobs requiring more than a high school diploma but less than a four-year degree, this broad category includes a number of jobs that are essential to a wide range of industries. These occupations include skilled trades positions, such as plumbers and electricians, as well as production workers, healthcare technicians, and administrative support functions.

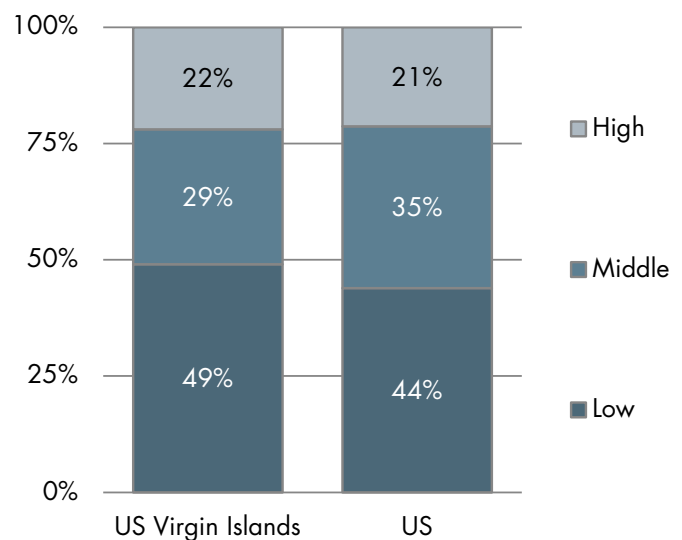
Using data on entry-level requirements by occupation, we estimate that middle skills jobs comprise roughly 30 percent of the USVI job base, compared with 35 percent nationally (Figure 13). Conversely, low-skilled positions account for a larger share of employment in the Territory—49 percent or roughly one in every two workers—compared with 44 percent nationally. The USVI’s share of high skills jobs—those requiring a bachelor’s degree or higher—is comparable to national levels.

In addition to being in demand nationally, these jobs tend to pay above-average wages and often require a relatively short period of training beyond high school, making them a good return on investment for students. Paradoxically, US employers report difficulty finding workers in these critical occupations, despite long cycles of above-average unemployment. Reasons for the mismatch between employer demand and the supply of talent are complex and vary by industry. However, underlying forces include the changing skills required by continued automation, demographic shifts, a lack of interest in technical training among young people, and federal policies and cultural norms that have emphasized four-year degrees. In addition, students often make choices about their field of study based on personal interests; typically, with little or no current information about the job market.

To document the types of graduates being produced by the Territory’s postsecondary system, we compiled data from the Integrated Postsecondary Data System, a series of inter-related surveys compiled by the US Department of Education’s National Center for Education Statistics (“IPEDS”). The University of the Virgin Islands (“UVI”) awards roughly 350 degrees annually (Figure 14). Only one in four of these is conferred at the associate's level. Four-year degrees are the most common, accounting for nearly two-thirds (an average of 65 percent) of the institution’s awards each year.

FIGURE 13. JOBS BY SKILL LEVEL, USVI & US

Distribution of employment by skill level (based on education and training required for entry)



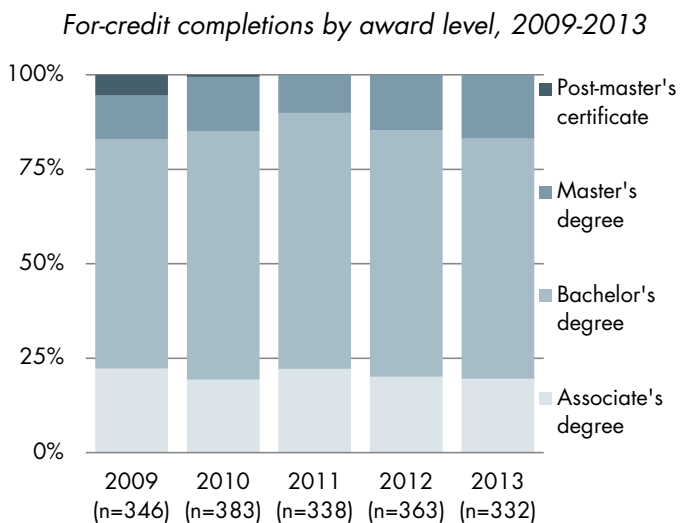
Source: EMSI Covered Employment - 2014.1

Using the IPEDS data series, we also looked at the number of degrees awarded by field of study. Four subjects—business, accounting, nursing, and psychology—comprise more than one-half of all degrees awarded each year by the University of the Virgin Islands, based on the average number of completions during the five most recent academic years for which data are available.

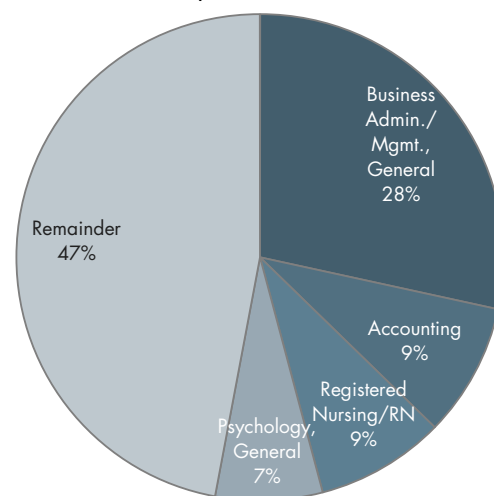
Business Administration and Management, General (CIP 52.0201) is by far the largest, averaging 100 degrees annually during the five-year period analyzed. All other fields of study average fewer than 25 completions per year, with most fields garnering fewer than 10 degrees on average. Strategies to help students better align their field of study with demand occupations would improve the pipeline and help connect graduates with employment upon graduation. In addition, a growing number of occupations require training beyond high school but far short of a four-year degree or even an associate’s level credential. The Territory’s lack of programs offering short-term postsecondary certificates puts workers and businesses at a disadvantage in gaining the skills needed for many of the economy’s fastest-growing occupations.

The USVI Workforce System is in the process of renewing its registered apprenticeship program through the US Department of Labor (“US DOL”). The Workforce System is encouraging the development of apprenticeship programs in the Territory’s demand occupation areas, including Advanced Manufacturing, Construction, Healthcare, Hospitality, Homeland Security, and Information Technology. According to the US DOL, apprentices must typically complete 2,000 hours of on-the-job training and at least 144 hours of related technical instruction each year, with programs lasting between one and four years. By contrast, certificate programs that are as short as six weeks can prepare workers to enter middle-skills occupations, such as welding.

FIGURE 14. UNIVERSITY OF THE VIRGIN ISLANDS



Top fields of study based on average number of for-credit completions, 2009-2013



Source: National Center for Education Statistics, IPEDS.

Note: IPEDS data include only those schools eligible to participate in federal financial aid programs. Completions are for degrees and awards conferred for credit (i.e., as part of an academic course of study). Figures include first and second majors. Years shown are academic years (e.g., 2009 data are for the 2008-2009 academic year).

INFRASTRUCTURE

As an island Territory, infrastructure assets associated with the movement of goods and people are essential to the USVI's economic health. The Virgin Islands Port Authority ("VIPA"), a semi-autonomous agency, owns and operates the two airports and the majority of the Territory's public seaports.

With tourism accounting for a majority of the US Virgin Islands' gross domestic product and a significant share of employment, the airports located on St. Thomas and St. Croix provide conveniently accessible gateways for air passengers and air freight that are so necessary to maintaining and fostering the islands' growth. Airports owned and managed by the VIPA are:

- Henry E. Rohlsen International Airport on St. Croix. (IATA location ID: STX, ICAO location ID: TISX)
- Cyril E. King Airport on St. Thomas (IATA location ID: STT, ICAO location ID: TIST)

Based on our review of the facilities, both airports have the capacity to handle additional traffic. The Henry E. Rohlsen International Airport on St. Croix handles approximately 19 departures per day. Using a generous aircraft turn-around time of two hours, and given the number of gates available and regular hours of operation, the terminal has the ability to handle up to 87 departures per day. The Cyril E. King Airport on St. Thomas currently handles approximately 35 aircraft departures per day. Using the same two-hour window, and given the 11 gates available for use and regular hours of operation, the St. Thomas facility has the ability to handle up to 93 departures daily. In both examples, however, the estimated operating capacity would be wholly dependent upon size of aircraft and the capability of the airport to provide adequate pre-board security screening, aircraft ground handling, and refueling services. Given the current low level of operations, the terminal should have the capacity to handle any nominal increase in traffic, given the number of gates available. This is particularly true of the Cyril E. King Airport, given its prior history of handling a larger number of departures than it presently does.

Along with the airports listed above, VIPA owns and operates all public seaports in the USVI, except the West Indian Company Dock in Havensight, St. Thomas.

- St. Croix has three seaports (Port of Frederiksted, Port of Christiansted, and Port Alucroix) and five marine facilities. The Ann E. Abramson Marine Facility (Port of Frederiksted) is the only cruise ship port on St. Croix. The Gallows Bay Dock (Port of Christiansted) is a vital link for small cargo vessels. The Wilfred "Bomba" Allick Port and Transshipment Center (Port Alucroix) is located in Krause Lagoon. It is the hub for commercial and industrial activity on St. Croix and is located near the Henry E. Rohlsen International Airport and St. Croix Renaissance Park. The Gordon A. Finch Molasses Pier (Port Alucroix) is also located in Krause Lagoon. This multi-purpose facility is primarily used for importing molasses (to the rum distillery), liquid asphalt, and construction materials. A major economic development priority is to develop a large-scale international transshipment port at the St. Croix Renaissance Industrial Park to accommodate post-Panamax cargo ships. VIEDA, the VIPA, and the St. Croix Renaissance Group have signed an MOU to jointly develop this facility. Securing federal funding to help develop the transshipment cargo facility is the priority project identified in the 2014 CEDS Update. This includes an initial \$500,000 in funding to

perform a feasibility study, high level master plan, and related reports to determine the costs and market demand for the proposed facilities.

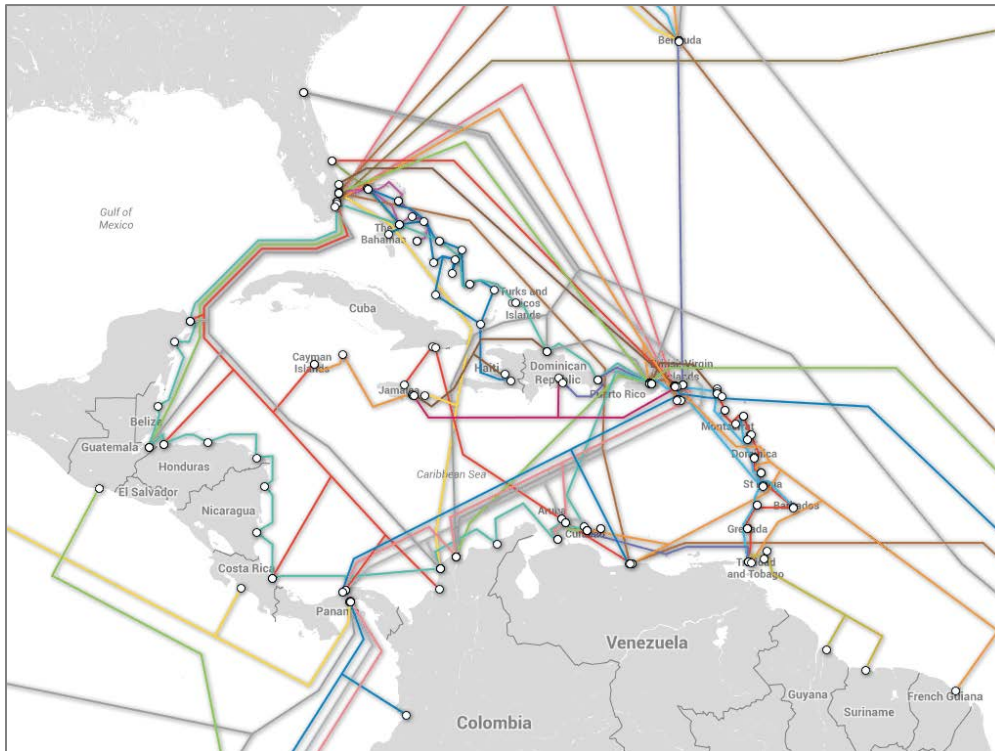
- St. John has three seaports/marine facilities. The Loredon Lawrence Boynes Sr. Dock is located in Cruz Bay. It is the main port of entry to St. John and provides ferry service to Red Hook and Charlotte Amalie Harbor. The Victor William Sewer Marine Facility is located in Cruz Bay. The Port Authority has ceased all cargo operations at this port. It is now used for the berthing of passenger ferries and tenders. VIPA is developing designs to make it a ferry passenger facility. The Theovald Eric Moorehead Dock and Terminal is located at Enighed Pond, which was developed into a cargo facility to accommodate the increase of cargo traffic to Cruz Bay. All cargo activity has shifted to Enighed Pond.
- St. Thomas has six VIPA-owned seaports/marine facilities. The Austin “Babe” Monsanto Marine Terminal, located in Crown Bay, is one of two cruise ship ports in St. Thomas and can accommodate three cruise ships simultaneously. The Crown Bay Cargo Port handles containerized and general cargo. Most of the USVI’s food, materials, and other goods are imported to this port. It also serves as a transshipment port to other Caribbean islands. The Waterfront, located in Charlotte Amalie Harbor, accommodates mini-cruise ships and cruise ship tenders. Urman Victor Fredericks Marine Terminal (Red Hook) is located on the eastern end of St. Thomas and primarily serves passengers traveling between St. Thomas and St. John, and St. Thomas and the British Virgin Islands. It has been upgraded to improve passenger experience thanks to a \$10 million project funded by the Federal Highway Administration, the Federal Economic Development Administration, and VIPA.

Along with traditional infrastructure designed to facilitate the movement of goods and people, infrastructure related to the movement of digital information is becoming an increasingly essential economic development asset. According to data from TeleGeography, a number of undersea cables pass through USVI, including the Global Caribbean Network (“GCN”), the Mid-Atlantic Crossing (“MAC”), the Pan American (“PAN-AM”), the Perseid, and the South American Crossing (“SAC”). The USVI’s proximity to this cluster of undersea cable connections that pass data between South America, Central America, and the Caribbean to North America and Europe makes the Territory a critical telecommunications hub (Figure 15, page 15). Appendix C provides maps and details for each of the undersea cables identified by TeleGeography as having a connection in the USVI.

Access to broadband on each island is provided through the Virgin Islands Next Generation Network (“viNGN”). Established in 2010 as part of a federal program to improve the broadband capacity in the US, viNGN operates as a public corporation and is a wholly owned subsidiary of the Virgin Islands Public Finance Authority. The network was funded primarily from a \$68 million grant by the National Telecommunications Information Administration (“NTIA”) as part of the Broadband Technology Opportunities Program (“BTOP”). The Government invested \$32 million in the project through a bond issue, and WAPA provided an in-kind contribution. The project funding constructed a “middle-mile” broadband infrastructure network that connects households, schools, public safety offices, emergency management centers, hospitals, and government facilities to the Internet. viNGN also includes the establishment of public computer centers throughout the Territory to provide basic digital literacy and advanced computer training to island residents.

FIGURE 15. UNDERSEA CABLES PROXIMATE TO THE USVI

Undersea cables in Caribbean Sea



The USVI's proximity to a web of undersea cables makes it a strong location for information technology and telecommunications industries.

St. Thomas-St. Croix System

Ready-for-Service: July 2013

Cable Length: 183 km

Owners: Virgin Islands Next Generation Networks, Inc.

URL: <http://www.vingn.com>

Landing Points

Banana Bay, VI, United States

Brewer's Bay, VI, United States

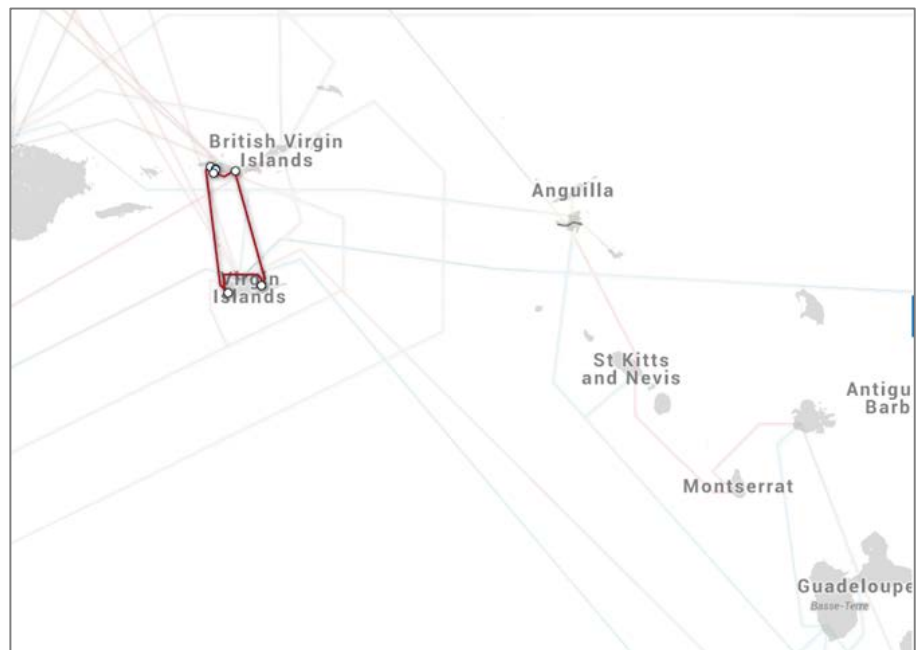
Christiansted, VI, United States

Flamingo Bay, VI, United States

Frederiksted, VI, United States

Great Bay, VI, United States

Vila Olga, VI, United States



Source: Submarine Cable Map, TeleGeography accessed at <http://www.submarinecablemap.com/> Data are drawn from the Global Bandwidth Research Service and updated on a regular basis. Maps for additional undersea cables that connect to the USVI are provided as Appendix C.

REGULATORY/BUSINESS COST

The USVI offers a distinct advantage for businesses looking to enjoy the protection of US laws and currency controls while benefitting from unique tax incentives and retaining the “Made in the US” label. However, employers surveyed as part of this study were largely negative in their opinions regarding the regulatory environment in the Territory and its impact on the cost of doing business. Business climate factors which were most important to respondents (government efficiency and effectiveness and cost of utilities) received the lowest ratings. For those two categories, almost 75 percent of participants considered the factors extremely important, and over 80 percent (98 percent in the case of cost of utilities) rated the Territory’s performance on these point as extremely poor. Of the 17 success factors rated, over three-quarters of respondents rated every factor between average and extremely poor. Full details of the survey are presented as Appendix A to this report.

One oft-cited regulatory barrier to economic growth is the 2004 Jobs Act. Two provisions of the Jobs Act have had a substantially negative impact on the Territory’s tax incentive program, according to a 2013 report by IHS, entitled *The Economic Impact of the US Virgin Islands Economic Development Commission Program*. The first provision requires USVI taxpayers to have a physical presence in the Territory for 183 days out of each year (or an average of 183 days over a three-year period) in order to establish residency. This period exceeds the residency standard established by the IRS for foreign nationals in the US (122 days) by 50 percent. This restriction is particularly burdensome for designated services businesses under the EDC program which are required to render services outside the Territory (so as to avoid competing with local providers). This business model often requires frequent travel that cuts into their ability to meet the residency requirement.

The second provision relates to the types of income that are eligible for exemption. Under the Jobs Act, the definition of effectively connected income (“ECI”) excludes “all US source income and effectively connected income (except manufacturing income) from ever qualifying for EDC tax incentives. In particular, such rules disqualify (from USVI tax incentives) certain US insurance, royalty and interest income earned by EDC beneficiaries, even if such income is generated wholly by economic activities or assets in the USVI.” With this more restrictive definition in place, the appeal of the USVI’s tax incentives has been significantly reduced and the number of applications for the EDC’s program has dropped precipitously.

Passage of the so-called “Rockefeller Amendment” (named for the Senator who introduced the legislation) would modify both provisions to lessen the impacts as they related to the Territory’s economic development initiatives. In fact, the IHS study found that “relaxing the residency and income requirements [as provided for in the Rockefeller Amendment] will attract on average 16 more firms a year to the Territory over the 10-year forecast period” compared to the status quo (under which the Jobs Act provisions remain in force).

Energy costs represent a significant barrier to investment for a number of industries, including manufacturing. In a recent report on the renewable energy industry in Latin America and the Caribbean, the American Council on Renewable Energy (“ACORE”) states that USVI electric utility rates make it “nearly impossible to foster economic growth.” (ACORE, *Regional Briefing: Renewable Energy in Latin America and the Caribbean*, page 11). The Virgin Islands Water and Power Authority (“WAPA”) is taking steps to address this issue, including a planned conversion from fuel oil to propane which is projected to reduce the utility’s fuel costs by 30 percent annually. In addition to

lowering direct costs, a reduction in rates would result in a lowering of the current fuel surcharge which accounts for a significant share of customer costs.⁶ The *USVI Energy Road Map*, produced as part of the Energy Development in Island Nations partnership (edinenergydev.nrel.gov), establishes a goal of reducing fossil fuel use by 60 percent by 2025. The plan calls for a focus on promoting energy efficiency and increasing the use of renewable sources, including solar and waste-to-energy.

QUALITY OF LIFE

Our approach acknowledges that economic development must do more than just provide business expansion opportunities. The ability to retain businesses and attract new companies is directly tied to the ability to maintain an area's quality of place. The USVI has many advantages in this regard: an agreeable climate and relaxed "island" lifestyle, coupled with an English-speaking population and the protections of US laws.

However, prior studies¹ and findings from our stakeholder engagement tasks highlight a number of areas that will require sustained and aggressive action. One of the most troubling is the Territory's high poverty rates. The USVI's challenges in this area are well-documented in the BER's 2010 report, *The Self-Sufficiency Standard for the US Virgin Islands*. While the official poverty rate exceeds "even those of the poorest US state," (IHS, p.2), the BER report points to the serious flaws in the official definition of poverty, which make it likely that actual number of people living in poverty exceed the official numbers. Coupled with high housing costs and stagnant wages, these figures suggest that living in the USVI is an economic challenge for a growing number.

Access to quality healthcare has become an important factor in the location decisions of both people and firms. The *VIEDA 2008 Marketing Plan* cites the lack of high-quality healthcare in the Territory as "a serious issue" for the retention of residents and businesses, as well as the attraction of new investment. The plan also points to the high cost of caring for the uninsured, cited as "tens of millions per year and rising," as a drain on government resources (VIEDA, p. 2-5). Estimates prepared by the US Census Bureau place the number of island residents without health insurance at more than 32,000 in 2010, roughly one-third of the total population (31 percent). At the national level, the share of uninsured is estimated at just under 15 percent. This situation is compounded by the fact that US Territories are treated differently under certain federal programs, including Medicaid, which applies statutory caps and matching rates to the USVI that are lower than those received by states.

Migration data can shed light on an area's ability to attract residents as well as the mobility of its residents. Data on geographic mobility compiled by the US Census Bureau show that USVI residents are slightly less mobile than their counterparts in the US. In 2010, roughly 11 percent of the USVI population age 1 year and over were living in a different house than they had in the prior year, compared with approximately 14 percent of the nation. And of those residents that had moved, two-thirds had moved from another house on the same island. However, just over 3 percent of the population moved to the USVI from outside, primarily from the US. While not entirely comparable, this figure is much higher than the share of US residents who reported their residence one year earlier as being outside the US.

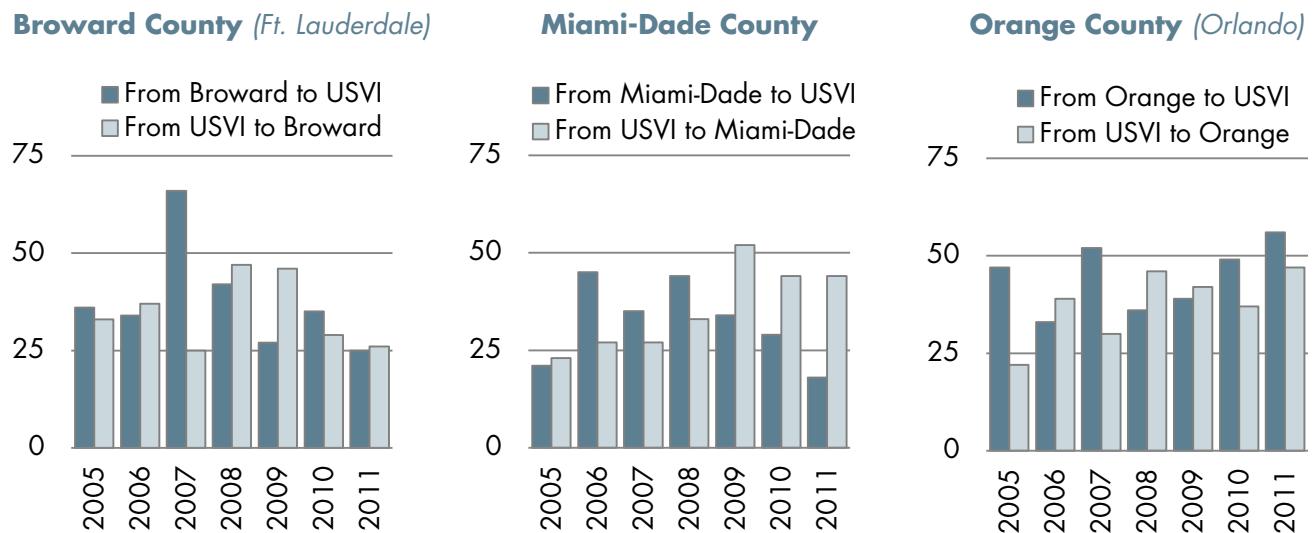
Data from the County-to-County Migration series, collected as a bi-product of the US Internal Revenue Service's tax filings, can provide another source of information on migration. This massive dataset uses year-over-year comparisons of address changes by tax filers to provide a basis for illustrating domestic population movements.

Although not an exact match, tax returns are used to represent households; the number of exemptions filed is typically used as a proxy for population. While this data set does not track flows to and from the USVI specifically, movement of filers from other US counties to and from the Territory are captured where a minimum of 10 tax returns are identified. An analysis of the years for which data are available show limited but clear connections to Florida (Broward, Miami-Dade, and Orange Counties) and, to a lesser extent Harris County (Houston) in Texas. It is likely that many flows between specific US counties do not meet this 10-return threshold so this is by no means an exhaustive list.

One positive aspect of the Territory’s quality of life, which could also help attract and maintain residents, is its vibrant non-profit sector. Driven, at least in part, by Economic Development Commission (“EDC”) requirements that beneficiaries participate in minimum charitable giving, personal philanthropy, and charitable volunteer efforts, the strong presence of these organizations provides a key mechanism for making quality of life improvements. Some past examples include donations towards creating and maintaining walkable waterfront public spaces, improvement of public schools, investment in private school infrastructure and scholarships, and a new accounting system for the St. Croix Foundation.

FIGURE 16. MIGRATION PATTERNS WITH USVI AND SELECTED FLORIDA COUNTIES

Number exemptions recorded for three Florida counties



Source: Internal Revenue Service, County-to-County Migration Data. IRS figures do not track migration for the USVI directly, but the USVI is coded as an origin or destination for migration flows into/out of US counties reach the confidentiality threshold (i.e., a minimum of 10 returns). Figures above show the only three counties for which flows were recorded in each of the available years.

INDUSTRY TARGETING

The USVI has undertaken a number of targeting initiatives including the 2008 EDA Marketing Plan and the high value entrepreneurship initiative led by the University of the Virgin Islands Research and Technology Park ("RTPark"). Our goal with this work is to re-examine and refine these targets to reflect changes in the global economy and to best leverage the USVI's competitive advantages.

APPROACH

Our starting point for examining potential target industries is an inventory of industries already being pursued by the Territory's chief economic development organization, the Virgin Islands Economic Development Authority ("VIEDA") and the RTPark. The sources used for this analysis are the 2008 EDA Marketing Plan, VIEDA's FY 2013 Annual Report, and the list of knowledge-based businesses the RTPark is mandated to pursue.¹ The existing target sectors are listed below:

2008 EDA Marketing Plan

- Financial services
- Information technology
- Aviation
- Alternative energy
- Agribusiness
- Maritime
- Film production
- Tourism
- Aquaculture/mariculture

FY 2013 VIEDA Annual Report

Priority sectors (proven success or potential to benefit from EDC program)

- High-value manufacturing
- Financial services
- Call centers/back office processing
- Hotel/resort investment

Secondary sectors (require more work to make a clear business case)

- Renewable energy
- Maritime
- Information technology services
- Film/audio

Knowledge-Based Businesses targeted by the RTPark

- Research businesses
- Information technology businesses
- E-commerce businesses
- Electronic hosting facilities
- Agricultural research
- Electronics businesses

¹ Knowledge-based businesses as defined in 17 VIC Chapter 34 §482(h).

To reconcile these existing sectors, TIP regrouped them under unified industry sector headings. In addition, we refined the specific industry components of each sector using our three-pronged approach: a review of quantitative analyses, qualitative input from our fieldwork, and a strategic lens. Considerations in the selection of targets are summarized in Figure 17 include the following:

- Employment trends and markets
- The relationship to existing infrastructure
- The extent to which the industry’s needs align with local workforce capacity
- Whether the USVI’s existing taxation and incentives policies would be favorable
- How the industry would impact or shape internal and external perceptions of the Territory




STRATEGIC CONSIDERATIONS




































The focus of this study is on defining target industries for the USVI to help enhance and diversify the economy. One strategy for accomplishing the same objective is the recruitment of talent. Though it is approached from a different perspective than traditional industry recruitment, the impact from a systematic talent initiative can be similar. The Territory is already engaged in this strategy on a number of fronts, including VIEDA’s efforts to recruit executives of small financial services and IT companies and the high-value entrepreneurship strategy championed by the RTPark. We recommend creating a systematic approach to talent recruitment that applies the same assets and advantages already being used to draw potential investors to new opportunities. One example is to leverage the current efforts to establish an EB-5 Regional Center to attract high-wealth investors in order to enhance private investment.

In order to be successful in any recruitment strategy, however, Territory leaders must address a number of issues that directly affect the USVI’s competitiveness across all sectors. Within each sector outlined below we have provided recommendations regarding specific actions that must be taken if any target sector initiative is to succeed. A number of these recommendations cut across sectors and will be directly connected to the USVI’s future economic success, including improving the education and skills levels of the workforce, bringing down the cost of electricity and improving reliability, and maintaining and enhancing each island’s industrial infrastructure.

FIGURE 17. MATRIX OF FACTORS: EXISTING TARGETS

LEGEND

-  Strength (supports sector’s growth potential)
-  Weakness (requires some attention to maximize potential)
-  Neutral (not a driving factor for the sector/no action required)

	Growth/Demand	Infrastructure	Workforce	Incentives/Regulatory	Image/Perception
Financial Services					
Business Process Outsourcing					
High-value Manufacturing					
Transportation & Logistics					
Information Technology					
Agribusiness					
Tourism					

Source: TIP Strategies

TARGET PROFILES

Profiles of the recommended industry targets are presented in the following pages. For each target, we provide an overview of the sector (including an analysis of US employment trends showing the performance of individual industries by year from 2010 to 2013), a rationale for selection, and a summary of constraints. Each target has also been assigned a timeframe and priority. Some are “low-hanging fruit” and may require only a shifting of resources or emphasis, while others may require significant investment of time and capital to become a reality. Finally, each profile includes strategic recommendations designed to help promote private investment and enhance the success of existing firms in the Territory.

FINANCIAL SERVICES

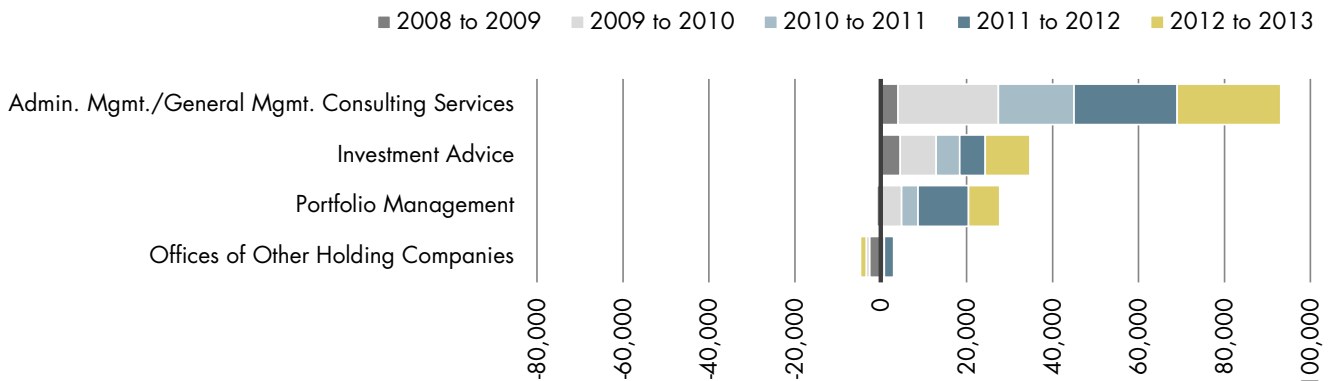


Financial Services encompasses a broad range of organizations that manage money, ranging from banks to asset management companies to credit card companies to insurance companies. For the USVI, the Financial Services sector is more narrowly focused on small, privately held firms engaged in such activities as business and management consulting, portfolio management, and investment advice. After suffering heavy losses due to the 2008 global financial crisis, the US Financial Services sector has experienced steady growth over the past few years. US employment for this target, as defined below, bottomed out at roughly 714,000 in 2008 and is approaching 900,000 jobs in 2013. Over the next five years, employment in the identified industries is projected to surpass 1 million.

Arguably, the most attractive quality of this sector, from an economic development standpoint, is the earnings potential associated with its component industries. Average earnings per job is a measure of total annual earnings of a regional industry divided by the number of jobs in the industry. Along with compensation paid to workers (including wages, salaries, benefits, and other compensation), annual earnings encompasses proprietor profits. As such, it is not equivalent to wages paid to workers, but rather provides an understanding of the value generated by each industry. Average earnings per job in Portfolio Management are estimated to be over \$250,000 annually. Even on the low end of the spectrum, average earnings per job in the Administrative Management and General

FIGURE 18. US EMPLOYMENT TRENDS: FINANCIAL SERVICES

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
541611	Administrative Mgmt. and General Management Consulting Services	378,930	472,001	\$99,904
523930	Investment Advice	131,499	166,197	\$155,030
523920	Portfolio Management	133,780	160,603	\$256,164
551112	Offices of Other Holding Companies	69,797	68,068	\$165,691
Target sector total (as defined)		714,006	866,870	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

Management Consulting Services subsector are about \$100,000.

RATIONALE FOR SELECTION

The Financial Services sector is a priority target for VIEDA. The Territory’s favorable tax structure and incentives, as well as US currency and legal protection are the primary attraction factors. These factors are particularly appealing to executives of small Financial Services firms that are able to relocate their operations to the USVI and enjoy 90 percent reductions in corporate and personal income tax. These advantages are amplified by the appeal of living in the Caribbean under the US flag. VIEDA has experienced some success in recent years in attracting small privately-held Asset Management, Investment Advisory, and Financial Management and Consulting firms.

Targeting firms engaged in investment and asset management, management and business consulting, and investment advisory can also create an opportunity to develop a concentrated industry cluster. Firms and workers in an industry cluster draw competitive advantage from their proximity to a skilled workforce, to specialized suppliers, and to a shared base of high-level knowledge about their industry. The opportunity to access these advantages will make the Territory more competitive for attracting firms in this sector.

CONSTRAINTS

- Burdensome residency requirements and income sourcing rules stipulated in the 2004 Jobs Act.
- Lack of a deep pool of existing residents with sophisticated financial education and skills. Firms must import employees to fill critical positions, thereby employing relatively few existing residents.
- Limited Class A office space.

STRATEGIC RECOMMENDATIONS

- Continue existing and planned marketing activities related to attracting Financial Services firms.
- Continue efforts to support passage of the “Rockefeller Amendment” and to encourage the US Treasury Department to review/amend residency rules.
- Work with UVI to consider establishing a formal internship program connected to the local Financial Services sector.
- Support and incentivize the development of new Class A office space.

BUSINESS PROCESS OUTSOURCING (BPO)



Business Process Outsourcing includes customer support centers, contract telephone call center operations, shared service centers, corporate and technical services, and data storage and processing. This sector also includes firms that provide data management and support services to companies, hospitals, governments, and individuals. As of 2013, 1.4 million Americans were employed in this sector, up from 1.3 million prior to the economic downturn.

EMSI projects US employment will reach 1.55 million by 2018. In the USVI, roughly 150 people were employed in 2013 in Office Administrative Services, the Territory's largest industry segment within this target. Current projections show only modest growth in the sector, although projections are based on historic trends and do not account for the impacts that could be achieved with a targeted recruitment effort.

Much like Manufacturing firms, BPO companies continue to seek lower cost alternatives to the relatively high-cost labor force in the US. However, anecdotal evidence suggests the trend towards off-shoring these operations has reversed somewhat in recent years, which may be part of the reason for rising employment in individual industries within the sector. For example, call center employment in the US is showing slight employment growth after struggling in the previous decade due to international competition from developing countries like India. In response to complaints regarding poor customer service and rising labor costs in developing economies, there is anecdotal evidence that US firms have begun to "on-shore" their operations. Average earnings per job in this sector range from a low of \$31,586 for Telemarketing Bureaus and Other Contact Centers to \$85,555 in Data Processing, Hosting, and Related Services.

RATIONALE FOR SELECTION

The telecommunications infrastructure and global connectivity available in the USVI represents a significant advantage for attracting BPO investment. St. Croix is directly connected to Global Crossing's subsea Tier-1 fiber optic cable, providing a direct telecommunications link to North America, Latin America, and Europe. In addition, the completion of the Virgin Islands Next Generation Network ("viNGN") fiber optic middle-mile network brings high speed Internet connectivity to residents and businesses in the Territory and, with it, the ability to tap into the subsea cables.

With the US being the world's major source of outsourcing contracts, being a US Territory with an English-speaking population works in the USVI's favor for attracting BPO operations. The sector also represents employment opportunities for unemployed or underemployed residents of the Territory, particularly on St. Croix. While the Territory may not currently be able to accommodate or compete for large BPO operations, there is some potential to attract small/medium-sized facilities.

CONSTRAINTS

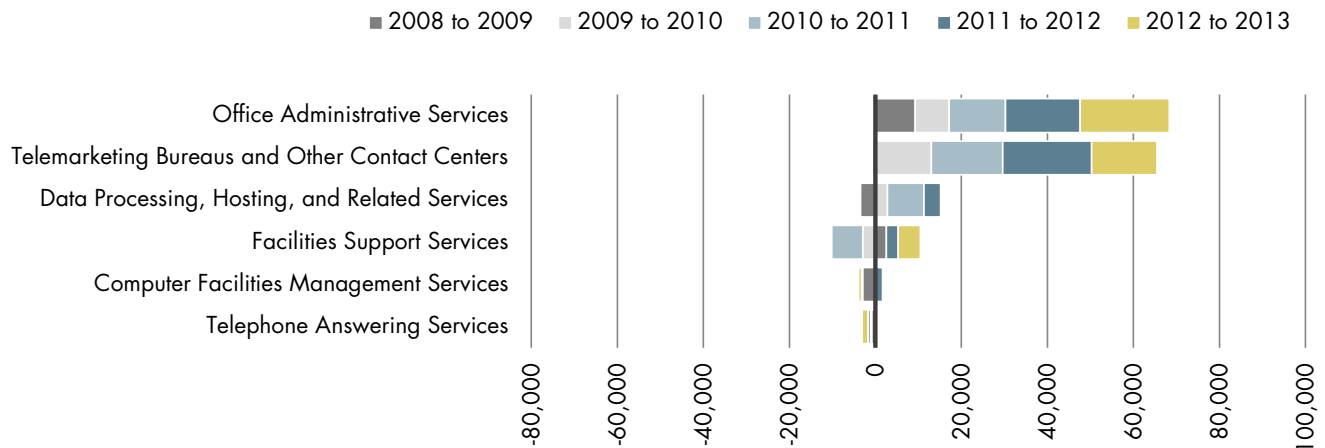
- Labor costs are potentially higher than other US regions competing for similar operations, particularly in the Southeast and the Great Plains.
- The reliability and cost of electricity in the USVI is a barrier to BPO investment.
- Some stakeholders commented that the customer service culture within the Territory's workforce needs improvement.
- Concerns about hurricanes and severe storms may deter secure Data Processing and Hosting operations.
- There is a need to increase the availability of high-quality, low-cost overhead tech/flex space in the Territory.

STRATEGIC RECOMMENDATIONS

- The Territory must continue investing in the information technology skills of its population to compete for more advanced BPO operations. Jamaica has embraced BPO as a target industry and has begun making notable investments in this sector, especially in workforce training.
- Focusing initial targeting efforts on small call centers offers the highest likelihood of attracting new BPO investment and employment in the short term.
- Financial incentives may be required for constructing buildings and office space to house BPO operations.
- Bringing down the cost of electricity and improving reliability are crucial to the Territory’s prospects for growing this sector.

FIGURE 19. US EMPLOYMENT TRENDS: BUSINESS PROCESS OUTSOURCING

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
561110	Office Administrative Services	398,586	466,945	\$80,553
561422	Telemarketing Bureaus and Other Contact Centers	384,292	449,105	\$31,586
518210	Data Processing, Hosting, and Related Services	245,885	258,007	\$85,555
561210	Facilities Support Services	133,133	133,440	\$51,591
541513	Computer Facilities Management Services	56,109	53,872	\$83,219
561421	Telephone Answering Services	39,753	36,912	\$32,882
Target sector total (as defined)		1,257,758	1,398,281	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

HIGH-VALUE MANUFACTURING

Refining



Electronic Assembly & Medical Devices



Manufacturing in the USVI has traditionally been dominated by three legacy sectors: petroleum refining, rum distilling, and watch assembly. Of these three sectors, only rum production currently contributes meaningfully to the Territory’s economy. In the 1960s and 1970s, watch assembly was once a thriving industry in the Territory that benefitted from a tariff incentive permitting duty-free entry of US insular products. However, increased global competition, industry restructuring, and high unit production costs have, over the years, decimated local employment and production. Presently, the USVI watch assembly industry is down to one company and watch exports continue to decline.

More significantly, manufacturing in the USVI was dealt a severe blow by the closure of the HOVENSA refinery in 2012. As late as 2010, HOVENSA was one of the 10 largest refineries in the world, supplying heating oil and gasoline to the US Gulf Coast and eastern seaboard. The closure resulted in a loss of nearly 2,000 jobs and millions of dollars in tax revenues. It also dampened the economic morale of St. Croix. The recent signing of an operating agreement raises hope that the refinery may restart operations. This prospect represents the best near-term option for generating new manufacturing employment in the Territory.

Still, the HOVENSA closure exposed the need to diversify the Territory’s economy and reduce dependence on refining for high-value manufacturing employment. Achieving some degree of diversification will require long-term efforts to bring down the cost of energy and improve the education and skills levels of the workforce. Two possibilities for diversifying the Manufacturing sector include Electronic Components (NAICS 3344) and Medical Devices (NAICS 3391).

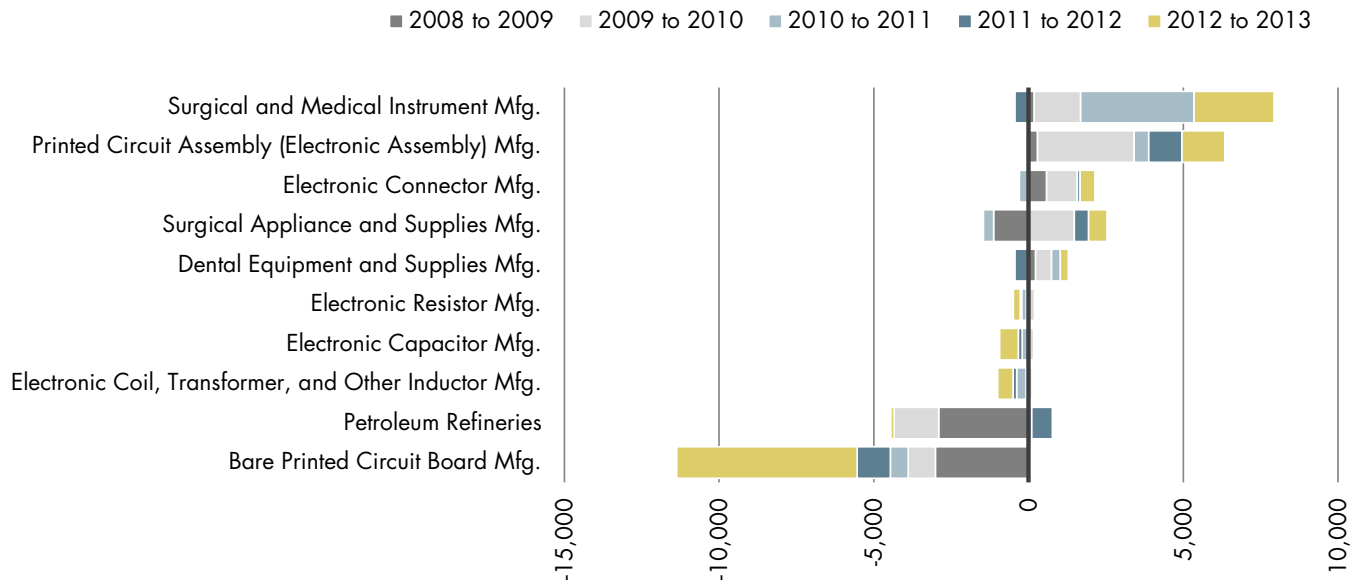
RATIONALE FOR SELECTION

The rationale for reopening the refinery is clear. It would mean hundreds of new high-paying jobs and would bolster the entire St. Croix economy. While Electronics Components and Medical Devices pose recruitment and development challenges for the Territory, there may be opportunities for realizing small-scale successes. The recommendation for Electronic Components is based primarily on existing EDC beneficiaries involved in the sector, including United Electronic Industries Services. In addition, Puerto Rico and other countries in the Caribbean and Latin America have experienced some success in developing this sector. Attracting Electronic Components companies to the Territory would also provide technical and middle-skills employment opportunities for residents.

Medical Device manufacturing, in particular, represents an opportunity due to its overall growth in the US. EMSI projects that Surgical and Medical Instrument Manufacturing employment (as defined by the representative NAICS codes) will grow by about 5.4 percent between 2013 and 2018. The aging of the population and growth in worldwide per capita incomes and per capita healthcare expenditures are forecast to provide a platform for stable and steady growth for Medical Devices in the foreseeable future.

FIGURE 20. US EMPLOYMENT TRENDS: HIGH-VALUE MANUFACTURING

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
339112	Surgical and Medical Instrument Manufacturing	115,282	122,782	\$75,924
339113	Surgical Appliance and Supplies Manufacturing	98,907	99,995	\$68,853
324110	Petroleum Refineries	75,588	71,906	\$135,528
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	48,822	55,168	\$50,877
334412	Bare Printed Circuit Board Manufacturing	40,599	29,233	\$57,400
334417	Electronic Connector Manufacturing	17,454	19,312	\$61,969
339114	Dental Equipment and Supplies Manufacturing	15,325	16,180	\$57,159
334416	Electronic Coil, Transformer, and Other Inductor Manufacturing	8,628	7,749	\$45,920
334414	Electronic Capacitor Manufacturing	5,894	5,130	\$58,274
334415	Electronic Resistor Manufacturing	4,407	4,109	\$43,630
Target sector total (as defined)		430,906	431,564	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

The US Medical Device industry accounts for nearly half the world’s medical device market, and leading US manufacturers generate roughly half of their total sales abroad. In recent years, exports have grown due to the development of increasingly sophisticated medical devices and an increased emphasis by foreign governments on improving the quality of their healthcare systems. St. Croix’s proximity to Latin America and other Caribbean markets represents a potential advantage. In addition, medical device product life cycles are relatively short, because device makers are continually developing smaller, faster, and cheaper versions of existing devices. As a result, Medical Device manufacturers on the leading edge of developing new products tend to be located near

medical schools and teaching hospitals. The establishment of a UVI medical school and simulation training facility in the Territory could assist in attracting investment in the sector.

CONSTRAINTS

- The global market forces that influenced HOVENSA's closure will still have to be overcome by any new owner.
- Most of HOVENSA's former management, engineering, and technical employees have migrated to other regions and nations for other career opportunities. Once the refinery reopens, this workforce will have to be rebuilt.
- The USVI lacks job training certificate programs that enable residents to qualify for many middle-skills careers, especially in technical trades.
- Competition for Electronic Components manufacturing from low-wage countries in Latin America and Asia is fierce.
- The Territory may lack the highly skilled talent necessary to attract sophisticated Medical Device and Electronic Components manufacturers.
- Energy costs and limited industrial space remain an issue.

STRATEGIC RECOMMENDATIONS

- Work with UVI and local employers to develop certificate training programs in needed technical fields.
- Track FDA approvals and venture capital investments into Medical Device companies to identify prospects that may be looking to expand their manufacturing capabilities. Venture capital investments can be tracked by monitoring news stories and FDA approvals may be tracked at the FDA website. (<http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DeviceApprovalsandClearances/Recently-ApprovedDevices/default.htm>.)
- The "Made in USA" label offers companies manufacturing in the USVI the benefits of duty-free, quota-free entry into the United States.
- Watch and jewelry manufacturers in the USVI benefit from the US Insular Possessions Watch and Jewelry Program, which provides duty refund certificates to manufacturers based on creditable wages and the number of units shipped duty-free into the US customs territory. However, it is unlikely the Territory's watch sector will ever be revived due to global competition.
- Meet with Caribbean healthcare providers to identify which distributors they use. Create a database of distributors from this list and target these companies with a recruitment campaign.
- VIEDA representatives should continue marketing the USVI to US subsidiaries of foreign manufacturers who might benefit from the Territory's duty-free and quota-free advantages.

TRANSPORTATION & LOGISTICS



As defined for this study, Transportation and Logistics is a broad category that captures the Maritime, Warehousing & Storage, and Air Transportation sectors. The table on the following page lists the relevant industries by 6-digit NAICS codes. Due to the Territory’s geography and location, transportation is the lifeblood of the economy. The USVI relies on air and sea transportation for bringing in all of its supplies and visitors. Transportation and Logistics is also a sector with substantial employment and investment growth for the Territory. Nationally, employment in Maritime, Warehousing & Storage, and Air Transportation is expected to grow 5 percent by 2018.

Aviation is also critical to the health of the Territory’s economy. With tourism accounting for a majority of the Territory’s GDP and employment, Cyril E. King Airport (“CEKA”) on St. Thomas and Henry E. Rohlsen Airport (“HERA”) on St. Croix provide crucial gateways for driving the Territory’s economy. This is particularly true for sustaining the Tourism sector on St. Croix, which receives far fewer cruise ship passengers than St. Thomas and is more dependent on overnight visitors. Of recent concern is the 4.7 percent drop in air passenger arrivals to the USVI from 2012 to 2013

CEKA is currently the busiest airport in the USVI and one of the busier airports in the eastern Caribbean, serving approximately 645,400 passengers from January 2012 to December 2013. For the 12-month period ending March 1, 2014, CEKA had 25,641 aircraft operations, an average of 70 per day: 42% air taxi, 16% scheduled commercial, 41% general aviation, and 1% military.

As a US Customs landing rights airport, HERA is small international airport that accommodates mainly Inter-Caribbean Island flights, though it does have the capability to handle larger long range jets up to and including the Boeing 747. For the 12-month period ending December 31, 2013, HERA experienced a total of 13,884 aircraft operations, for an average of 38 operations per day. These operations were categorized as air taxi (58%); general aviation (32%), commercial air carrier (9%), and military (2%).

There are three Fixed Based Operators (“FBO’s”) operating at CEKA and one at HERA. FBOs are commercial businesses granted the right by an airport to provide aeronautical services such as fueling, hangaring, aircraft rental, and maintenance. In most cases, FBOs primarily provide support to general aviation operators at public use airports. Because over 40% of aircraft operations at CEKA and one-third at HERA involve general aviation, FBOs are essential to the future growth of aviation in the Territory.

RATIONALE FOR SELECTION

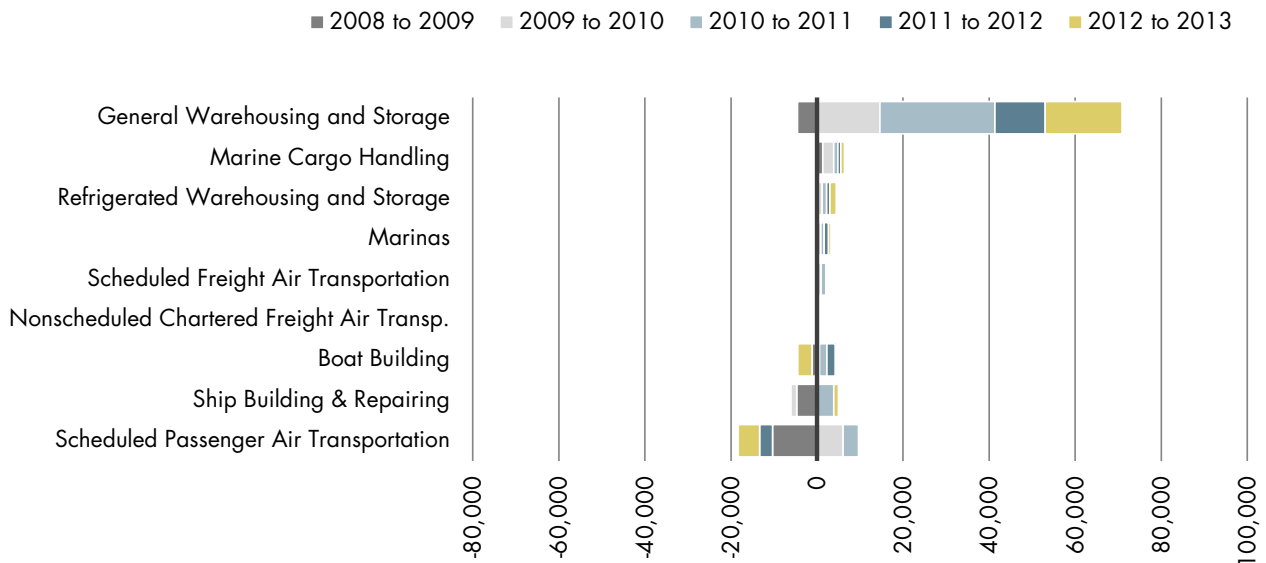
Significant expansion of the Maritime sector in the USVI is possible at St. Croix Renaissance Park, a 1,244-acre privately-owned industrial park located between HOVENSA and Henry E. Rohlsen International Airport. The park features a deep-water port (Port St. Croix), a 2 million gallon/day desalination plant, a machine and fabrication shop, and proximity to the VIPA container facility. Industrial opportunities at the park include ship building, repair, and maintenance. With additional development of dock space and container facilities, Port St. Croix also has the

potential to develop as a major post-Panamax transshipment hub serving the Eastern US. A major advantage St. Croix enjoys over other Caribbean nations seeking to develop transshipment hubs is its exclusion from the Jones Act, which restricts the carriage of goods and passengers between US ports to US flagged vessels and requires at least 75 percent of crewmembers to be US citizens.

Also on St. Croix, VIPA is planning for dredging and infrastructure improvements at the Gallows Bay Marine Facility that would allow small cruise ships and luxury vessels to dock in Christiansted. Upgrading and expanding the Gallows Bay Marine Facility could significantly boost tourism in Christiansted and the entire island.

FIGURE 21. US EMPLOYMENT TRENDS: TRANSPORTATION & LOGISTICS

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
493110	General Warehousing and Storage	534,524	600,901	\$41,557
481111	Scheduled Passenger Air Transportation	407,100	398,388	\$66,559
336611	Ship Building & Repairing	101,251	100,103	\$63,011
493120	Refrigerated Warehousing and Storage	48,408	52,728	\$44,547
488320	Marine Cargo Handling	40,509	46,856	\$56,978
713930	Marinas	29,861	33,115	\$31,409
336612	Boat Building	28,203	27,932	\$41,931
481112	Scheduled Freight Air Transportation	10,433	12,371	\$62,303
481212	Nonscheduled Chartered Freight Air Transportation	7,669	7,749	\$68,669
Target sector total (as defined)		1,207,959	1,280,141	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

CONSTRAINTS

- St. Croix Renaissance Park will require new private and federal investment to upgrade infrastructure and facilities if it is to succeed as a major transshipment hub. There will be significant regional competition for post-Panamax cargo business, as many nations and metro areas make substantial public investment in port infrastructure. Indeed, the 2014 CEDS Update identified the St. Croix Transshipment Port Facility as the Territory’s primary funding priority for the near future.
- Additional workforce development and training programs will be critical to attracting companies involved in the building, repair, and maintenance operations of both the marine and aviation sectors.

STRATEGIC RECOMMENDATIONS

- Continue efforts to seek federal and private funding to develop a large international transshipment port on St. Croix. Securing federal grant funding to pay for a feasibility study and master plan is the immediate priority. The results of these reports will determine the level and possible sources of funding required to develop the port’s infrastructure.

INFORMATION TECHNOLOGY



The Information Technology (IT) sector is now in many ways a fundamental component of modern life. The global economy was forever altered by the development of the Internet and desktop computing over two decades ago. Now, emerging technologies such as electronic commerce, social media, mobile applications, big data, and cloud computing are revolutionizing the business model for industries across the board.

IT-based subsectors we are recommending as targets include Software Publishing, Electronic Shopping (Ecommerce), Computer Systems Design Services, Computer Programming Services, as well both Wireless and Wired Telecommunications Carriers. As defined by the NAICS codes below, US Information Technology employment rose by 14 percent between 2008 and 2013. Furthermore, IT employment growth is projected to increase by another 14 percent by 2018. The average earnings per job in the Computer Services and Software sectors surpasses \$100,000. Within the USVI, employment in Computer Systems Design has almost doubled since 2008 and is projected to continue increasing through 2018.

Job growth, however, in the Telecommunications subsector (Wired and Wireless) has suffered for the most part since 2008. Employment declines are attributed to such factors as industry consolidation, automation, and reduced needs for maintenance. Wired Telecommunications has been hit especially hard by reduced demand for landline telephone service. Still, there are projections for Telecommunications job openings to rise in the coming years as a result of the growing number of retirements and the continuing need for skilled workers. Indeed, employment growth in the Wireless Telecommunications sector in the Territory has actually increased by 35% from 2008 to 2013.

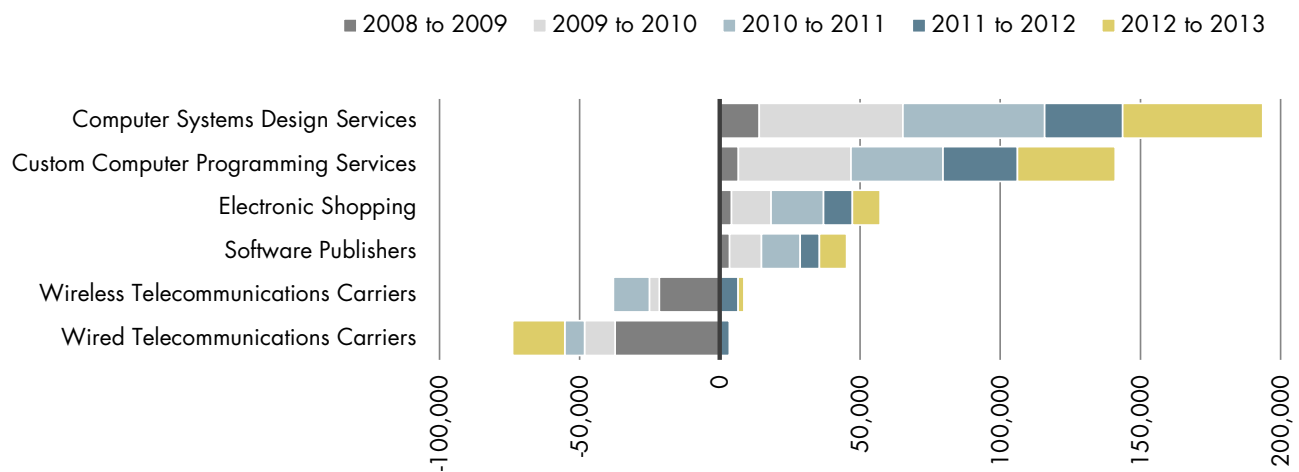
RATIONALE FOR SELECTION

The RTPark is at the forefront of promoting knowledge-based economic development in the Territory. At present, the RTPark supports 18 tenant companies, which are now generating \$160 million in total revenue and employing over 200 workers. The RTPark markets the USVI to small, mobile Information Technology firms that would be attracted to the Territory’s incentives, tax structure, fiber optic broadband connections to the US mainland, and appealing lifestyle and amenities.

Phase one completion of the Virgin Islands Next Generation Network (viNGN) also presents an important asset that can be leveraged for additional growth of the IT sector. This is not only due to the middle-mile fiber optic infrastructure the Territory now enjoys, but also to the 50 public computer centers that are being developed to provide basic digital literacy training to residents, establishment of more ISPs, and driving down of costs to customers.

FIGURE 22. US EMPLOYMENT TRENDS: INFORMATION TECHNOLOGY

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
541512	Computer Systems Design Services	659,103	852,718	\$105,928
541511	Custom Computer Programming Services	632,260	773,301	\$100,749
517110	Wired Telecommunications Carriers	635,809	565,269	\$80,216
511210	Software Publishers	255,417	300,626	\$131,652
517210	Wireless Telecommunications Carriers	193,663	164,264	\$72,562
454111	Electronic Shopping	87,650	144,798	\$57,972
Target sector total (as defined)		2,463,901	2,800,975	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

CONSTRAINTS

- Stakeholders voiced numerous complaints regarding the cost of broadband Internet access for both residents and businesses.
- The USVI faces considerable competition from communities in the US mainland and Puerto Rico for new IT investment and employment.
- Grant funding for viNGN digital literacy training programs will expire in the near future. In order to continue equipping USVI residents for career opportunities that involve Information Technology, finding new sources of funding for viNGN training and/or expanding IT training programs provided by other education and workforce development providers should be a priority.

STRATEGIC RECOMMENDATIONS

- Information Technology training should continue being a top priority of workforce development and education efforts in the USVI. It is, therefore, critical for the Territory to identify new funding sources to support viNGN digital literacy training and computer centers in advance of the grant funding expiring. IT skills training and education must be expanded if the USVI is to realize significant employment gains in the sector.
- In addition to general digital literacy training, workforce development and education providers should work with existing and future companies to develop employer-based IT training programs.
- Beyond recruitment, additional emphasis should be placed on encouraging local residents and entrepreneurs to launch IT businesses. To be successful over the long-term, such an effort will require increased exposure and education of Information Technology and entrepreneurship at the K-12 level.

AGRIBUSINESS



Agribusiness encompasses both farm production and value-added processing of agricultural products. The entire sector employs just over 2 million people in the US. Though employment dropped slightly between 2007 and 2011 (1 percent), the sector had recovered by 2012. Modest growth (slightly more than 1 percent) is expected in the sector through 2018.

Despite the stable employment outlook, output from the sector must increase considerably to meet global demand. With the world population expected to grow to 9.8 billion by 2050 and declining acreage of land dedicated to farm production, the sector will continue to see considerable investment and technological change.

Wages in the sector vary widely from relatively low-paying farm production occupations (average earnings/job of \$27,475) to higher-wage occupations in distilleries (\$77,449). A focus on value-added processing and premium farm products such as organic produce could push average earnings per job up in the USVI.

RATIONALE FOR SELECTION

The USVI has a long agricultural tradition. However, in recent years, the land area dedicated to agriculture has been declining precipitously, largely due to declines in cattle ranching. In the 2007 Agricultural Census (the most recent available online), the USVI had just 5,881 acres of land in farms, a 36 percent decline since 2002. At the same time, farm sales declined 33 percent from \$3 million in 2002 to \$2 million in 2007.

Yet, the number of farm workers increased over the same time period from 450 (unpaid and hired) in 2002 to 511 in 2007. And the market value of agricultural products sold increased in many categories over this time period. Growth areas included field and forage crops, vegetables, fruits, hogs, and other livestock.

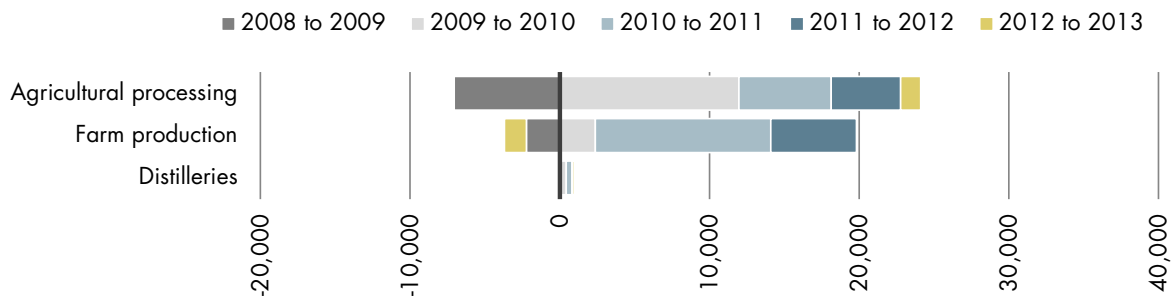
A focus on premium agricultural products as well as value-added processing will capitalize on these positive growth trends and help local farmers capture more value from their crop production.

CONSTRAINTS

- Development pressures leading to fewer acres of farm land.
- Production volatility due to weather and other natural factors heighten risk.
- A stigma still attached to the Farm Production sector by native residents due to its history in the Caribbean.
- Access to local customers (e.g., hotels, restaurants, school districts) by local farmers is weak in some areas.

FIGURE 23. US EMPLOYMENT TRENDS: AGRIBUSINESS

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
111	Farm production	531,096	547,205	\$27,475
311	Agricultural processing	1,449,172	1,466,216	\$42,386
312140	Distilleries	7,189	8,183	\$77,449
112519	Aquaculture*	—	—	—
Target sector total (as defined)		—	—	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.** *EMSI data do not include employment detail for crop and animal production activities at the detailed 6-digit industry level.

STRATEGIC RECOMMENDATIONS

- In partnership with the Department of Agriculture, encourage farmers to move towards higher-end products such as organic, free-range, etc. Aquaculture presents another such opportunity.
- Promote specialty foods and micro-batch luxury items such as craft rum distilling to capture premium prices. These products would also tie in well with tourism as they could be souvenir items for visitors to purchase and would provide more variety in the local foods marketplace.
- Consider the establishment of an agricultural incubator on St. Croix to assist local producers and processors.
- Pursue funding from the USDA Rural Development Grant Assistance program (www.rurdev.usda.gov/RD_Grants.html). Potential sources include Rural Business Enterprise Grants, Value-Added Processor Grants, and Small Socially-Disadvantaged Producer Grants.
- Create an online portal such as Farmers Web (www.farmersweb.com) to connect local producers with local businesses and even cruise lines.

TOURISM



The Tourism sector is the USVI’s chief industry sector. It accounts for a majority of the Territory’s GDP as well as non-government employment. Like most of the Caribbean, USVI tourism suffered a major decline between 2007 and 2009 as a result of the Great Recession. However, since 2010 the number of visitors to the Territory has rebounded, totaling over 2.7 million in 2013.

Tourism benefits the USVI economy in a number of direct and indirect ways. Because it is a traded sector, it brings in outside dollars from visitors and travelers that are injected into the local tax base and wages. Tourism also creates small business development opportunities and offers employment options for younger workers. In addition, tourism supports talent attraction efforts. Visitors to the USVI who are exposed to the amenities, environment, and lifestyle may be more willing to relocate to the Territory. In fact, a number of local business representatives shared their story of relocating to the USVI after first visiting as a tourist.

Defining the components of Tourism using NAICS codes for targeting purposes can be challenging. Broadly defined, the sector includes retail shops, restaurants, bars, and spas. For our purposes, we included Hotels & Inns, All Other Amusement & Land Based Industries, Sports Teams & Clubs, and Deep Sea Passenger Transportation. In addition to these subsectors, there are other niche markets that can be developed that aren’t specifically reflected in the NAICS codes, including artisanal, historic, cultural tourism.

RATIONALE FOR SELECTION

As the Territory’s primary industry, Tourism development and attraction already receives a great deal of attention. Therefore, the justification for targeting this sector for growth is quite obvious. Everything that can be done should be done to increase the number of air and cruise ship visitors to the Territory. This involves a combination of branding, marketing, infrastructure enhancement, and product development towards quality.

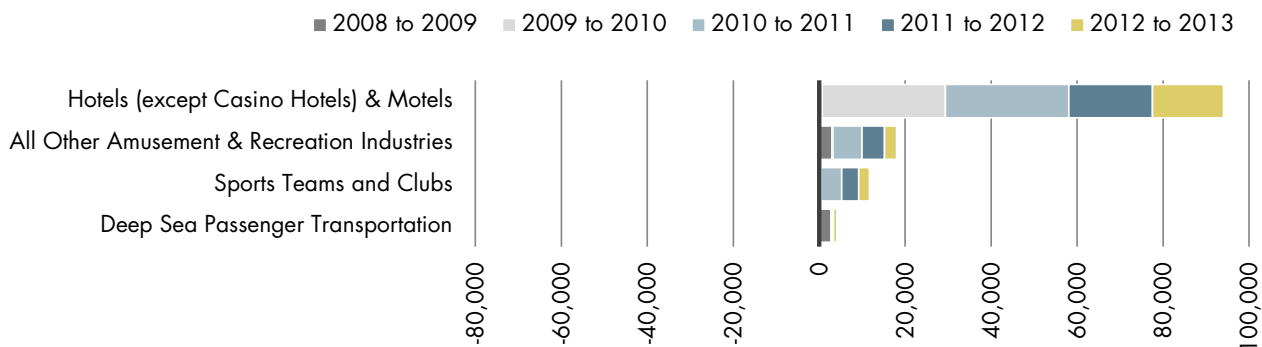
In addition, several stakeholders commented on the need to diversify the USVI’s Tourism product offerings, particularly on St. Croix. The island remains a relatively underutilized tourism destination, yet possesses significant potential to attract visitors. While St. Thomas is better positioned to attract large volumes of cruise ship passengers and resort visitors, St. Croix can benefit from developing more specialized tourism product offerings. Frequently mentioned opportunities include adventure, ecotourism, sports events, arts and crafts, cultural, and festivals and events. Some stakeholders also said more should be done to support the development and marketing of boutique hotels and B&Bs.

CONSTRAINTS

- Resort hotel developers have struggled to get financing for developing new properties on St. Croix.
- Several stakeholders expressed the view that St. Croix lacks strong tourism products. This includes a limited number of high profile tourism destinations, quality hotel rooms, and retail amenities.

FIGURE 24. US EMPLOYMENT TRENDS: TOURISM

Net change in jobs from prior year for relevant industries (chart), selected employment statistics (table)



NAICS Code	Description	2008	2013	Average Earnings per Job
721110	Hotels (except Casino Hotels) & Inns	1,401,184	1,495,204	\$26,498
713990	All Other Amusement & Land Based Industries	124,527	142,512	\$18,796
711211	Sports Teams and Clubs	69,176	80,248	\$186,941
483112	Deep Sea Passenger Transportation	5,569	9,660	\$64,604
Target sector total (as defined)		1,600,456	1,727,624	

Source: EMSI Covered Employment - 2014.1. Note: Average earnings per job reflects total annual earnings of a regional industry (wages, salaries, proprietor profits, benefits, and other compensation) divided by the number of jobs in the industry. **It is not equivalent to wages paid to workers in the sector.**

STRATEGIC RECOMMENDATIONS

- Continue to develop more specialized tourism products that appeal to overnight visitors, including adventure, ecotourism, arts and culture, sports, and festivals and events.
- Work with the USVI Department of Tourism to more closely align its convention and meeting strategy with targeted industry sectors, associations, and occupations. This brings executives and people who fit talent needs to the Territory and exposes them to the USVI's amenities.
- There is the potential to develop Gallows Bay as a destination for small cruise ships and luxury vessels. VIPA is already moving forward with a plan to enhance Gallows Bay through a dredging project and possible expansion of the marine facility.

APPENDIX A: EMPLOYER SURVEY

To better understand local economic and workforce related opportunities and challenges, an online survey was conducted as part of the study. The survey offered employers the opportunity to share their experiences with operating a business and hiring, training, and retaining of workers in the Territory. The survey was distributed by the Virgin Islands’ Bureau of Economic Research (“BER”) through August 2014. A total of 81 firms responded.

RESPONDENT PROFILE

Figure 25 shows selected characteristics of firms that participated in the survey. Respondents largely described themselves as being in service industries. Tourism and hospitality related industries were the largest category, representing 15 percent of respondents. Other service industries represented in the survey include healthcare, professional services, finance and insurance, retail, and real estate. These six industries made up almost 60 percent of respondents. The share of firms in industrial sectors, such as construction, utilities, and manufacturing industries, was around 10 percent, although two of those firms represented a relatively large number of employees. One manufacturer reported between 26 and 50 employees, and one communications utility had over 400 employees.

FIGURE 25. RESPONDENT PROFILE

Industry	%	Location			# Full-time Workers						Not indicated	Time operating in Territory					HQ				
		#	St. Croix	St. Thomas	St. John	10 or fewer	11-25	26-50	51-100	101-400		More than 400	0-2 years	2-5 years	5-10 years	10-20 years	20+ years	Not indicated	Yes	No	Not indicated
Tourism/Hospitality	15%	12	12			7	4			1					5	7		12			
Health Care	10%	8	6	2		7	1						1	1	1	4	1	7	1		
Professional Services	10%	8	7	1		6	1	1					1	2	2	1	2	7	1		
Finance/Insurance	9%	7	7			6		1						2	1	1	3	7			
Retail	9%	7	7			5	2							1	1	2	3	5	2		
Real Estate	6%	5	5			4	1								1	4		4		1	
Manufacturing	5%	4	3	1		3		1							2	2		2	2		
Construction	3%	2	2			2			1				1					2			
Agriculture	3%	2	2			2									2			2			
IT (Hard & Software)	3%	2	1	1		2							1		1			2			
Utilities	3%	2		2		1				1				1			1	2			
Wholesale Trade	3%	2	2			1	1									2		2			
Cultural/Recreation	1%	1	1			1									1			1			
Shipping/Storage	1%	1	1			1							1					1			
Support Services	1%	1	1			1							1					1			
Other/Not indicated	19%	17	15	2		12	4					1	3	1	2	4	6	13	3	1	
Total		81	72	9	0	61	14	3	0	1	1	1	8	8	9	20	34	2	70	9	2

Source: Online employer survey conducted by TIP Strategies, summer 2014

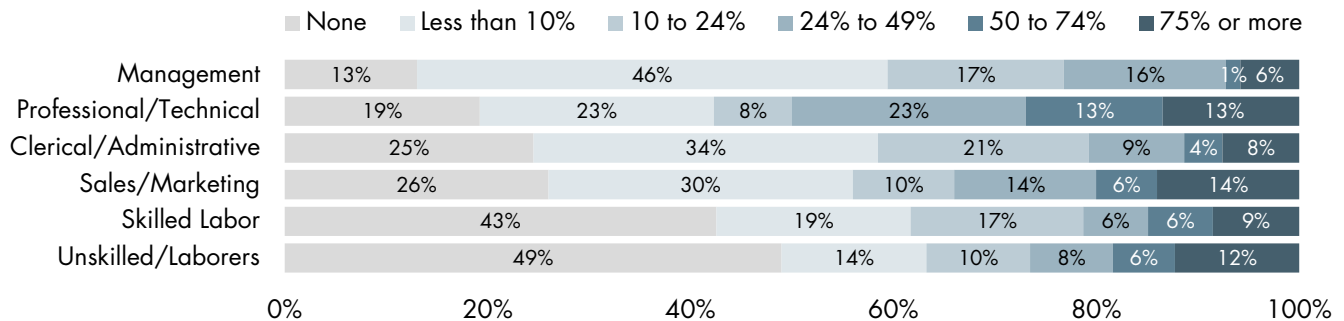
Of respondents who provided a location, more than 80 percent (72 firms) were located in St. Croix. The remaining nine firms were located in St. Thomas, including the previously mentioned utility. There were no respondents from St. John. Businesses with less than 10 employees represented just over three-quarters of respondents. Firms with between 11 and 50 employees represented 21 percent of respondents. In addition to the utility, only one firm employed more than 50 workers—a firm in the tourism/hospitality sector that employed between 101 and 400 staff.

More than 40 percent of respondents (34 firms) reported having operated in the Territory for over 20 years and another 25 percent for 10 to 20 years. All but six firms reported that their headquarters were based in the Territory. Of those six, two were manufacturers, and the remainder were in service industries (retail, finance/insurance, health care, and professional services.)

Responses concerning the composition of the workforce (Figure 26) revealed that management and professional/technical occupations were the most common groups employed by the 79 firms who completed the question. As would be expected, managers accounted for a relatively small share of employment (less than 10 percent) for most respondents. For a few firms, this occupational category comprised more than 50 percent of the workforce. However, these tended to be very small firms with only a handful of workers. Unskilled labor was the least common reported occupation, with only around one-half of responding firms employing workers from that category. Respondents were also less likely to employ skilled workers—a category including skilled production, craft workers, machinists, welders—reflecting the predominance of service firms among the participants.

FIGURE 26. COMPOSITION OF WORKFORCE

Approximate share of workforce by broad category



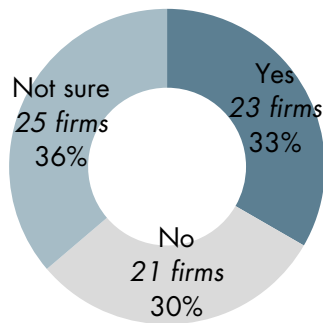
RECRUITING & HIRING

Responses to the two questions concerning hiring plans (Figure 27) were mixed. One third (33 percent) of firms indicated plans to hire additional employees within the Territory in the next two years. The remaining respondents were either not sure (36 percent) or not planning to make any hires (30 percent). Among the 37 participants that provided detail on hiring plans, a total of roughly 220 hires were projected. Approximately 40 percent of firms that planned to hire were anticipating the need for administrative support and professional/technical staff. In terms of the number of planned hires, skilled labor was the largest group, representing about one-quarter of the 220 positions anticipated. Unskilled labor and professional/technical workers were the next largest group in numeric terms representing about 16 percent each of the 220 jobs.

FIGURE 27. HIRING PLANS

Plans to hire next 2 years?

If yes, what types of workers do you anticipate adding?

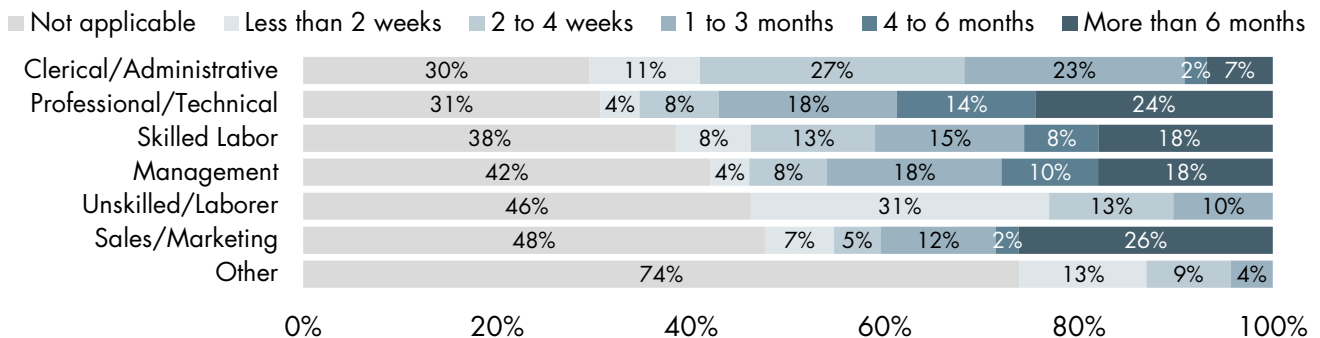


Broad category	# of firms planning to hire in specified category	# of hires anticipated in specified category
Management	9	25
Professional/Technical	16	36
Sales/Marketing	11	21
Skilled Labor	12	57
Clerical/Administrative	15	24
Unskilled/Laborer	7	36
Other	6	21

Source: Online employer survey conducted by TIP Strategies, summer 2014. Responses about anticipated hiring were provided by the 23 firms that indicated hiring plans. Responses under “# of firms planning to hire in specified category” do not total 23, as a single firm could indicate hiring plans across multiple occupational categories.

Of the 64 participants who responded to the question concerning time require to fill workforce vacancies (Figure 28), almost 40 percent indicated that professional/technical positions required four months or more to fill. Skilled labor, management, and sales/marketing occupations faced similar recruitment challenges, with each category taking four months or more to fill for roughly 25 to 30 percent of responding firms. Hiring times for clerical/administrative positions were more moderate, with over 60 percent of respondents reporting vacancy periods of three months or less. Unskilled labor was reported as the easiest category to fill, with nearly 55 percent of firms reporting vacancies lasting no longer than three months. Most of the respondents who provided “Other” responses did not specify a worker classification. The three firms that did elaborate specified restaurant workers, driver/runners, and independent direct marketers.

FIGURE 28. TIME TO FILL WORKFORCE VACANCIES



Source: Online employer survey conducted by TIP Strategies, summer 2014

Respondents were given the opportunity to identify specific occupations and skills they found difficult to recruit in their industry, as well as those they anticipate needing in the future. The resulting responses were too disparate to categorize without sacrificing an important level of detail. The wide array of responses is likely a reflection of the individualized nature of hiring needs of very small businesses, which comprised the vast majority of participating firms. For this reason, the responses to these two questions are included, in their entirety, at the end of this section as Figure 35 and Figure 36.

Despite the wide range of responses received, there were some commonalities. Sales and marketing occupations were mentioned most frequently named, followed closely by management positions, and occupations related to medical and healthcare and tourism/hospitality. The remaining occupations were a broad array, ranging from slot technologists to archaeology.

Of the skills identified as difficult to find, IT and computer-related expertise were the most frequently reported. The next greatest area of concern was related to communication and customer service skills and basic employability. The remaining skills noted cut across a variety of industries from management to jewelers.

BUSINESS VIEWS

Almost 60 respondents rated business climate factors Figure 30 and provided information about the importance of those factors to their business Figure 29. Two of the business climate factors considered most important to respondents—government efficiency and effectiveness and cost of utilities—received the lowest ratings. For those two categories, almost 75 percent of participants considered the factors extremely important to their success, while over 80 percent (98 percent in the case of cost of utilities) rated the Territory's performance on them as extremely poor.

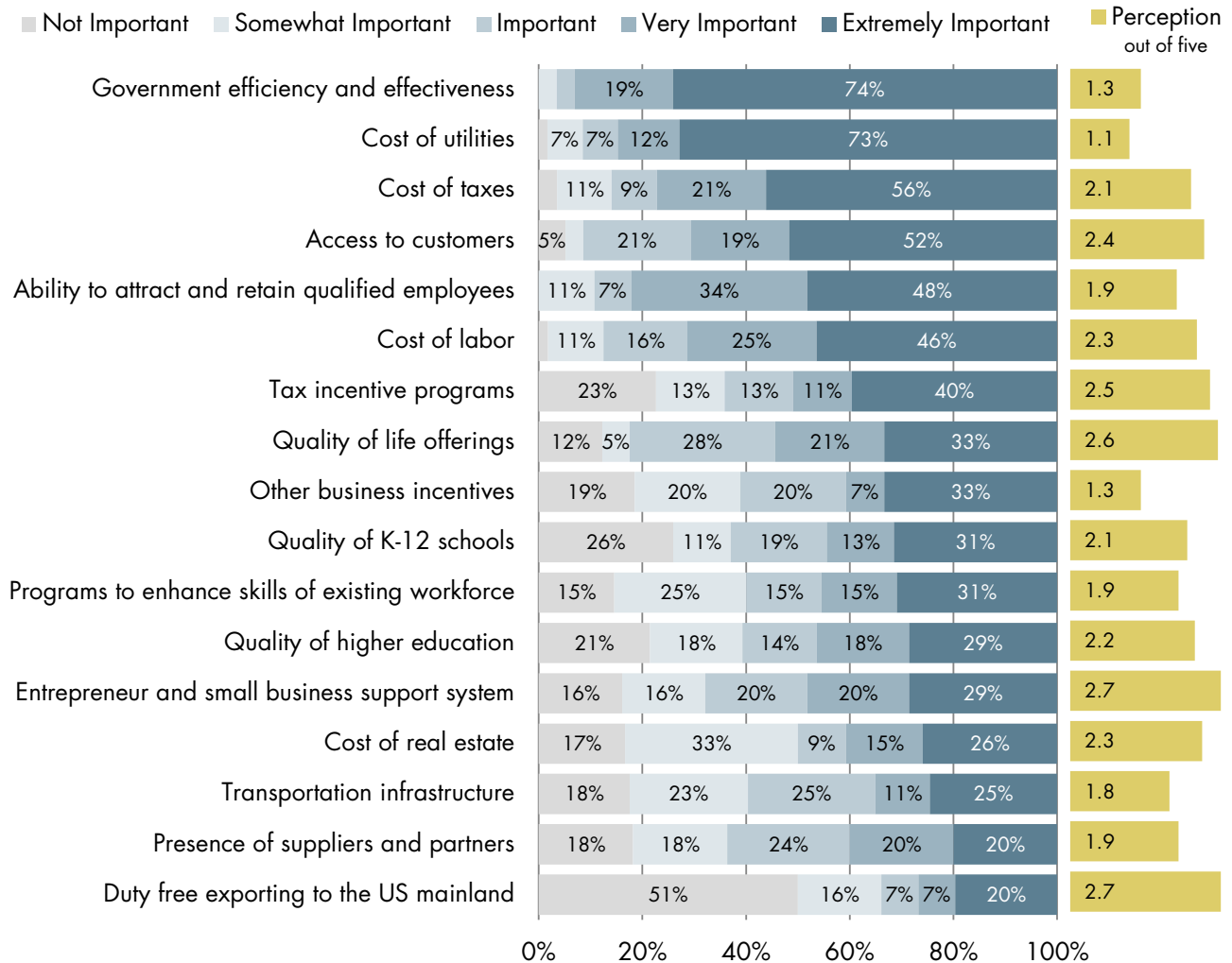
This trend of ranking the Territory poorly on important business climate factors is continued in the next four factors: cost of taxes; access to customers; ability to attract and retain staff; and cost of labor. Over 85 percent of respondents considered those items to be, at minimum, important, if not very or extremely important. Yet the Territory's rating for those factors was perceived as average to below average (between 1.9 and 2.4 out of five). Forty-percent of respondents considered other business incentives (a category including loans, real estate rates, etc.) as very or extremely important, while more than one-half (55 percent) of respondents perceived performance on this factor to be below average or extremely poor.

When asked to rate the Territory on each of the business climate factors, over three-quarters of respondents rated every factor between average and extremely poor. Along with cost of utilities and government performance, a number of key factors (rated over 4.0 out of five in terms of importance) were not well perceived. At least 60 percent of respondents found that access to customers, ability to attract and retain staff, cost of taxes, and other business incentives, were rated either extremely poor or below average. Over 80 percent of respondents rated transportation infrastructure as either extremely poor or below average, however views on the importance of that factor varied. One-quarter of respondents considered transportation infrastructure extremely important, and 18 percent considered it not important.

Respondents were also provided with an opportunity to specify "other" replies. Additional factors, that were considered important, included visitors to the Territory with funds to spend, internet services, access to contracts, and reduced red tape. One additional area of concern was the need for duty-free exporting to the US.

FIGURE 29. IMPORTANCE OF GIVEN FACTORS TO THE SUCCESS OF BUSINESS

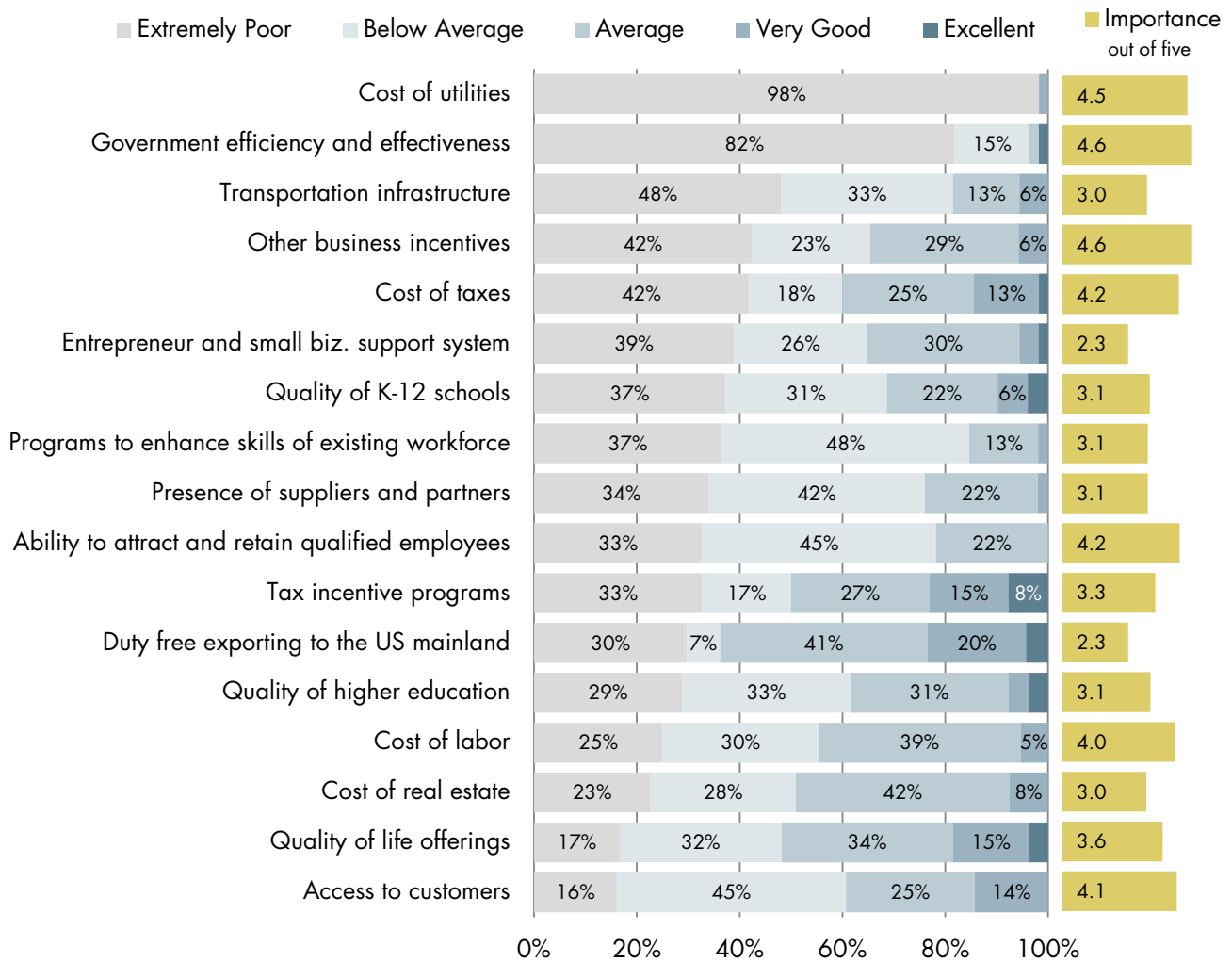
Based on your experience, please rate the importance of the following factors to the success of your business on a scale of 1 to 5.



Source: Online employer survey conducted by TIP Strategies, summer 2014. Ratings of **perception** represent a weighted average of the scale used by respondents to rate the Territory's performance on each factor, where Extremely Poor = 1 and Excellent = 5.

FIGURE 30. PERCEPTION OF TERRITORY PERFORMANCE ON BUSINESS CLIMATE FACTORS

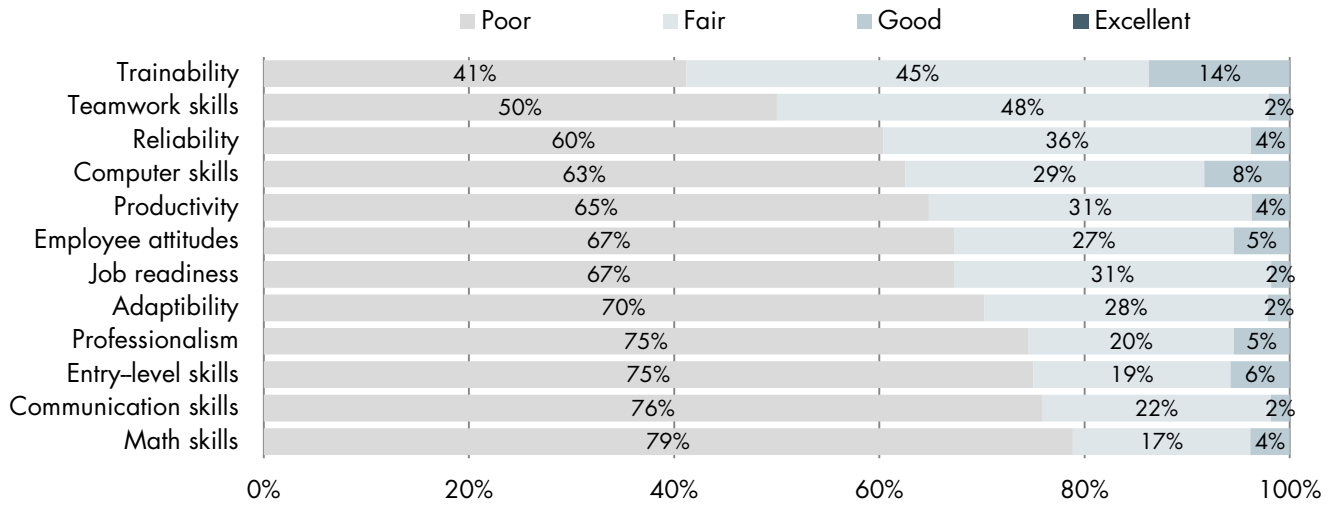
Please rate the Territory on each of these business climate factors.



Source: Online employer survey conducted by TIP Strategies, summer 2014. Ratings of **importance** represent a weighted average of the scale used by respondents to rate the importance of each factor, where Not Important = 1 and Extremely Important = 5.

FIGURE 31. PERCEPTIONS OF WORKFORCE

Share of firms rating workers on indicated characteristics



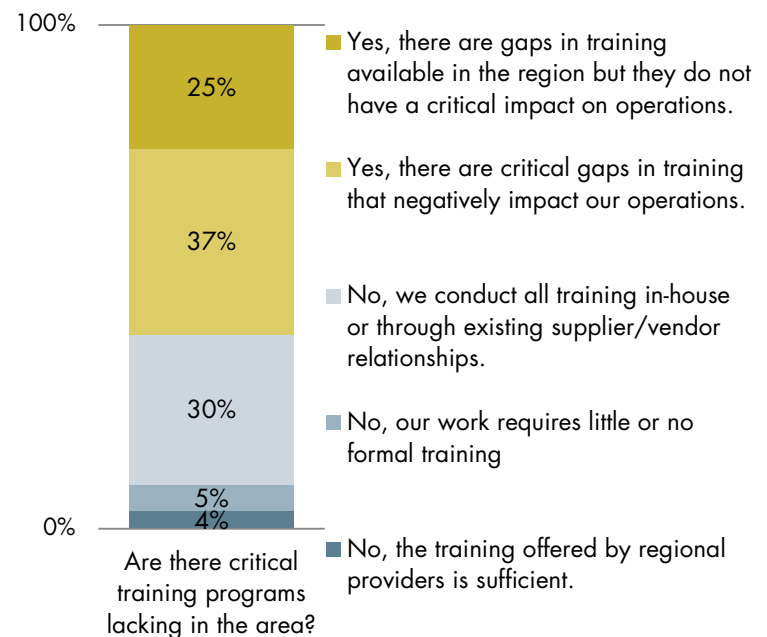
Source: Online employer survey conducted by TIP Strategies, summer 2014

Attitudes toward the Territory’s workforce were largely negative (Figure 31). For every category, more than 85 percent of respondents found the workforce either fair or poor, with no respondents finding any of the categories worthy of an excellent rating. Areas which received less negative ratings included trainability and teamwork, with 50 percent of firms ranking the workforce fair or good in these skills.

Of the 57 firms that weighed in on the Territory’s training programs (Figure 32), only two respondents viewed the training offered by local providers as “sufficient.” Over 60 percent of firms perceived gaps in the available training. Of those, 14 firms indicated training gaps did not have a critical impact; while 21 firms viewed them as having a negative effect on operations.

An additional 20 firms (35 percent) did not identify any critical training gaps because they conduct all training in-house or through vendors and suppliers, or their work requires little or no formal training. There is no way to know from this question, however, whether these in-house training and vendor relationships were established to address a perceived gap at some point in the past.

FIGURE 32. AVAILABILITY OF WORKFORCE TRAINING PROGRAMS

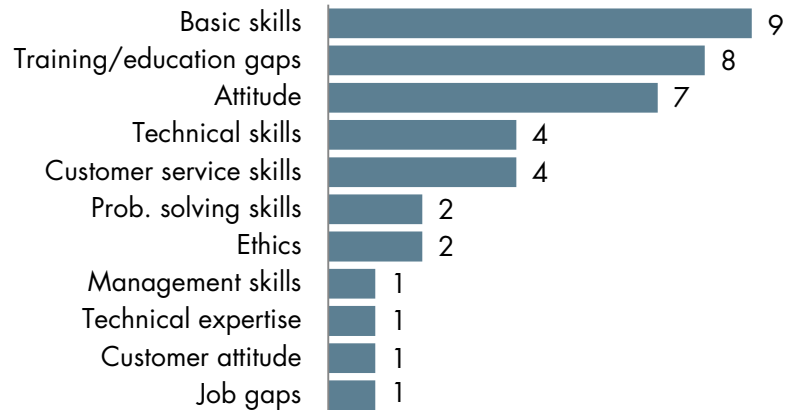


Source: Online employer survey conducted by TIP Strategies, summer 2014

Respondents were provided with an opportunity to contribute additional thoughts regarding workforce training programs. Their responses are categorized in Figure 33. One of the most frequently mentioned concerns was basic skills, such as mathematics, computer skills, written skills, and reliability. Training and education gaps ranged from technical skills to jobs such as dive instructors, law enforcement, CDL drivers, and HAZMAT operators, to workforce preparedness training in high school.

FIGURE 33. OTHER THOUGHTS ON TRAINING

Summary of comments by broad topic



Source: Online employer survey conducted by TIP Strategies, summer 2014

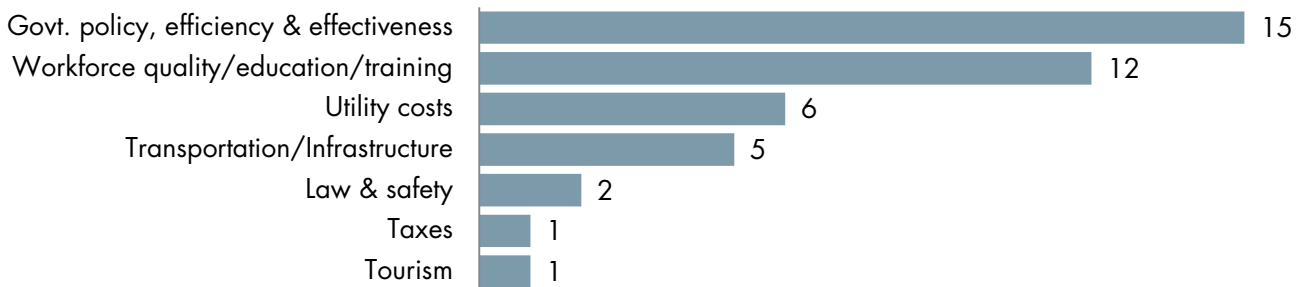
The final survey question asked respondents to provide additional thoughts that would be helpful to the planning processes efforts

to strengthen and grow the Territory’s economy. A total of 27 respondents provided answers that were categorized in Figure 34. The most common area of concern was government policy, efficiency, and effectiveness and related comments largely referred to tax policy, corruption, regulation, leadership, and lack of interagency co-operation.

While utility costs could fit under the infrastructure category, this topic was mentioned so frequently that it has been provided separately. The concern surrounding the costs of utilities is one example of participants repeating certain topics in their responses to multiple questions, including those covering business climate and workforce. Another example is the lack of basic job skills, job readiness, and general workforce and education concerns. In addition, the lack of direct flights and affordable airfares was mentioned by three respondents and categorized under transportation/infrastructure.

FIGURE 34. GENERAL COMMENTS BY BROAD TOPIC ADDRESSED

Please provide any additional thoughts that would be helpful in our efforts to strengthen and grow the US Virgin Islands economy.



Source: Online employer survey conducted by TIP Strategies, summer 2014

FIGURE 35. DIFFICULT OCCUPATIONS TO RECRUIT

Which occupations are difficult to recruit in your industry? [Responses shown as entered]

▪ Account managers	▪ IT
▪ All	▪ Line cooks
▪ All!	▪ Managers/management (4 responses)
▪ Archaeologist	▪ Marketing
▪ Assist. GM	▪ Medical billers
▪ Athletic trainers	▪ MIS
▪ Attorneys	▪ Organic farmer
▪ Bartender	▪ Paralegals
▪ Bookkeeper	▪ Physical therapist
▪ Certified diesel mechanics	▪ Physical therapists
▪ Chefs	▪ Professional
▪ Clerical with the skills to run specific programs	▪ Professionals
▪ Community outreach specialist	▪ Programmers
▪ Community outreach specialists	▪ Qualified administrative support
▪ Competent accounting	▪ Sales people
▪ Computer literate	▪ Sales people
▪ Court watch coordinators	▪ Sales/marketing
▪ Dental hygienist	▪ Sales/marketing
▪ Dentist	▪ Salesperson
▪ Dive instructors	▪ Senior management / executives
▪ Engineers	▪ Skilled drivers
▪ Environmental technicians	▪ Skilled labor
▪ Excellent sales	▪ Skilled professionals
▪ Experienced administrative assistants	▪ Slot technicians
▪ Experienced livestock producer	▪ Table games dealers
▪ Farm manager	▪ Technical
▪ Financial analysts	▪ Technical
▪ Goldsmith	▪ Technical sales
▪ Health related	▪ Training coordinators
▪ House cleaning	▪ Utility regulatory consulting expertise
▪ Investment analysts	▪ Veterinary technicians

General comments included with responses to this question:

- People with experience
- It's almost like culturally accepted to be not show up, quit
- Those that need to travel away to be certified or trained in programs
- The kind that will show up on time and not quit after first pay check

FIGURE 36. DIFFICULT SKILLS TO FIND

Which skills are difficult to find in your industry? [Responses shown as entered]

▪ A sense of Urgency
▪ Accounting
▪ Advanced computer programs
▪ Analytics
▪ Basic customer service!
▪ Basic math skills
▪ Cad drawing
▪ Certified diesel mechanics
▪ Clerical with the skills to run specific programs
▪ Common sense
▪ Communication
▪ Computer
▪ Computer skills all programs including outlook
▪ Creative problem solving
▪ Critical thinking / analytics
▪ Customer service
▪ Customer service
▪ Being nice to customers
▪ Engineering
▪ Estimating
▪ Experience with Microsoft Excel
▪ Financial analyst
▪ Generator service and repair
▪ Good report writing skills and interviewing skills
▪ Hard workers
▪ Hazardous Materials and Hazardous Operations trained
▪ Heavy Equipment or CDL drivers
▪ Honest people
▪ Insurance claims processing
▪ It is difficult to find people who can demonstrate good and consistent customer service skills
▪ IT programming, analysis
▪ IT skills
▪ Jewelers
▪ Just be nice
▪ Law degrees
▪ Legal
▪ Licensed and qualified customer service reps
▪ Managerial

FIGURE 36. DIFFICULT SKILLS TO FIND

Which skills are difficult to find in your industry? [Responses shown as entered]

▪ Line cook
▪ Mathematics
▪ Motivation to excel
▪ Motivation to get the work done
▪ NOP adherence
▪ Organizational development
▪ Physical therapy
▪ Problem solving
▪ Professional acting
▪ Professional conduct
▪ Professional writing
▪ Public speaking
▪ Qualified social networkers
▪ Real estate software
▪ Scientist
▪ Software skills
▪ Spreadsheet analyst
▪ Surgical assistants
▪ Utility generation dispatch and production modeling software
▪ Website designers
▪ Work ethic
▪ Write properly
▪ Writing and communication
▪ Written and verbal communication skills needed

APPENDIX B: LQ AND SHIFT-SHARE ANALYSIS

To document the Territory's existing industrial base, we conducted an analysis of USVI employment using data prepared by EMSI. An analysis of employment data helps to identify industries already present in the Territory that may represent an opportunity to attract suppliers and/or customers. In addition, an industry concentration may indicate that vital location factors for that industry exist in the region, making it attractive for additional companies in that sector. This section provides an overview of the two primary employment analyses conducted: location quotients and shift-share.

A location quotient is calculated as a local industry's share of total local employment divided by the same industry's share of employment at the national level. If the local industry and national industry are perfectly proportional, the LQ will be 1.00. LQs greater than 1.25 are presumed to indicate a comparative advantage. Figure 37, page 50, shows the 39 industries employing 100 or more workers in 2013 with LQs of 1.10 or greater. Not surprisingly, the Territory is highly specialized in tourism-related industries, including retail, personal transportation, and attractions. Of the 39 industries, only one-third added jobs between 2008 and 2013, with many falling into these same categories. In addition to tourism-related activities, a number of industries with above-average LQs are population-driven. Examples include residential construction, department stores, and grocery stores. Industries that are independent of these forces and represent potential targets beyond tourism include manufacturing (petroleum products, beverages), telecommunications, and financial services.

Industry sectors were also assessed for their overall performance and growth potential using a shift-share analysis. Shift-share is a comparative tool used to measure changes in the structure of a local economy against the US economy, or to broad changes in an industry at the national level. This statistical technique identifies the source of changes in a given industry in the local economy by allocating shifts in employment among three components: national, industry mix, and regional competitive share:

- The **national** share looks at the change in local employment resulting from growth or decline in the parent economy. *If the local industry in question had grown at exactly the same rate as the national economy, how many jobs would have been added?*
- The **industry** mix share shows the degree of change within a local industry resulting from changes in the same industry on a national basis. *How did the industry's national growth rate differ from the overall US economic growth rate?* The difference between the two is attributed to the industry's relative performance on a national scale.
- The regional **competitive** share measures the extent to which the unique economic circumstances of a locale contribute to employment growth or decline in a specific industry. *How did the industry's local growth rate differ from its national growth rate?* The difference between the two is attributed to local or regional factors. Factors can include a range of issues, such as the availability of natural resources or other materials, the quality of the local workforce, business climate issues, cost considerations, or infrastructure.

Results of the analysis are highlighted in Figure 38 (page 51) and Figure 39 (page 52).

FIGURE 37. LOCATION QUOTIENT (LQ) ANALYSIS: MOST CONCENTRATED INDUSTRIES

Based on analysis of industries at the 4-digit level with LQs of 1.10 or greater and 100 or more jobs in 2013

NAICS Code	Description	2013 Jobs	Chg. from 2008	2013 LQs (US = 1.00)	2013 Avg. Earnings Per Job	2013 Est.
4483	Jewelry, Luggage, and Leather Goods Stores	959	▼	25.46	\$35,925	134
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	229	▼	21.14	\$43,373	16
7211	Traveler Accommodation	3,411	▼	6.95	\$31,639	52
8113	Comm./Ind. Mach. & Equip. Repair & Maint. (exc. Auto/Electronic)	344	▼	6.47	\$46,354	24
7132	Gambling Industries	233	▲	6.23	\$25,230	6
3241	Petroleum and Coal Products Manufacturing	178	▼	5.73	\$243,144	2
7121	Museums, Historical Sites, and Similar Institutions	190	▲	4.93	\$19,923	12
3121	Beverage Manufacturing	230	▲	4.60	\$56,306	13
5321	Automotive Equipment Rental and Leasing	209	▲	4.17	\$30,704	30
4247	Petroleum and Petroleum Products Merchant Wholesalers	110	▲	4.14	\$194,529	6
4881	Support Activities for Air Transportation	172	▼	3.79	\$18,695	7
5171	Wired Telecommunications Carriers	556	▲	3.44	\$60,187	10
4532	Office Supplies, Stationery, and Gift Stores	283	▼	3.43	\$23,578	38
3273	Cement and Concrete Product Manufacturing	156	▼	3.30	\$50,577	6
5616	Investigation and Security Services	710	▼	3.03	\$15,965	30
6111	Elementary and Secondary Schools (Private)	773	▼	2.90	\$27,417	35
5311	Lessors of Real Estate	438	▼	2.69	\$44,925	79
4248	Beer, Wine, and Distilled Alcoholic Beverage Wholesalers	132	▼	2.66	\$39,179	10
8139	Business, Professional, Labor, Political, and Similar Orgs.	312	▼	2.65	\$28,020	61
5322	Consumer Goods Rental	113	▲	2.46	\$24,321	17
2361	Residential Building Construction	419	▼	2.42	\$34,335	92
4811	Scheduled Air Transportation	278	▼	2.41	\$32,906	15
4521	Department Stores	893	▲	2.09	\$15,227	6
4441	Building Material and Supplies Dealers	593	▲	2.02	\$26,645	40
2362	Nonresidential Building Construction	385	▼	2.00	\$38,593	35
4482	Shoe Stores	104	▼	1.96	\$13,583	18
7224	Drinking Places (Alcoholic Beverages)	174	▲	1.75	\$19,405	22
4451	Grocery Stores	1,181	▼	1.66	\$18,957	49
2373	Highway, Street, and Bridge Construction	137	▼	1.65	\$41,761	7
5313	Activities Related to Real Estate	268	▲	1.59	\$28,663	51
4244	Grocery and Related Product Merchant Wholesalers	304	▼	1.51	\$37,943	23
5221	Depository Credit Intermediation	691	▼	1.46	\$42,066	40
4481	Clothing Stores	422	▼	1.45	\$16,358	92
8123	Drycleaning and Laundry Services	115	▼	1.38	\$16,289	31
4413	Automotive Parts, Accessories, and Tire Stores	199	▲	1.37	\$27,482	22
4842	Specialized Freight Trucking	160	▼	1.34	\$28,093	34
5411	Legal Services	406	▼	1.30	\$58,391	106
4461	Health and Personal Care Stores	340	▲	1.20	\$25,239	49
7139	Other Amusement and Recreation Industries	363	▼	1.14	\$24,891	40

Source: EMSI Covered Employment 2014.1; TIP Strategies

Note: Analysis was conducted on all industries (4-digit NAICS level) with 100 or more jobs in 2013. Results exclude public sector (government) and private household employment.

The idea of shift-share analysis is simply that if local industry growth exceeds that of its peers around the country, it is likely some competitive advantage is being reflected. If it lags, there is likely a negative pattern. A negative regional competitive share would indicate the local industry has not kept pace with growth in the industry at the macro level.

For example, Wired Telecommunications Carriers (NAICS 5171) is among the top industries in terms of the number of jobs added on the strength of local or regional factors from 2010 to 2013, with a competitive effect of 48 jobs. This figure represents the culmination of the shift-share analysis which can be described as follows:

- If employment in this industry had grown at the same pace as the **national economy**, 23 jobs would have been *added* in the industry since 2010.
- If employment in the industry had followed national **industry** patterns, 36 jobs would have been *lost* during this period.

FIGURE 38. SHIFT-SHARE ANALYSIS: MOST COMPETITIVE INDUSTRIES, 2010-2013

Based on analysis of industries at the 4-digit level with 25 or more jobs in 2013

NAICS Code	Description	Actual change	National share	Industry mix	Expected change	Regional competitive share
4521	Department Stores	117	34	-14	20	97
7121	Museums, Historical Sites, and Similar Institutions	81	5	5	10	71
4247	Petroleum and Petroleum Products Merchant Wholesalers	69	2	-1	1	68
4441	Building Material and Supplies Dealers	90	22	1	23	67
5171	Wired Telecommunications Carriers	35	23	-36	-13	48
6211	Offices of Physicians	61	17	2	19	42
5611	Office Administrative Services	46	4	4	8	38
7224	Drinking Places (Alcoholic Beverages)	39	6	0	6	33
3121	Beverage Manufacturing	46	8	7	15	31
4481	Clothing Stores	25	18	-23	-6	31
5313	Activities Related to Real Estate	51	10	12	21	30
6233	Community Care Facilities for the Elderly	37	6	7	13	24
5322	Consumer Goods Rental	9	5	-20	-15	24
5223	Activities Related to Credit Intermediation	24	0	0	0	24
5415	Computer Systems Design and Related Services	31	2	6	8	23
6213	Offices of Other Health Practitioners	27	3	3	6	21
4872	Scenic and Sightseeing Transportation, Water	14	3	-5	-2	16
5172	Wireless Telecommunications Carriers (except Satellite)	11	2	-6	-3	14
5619	Other Support Services	13	1	0	1	12
3273	Cement and Concrete Product Manufacturing	12	6	-6	1	11
4881	Support Activities for Air Transportation	20	7	2	9	11
4239	Miscellaneous Durable Goods Merchant Wholesalers	12	1	1	1	11
4452	Specialty Food Stores	15	3	2	4	11

Source: EMSI Covered Employment 2014.1; TIP Strategies

Note: Analysis was conducted on all industries (4-digit NAICS level) with 10 or more jobs in 2013. Results exclude public sector (government) and private household employment.

- Therefore the “expected change,” based on industry trends and overall growth of the national economy, would have been a loss of 13 jobs.

Yet, in the USVI, an estimated 35 jobs were added in the Wired Telecommunications Industry during the period analyzed. This translates to a **competitive effect** of 48 jobs (the number that would be required to offset the expected loss of 13 jobs and arrive at the actual change of 35).

A high competitive share suggests a comparative advantage in a given industry. Figure 38 shows the industries with the largest competitive effect. Figure 39 shows those where the regional competitive share was negative, suggesting that local factors may be contributing to job losses in the industry.

FIGURE 39. SHIFT-SHARE ANALYSIS: LEAST COMPETITIVE INDUSTRIES, 2010-2013

Based on analysis of industries at the 4-digit level with 25 or more jobs in 2013

NAICS Code	Description	Actual change	National share	Industry mix	Expected change	Regional competitive share
3241	Petroleum and Coal Products Manufacturing	-1,219	62	-48	14	-1,233
8113	Commercial and Industrial Machinery and Equipment (except	-1,007	60	85	145	-1,152
7211	Traveler Accommodation	-93	156	25	181	-274
7221	Full-Service Restaurants	-74	63	62	125	-199
6111	Elementary and Secondary Schools (Private)	-124	40	20	60	-184
5613	Employment Services	-38	16	69	85	-123
7222	Limited-Service Eating Places	-5	48	69	117	-122
5616	Investigation and Security Services	-54	34	32	66	-120
2381	Foundation, Structure, and Building Exterior Contractors	-105	11	-6	5	-110
2383	Building Finishing Contractors	-96	6	-3	3	-99
2373	Highway, Street, and Bridge Construction	-86	10	-8	2	-88
2361	Residential Building Construction	-68	22	-4	18	-86
5311	Lessors of Real Estate	-79	23	-18	5	-84
4483	Jewelry, Luggage, and Leather Goods Stores	-52	45	-13	32	-84
7139	Other Amusement and Recreation Industries	-49	18	6	24	-73
5617	Services to Buildings and Dwellings	-34	21	16	38	-72
7223	Special Food Services	-53	7	12	19	-72
4411	Automobile Dealers	-43	10	15	25	-68
4842	Specialized Freight Trucking	-41	9	17	26	-67
6214	Outpatient Care Centers	-39	6	14	20	-59
6241	Individual and Family Services	-30	8	13	21	-51
2362	Nonresidential Building Construction	-39	19	-7	12	-51
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	-37	12	1	13	-50
4471	Gasoline Stations	-37	7	2	9	-46
5413	Architectural, Engineering, and Related Services	-34	9	3	12	-46

Source: EMSI Covered Employment 2014.1; TIP Strategies

Note: Analysis was conducted on all industries (4-digit NAICS level) with 10 or more jobs in 2013. Results exclude public sector (government) and private household employment.

APPENDIX C: US EMPLOYMENT TRENDS

FIGURE 40. FASTEST-GROWING US INDUSTRIES, 2013

Ranked by net numeric change, 2008 to 2013

NAICS Code	Description	2013 Jobs	Net Change in Jobs from 2008	
			(#)	(%)
7222	Limited-Service Eating Places	4,446,826	+329,608	8%
7221	Full-Service Restaurants	4,861,541	+310,508	7%
6216	Home Health Care Services	1,260,270	+302,359	32%
5613	Employment Services	3,364,753	+265,729	9%
6241	Individual and Family Services	1,473,301	+262,072	22%
5415	Computer Systems Design and Related Services	1,705,917	+220,825	15%
6113	Colleges, Universities, and Prof. Schools (Private)	1,860,668	+207,597	13%
6211	Offices of Physicians	2,435,934	+181,404	8%
4529	Other General Merchandise Stores	1,655,814	+173,912	12%
5416	Mgmt., Scientific, and Technical Consulting Services	1,206,836	+165,877	16%
6214	Outpatient Care Centers	686,834	+155,884	29%
5511	Management of Companies and Enterprises	2,039,655	+144,238	8%
6221	General Medical and Surgical Hospitals (Private)	4,432,401	+137,814	3%
6233	Community Care Facilities for the Elderly	808,617	+125,802	18%
6213	Offices of Other Health Practitioners	736,627	+111,714	18%
5242	Agencies, Brokerages, and Other Insurance Related	1,120,294	+105,647	10%
9026	Education and Hospitals (State Government)	2,900,975	+88,074	3%
2131	Support Activities for Mining	413,990	+83,822	25%
6111	Elementary and Secondary Schools (Private)	961,592	+70,362	8%
4451	Grocery Stores	2,565,747	+64,192	3%
7223	Special Food Services	596,734	+56,652	10%
5313	Activities Related to Real Estate	609,721	+50,846	9%
4251	Wholesale Electronic Markets and Agents and Brokers	898,962	+49,397	6%
6232	Residential Mental Health/Substance Abuse Facilities	591,436	+48,544	9%
5191	Other Information Services	183,877	+48,342	36%
6116	Other Schools and Instruction (Private)	341,757	+47,557	16%
4511	Sporting Goods, Hobby, and Musical Instrument Stores	519,051	+45,104	10%
6212	Offices of Dentists	858,840	+42,202	5%
5611	Office Administrative Services	446,163	+42,084	10%
4541	Electronic Shopping and Mail-Order Houses	287,306	+39,343	16%
2111	Oil and Gas Extraction	198,287	+38,207	24%
5616	Investigation and Security Services	844,751	+37,066	5%
5617	Services to Buildings and Dwellings	1,866,683	+36,460	2%
1151	Support Activities for Crop Production	429,686	+36,306	9%
9011	Federal Government, Civilian	2,865,541	+35,586	1%
4413	Automotive Parts, Accessories, and Tire Stores	523,402	+34,248	7%
6231	Nursing Care Facilities	1,649,570	+32,914	2%
4533	Used Merchandise Stores	150,532	+31,774	27%
6219	Other Ambulatory Health Care Services	269,818	+30,711	13%
5112	Software Publishers	290,928	+29,276	11%
5239	Other Financial Investment Activities	376,901	+29,139	8%
6223	Private Specialty Hospitals (except Psych./Substance Abuse)	213,224	+28,474	15%
8129	Other Personal Services	265,981	+27,389	11%
5614	Business Support Services	854,576	+25,970	3%
6215	Medical and Diagnostic Laboratories	240,547	+25,219	12%

Source: EMSI Covered Employment 2014.1; TIP Strategies

FIGURE 41. FASTEST-GROWING US INDUSTRIES, 2013

Ranked by percentage change, 2008 to 2013

NAICS Code	Description	2013 Jobs	Net Change in Jobs (#)	Net Change in Jobs from 2008 (%)
5191	Other Information Services	183,877	+48,342	35.7%
6216	Home Health Care Services	1,260,270	+302,359	31.6%
6214	Outpatient Care Centers	686,834	+155,884	29.4%
4911	Postal Service (Private Sector)	5,276	+1,144	27.7%
4533	Used Merchandise Stores	150,532	+31,774	26.8%
4859	Other Transit and Ground Passenger Transportation	91,628	+18,774	25.8%
2131	Support Activities for Mining	413,990	+83,822	25.4%
6117	Educational Support Services (Private)	116,728	+22,530	23.9%
2111	Oil and Gas Extraction	198,287	+38,207	23.9%
6241	Individual and Family Services	1,473,301	+262,072	21.6%
4861	Pipeline Transportation of Crude Oil	10,037	+1,668	19.9%
6233	Community Care Facilities for the Elderly	808,617	+125,802	18.4%
6213	Offices of Other Health Practitioners	736,627	+111,714	17.9%
7113	Promoters of Performing Arts, Sports, and Similar Events	104,744	+15,270	17.1%
6116	Other Schools and Instruction (Private)	341,757	+47,557	16.2%
5416	Management, Scientific, and Technical Consulting Services	1,206,836	+165,877	15.9%
4541	Electronic Shopping and Mail-Order Houses	287,306	+39,343	15.9%
6223	Private Specialty Hospitals (except Psych./Substance Abuse)	213,224	+28,474	15.4%
5415	Computer Systems Design and Related Services	1,705,917	+220,825	14.9%
7213	Rooming and Boarding Houses	11,871	+1,464	14.1%
7131	Amusement Parks and Arcades	190,245	+23,082	13.8%
6219	Other Ambulatory Health Care Services	269,818	+30,711	12.8%
6113	Colleges, Universities, and Professional Schools (Private)	1,860,668	+207,597	12.6%
4529	Other General Merchandise Stores	1,655,814	+173,912	11.7%
6215	Medical and Diagnostic Laboratories	240,547	+25,219	11.7%
8129	Other Personal Services	265,981	+27,389	11.5%
4882	Support Activities for Rail Transportation	27,128	+2,761	11.3%
5112	Software Publishers	290,928	+29,276	11.2%
2122	Metal Ore Mining	44,574	+4,418	11.0%
4248	Beer, Wine, and Distilled Alcoholic Beverage Wholesalers	179,102	+17,206	10.6%
7223	Special Food Services	596,734	+56,652	10.5%
5611	Office Administrative Services	446,163	+42,084	10.4%
5242	Agencies, Brokerages, and Other Insurance Related	1,120,294	+105,647	10.4%
6112	Junior Colleges (Private)	83,007	+7,322	9.7%
4922	Local Messengers and Local Delivery	50,914	+4,475	9.6%
4511	Sporting Goods, Hobby, and Musical Instrument Stores	519,051	+45,104	9.5%
1151	Support Activities for Crop Production	429,686	+36,306	9.2%
2121	Coal Mining	88,475	+7,380	9.1%
5313	Activities Related to Real Estate	609,721	+50,846	9.1%
6232	Residential Mental Health/Substance Abuse Facilities	591,436	+48,544	8.9%
1132	Forest Nurseries and Gathering of Forest Products	2,704	+218	8.8%
3119	Other Food Manufacturing	177,094	+14,203	8.7%
5621	Waste Collection	150,322	+11,934	8.6%
5613	Employment Services	3,364,753	+265,729	8.6%
5239	Other Financial Investment Activities	376,901	+29,139	8.4%

Source: EMSI Covered Employment 2014.1; TIP Strategies

APPENDIX D: ADDITIONAL UNDERSEA CABLES

The following information was obtained using the Submarine Cable Map (<http://www.submarinecablemap.com/>) Data are compiled by TeleGeography from their Global Bandwidth Research Service and updated on a regular basis. The seven cable systems with USVI landing points identified by TeleGeography are listed below in order of their "ready-for-service" date (newest to oldest).

PERSEID

Ready-for-Service: Q2 2016

Cable Length: 115 km

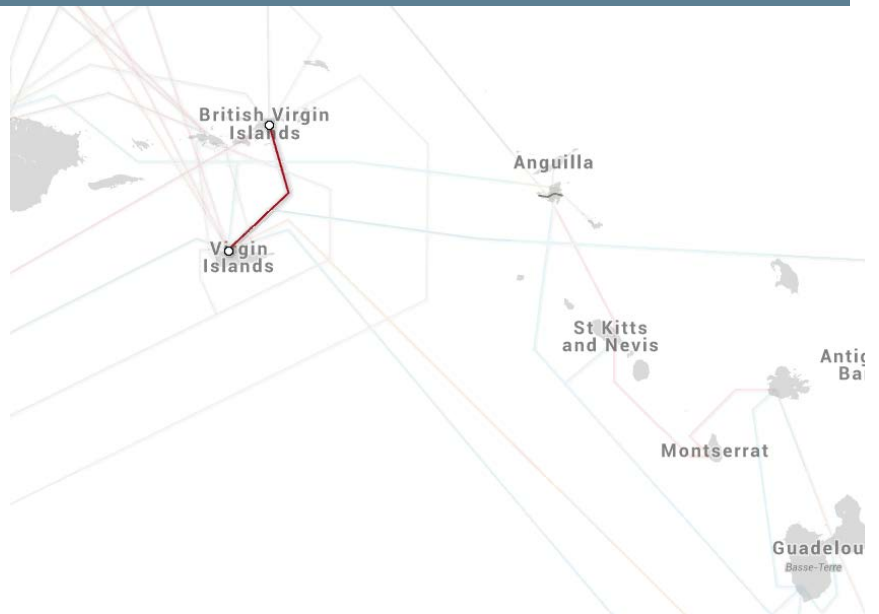
Owners: LinkBermuda

URL: <http://www.linkbermuda.com/>

Landing Points

St. Croix, Virgin Islands, United States

Tortola, Virgin Islands (U.K.)



ST. THOMAS-ST. CROIX SYSTEM

Ready-for-Service: July 2013

Cable Length: 183 km

Owners: Virgin Islands Next Generation Networks, Inc.

URL: <http://www.vingn.com>

Landing Points

Banana Bay, VI, United States

Brewer's Bay, VI, United States

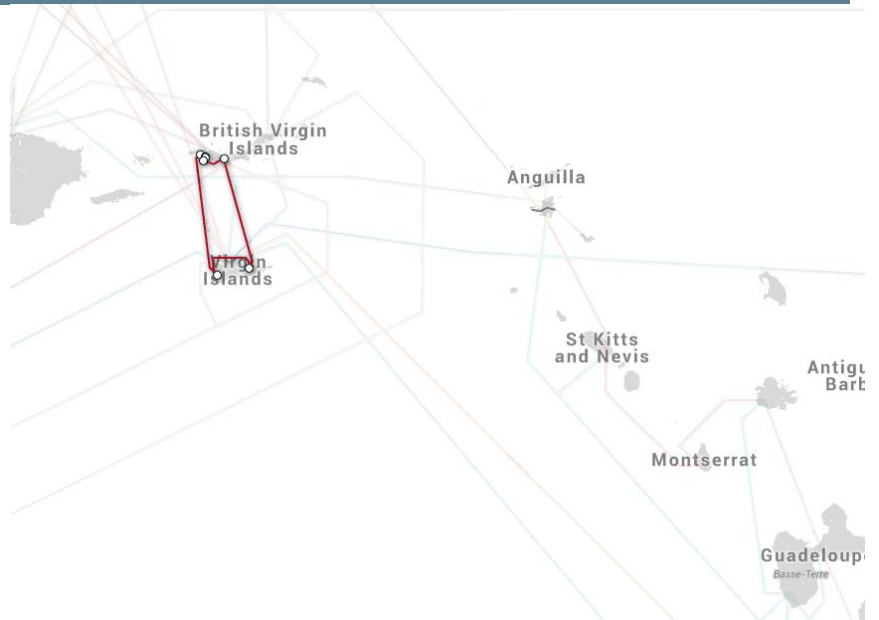
Christiansted, VI, United States

Flamingo Bay, VI, United States

Frederiksted, VI, United States

Great Bay, VI, United States

Vila Olga, VI, United States

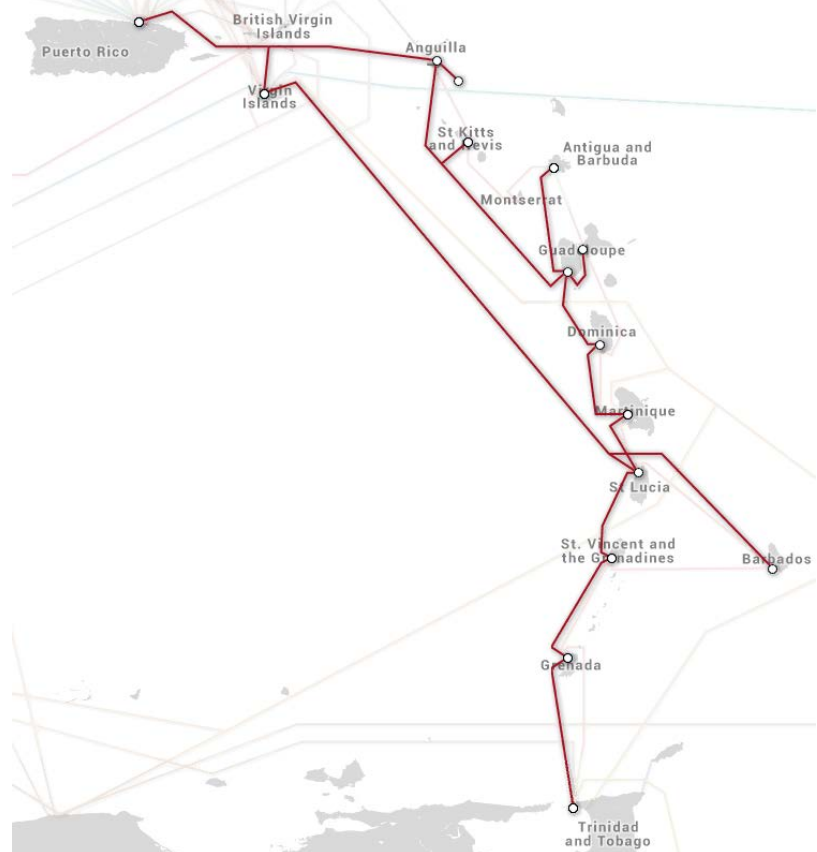


GLOBAL CARIBBEAN NETWORK (GCN)

Ready-for-Service: Sept. 2006
 Cable Length: 3,068 km
 Owners: Leucadia National Corporation, Loret Group
 URL: <http://www.globalcaribbean.net>

Landing Points

- Baillif, Guadeloupe
- Basseterre, Saint Kitts and Nevis
- Canefield, Dominica
- Chaguaramas, Trinidad and Tobago
- Jarry, Guadeloupe
- Kingstown, Saint Vincent and the Grenadines
- Le Lamentin, Martinique
- Needham’s Point, Barbados
- Rodney Bay, Saint Lucia
- Saint Barthelemy, Guadeloupe
- Saint Martin, Guadeloupe
- San Juan, Puerto Rico, United States
- St. Croix, Virgin Islands, United States
- St. George’s, Grenada
- St. John’s, Antigua and Barbuda



SOUTH AMERICAN CROSSING (SAC)/LATIN AMERICAN NAUTILUS (LAN)

Ready-for-Service: September 2000
 Cable Length: 20,000 km
 Owners: Level 3
 URL: <http://www.level3.com>
 Notes: Level 3 owns three fiber pairs on the systems, which it calls South American Crossing. Telecom Italia owns one fiber that it refers to as Latin American Nautilus. Only Level 3 has capacity on the branch to Colombia.

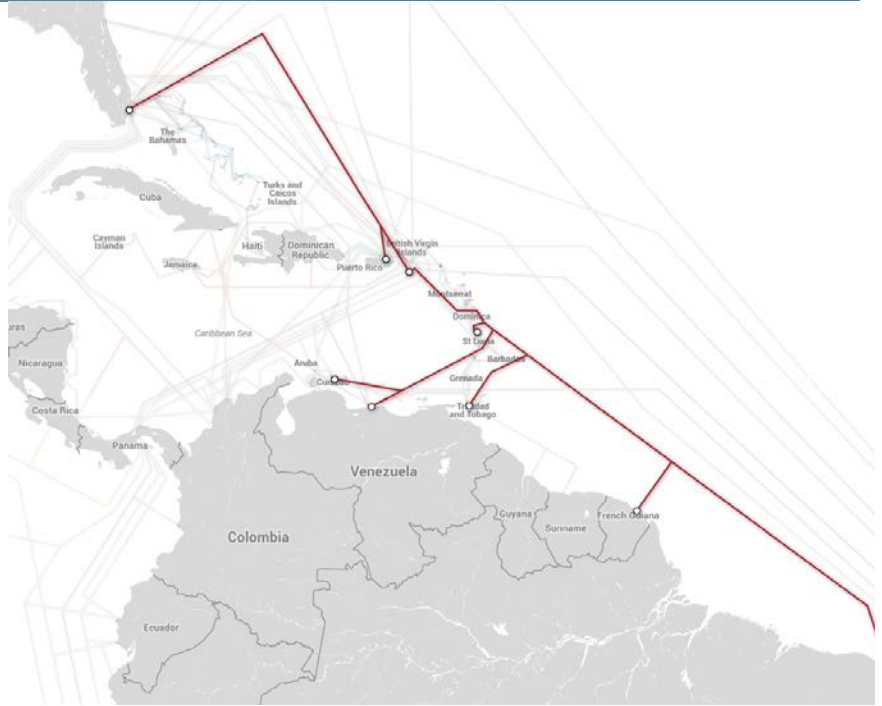
Landing Points

- Buenaventura, Colombia
- Colón, Panama
- Fort Amador, Panama
- Fortaleza, Brazil
- Las Toninas, Argentina
- Lurin, Peru
- Puerto Viejo, Venezuela
- Rio de Janeiro, Brazil
- Santos, Brazil
- St. Croix, Virgin Islands, United States
- Valparaíso, Chile



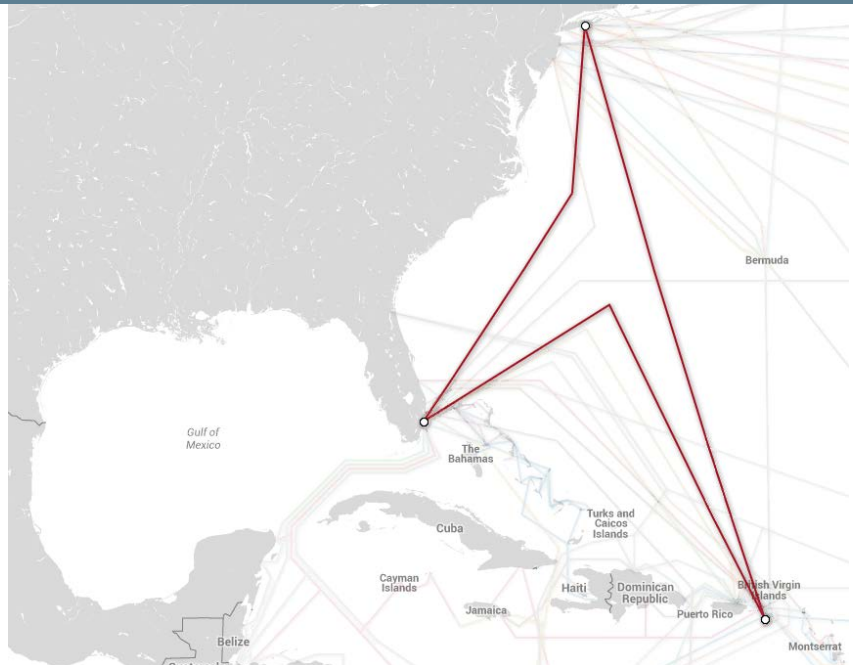
AMERICAS-II

Ready-for-Service: August 2000
 Cable Length: 8,373 km
 Owners: Embratel, AT&T, Verizon, Sprint, CANTV, Tata Communications, Level 3, Centennial of Puerto Rico, Corporacion Nacional de Telecomunicaciones, Telecom Argentina, Orange, Portugal Telecom, Cable & Wireless Communications, Columbus Networks, Telecom Italia Sparkle
 URL: n.a.
Landing Points
 Camuri, Venezuela
 Cayenne, French Guiana
 Fortaleza, Brazil
 Hollywood, Florida, United States
 Le Lamentin, Martinique
 Miramar, Puerto Rico, United States
 Port of Spain, Trinidad and Tobago
 St. Croix, Virgin Islands, United States
 Willemstad, Curaçao



MID-ATLANTIC CROSSING (MAC)

Ready-for-Service: June 2000
 Cable Length: 7,500 km
 Owners: Level 3
 URL: <http://www.level3.com>
Landing Points
 Brookhaven, New York, United States
 Hollywood, Florida, United States
 St. Croix, Virgin Islands, United States



PAN AMERICAN (PAN-AM)

Ready-for-Service: February 1999

Cable Length: 7,050 km

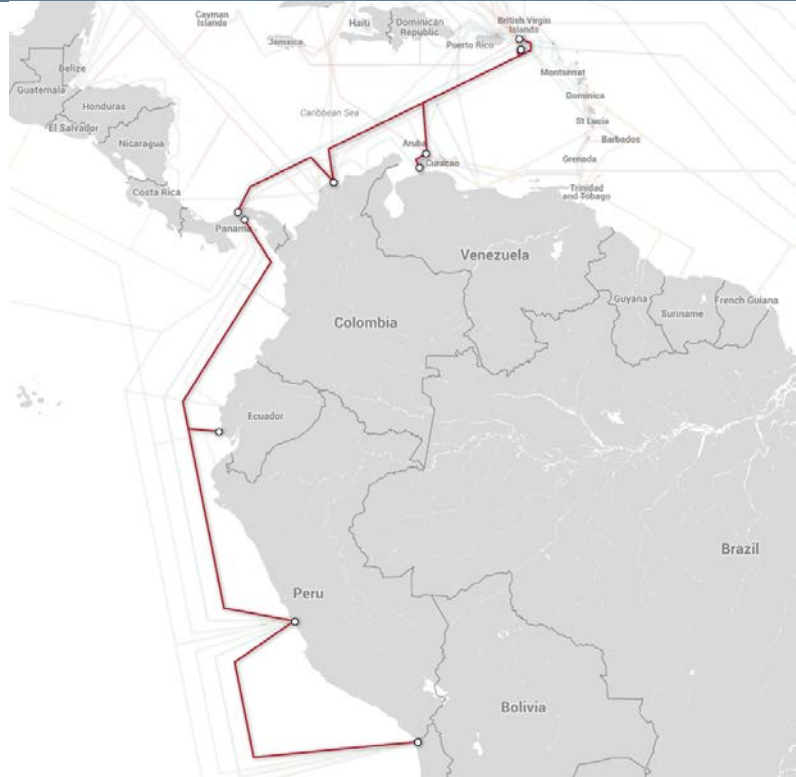
Owners: AT&T, Telefonica del Peru, Softbank Telecom, Telecom Italia Sparkle, Sprint, CANTV, Tata Communications, Telefónica de Argentina, Telstra, Verizon, Telecom Argentina, Telconet, Cable & Wireless Communications, Corporacion Nacional de Telecomunicaciones, Columbus Networks

URL: n.a.

Landing Points

- Arica, Chile
- Baby Beach, Aruba
- Barranquilla, Colombia
- Colón, Panama
- Lurin, Peru
- Panama City, Panama
- Punta Carnero, Ecuador
- Punto Fijo, Venezuela

- St. Croix, Virgin Islands, United States
- St. Thomas, Virgin Islands, United States



NOTES

- ¹ Our work in the Economic Profile draws on a variety of resources made available by the USVI Bureau of Economic Research (“BER”). BER publications reviewed include monthly economic indicators and periodic *Economic Conditions* briefs, as well as a two-part report on the creation of a living wage ordinance in the USVI. In particular, the BER’s 2010 report, entitled *The Self-Sufficiency Standard for the U.S. Virgin Islands*, provided an understanding of poverty levels in the Territory relative to cost of living. In addition to these BER-produced publications, we relied on information and data presented in *The Economic Impact of the US Virgin Islands Economic Development Commission Program (February 5, 2013)*, a report compiled by IHS, Inc. and in two publications prepared by the Virgin Islands Economic Development Authority: the organization’s 2008 Marketing Plan and FY 2013 Annual Report.
- ² Unless otherwise indicated, employment data used in this study were prepared by Economic Modeling Specialists Inc. (“EMSI”). EMSI integrates economic, labor market, demographic, and education data from more than 90 government and private-sector sources to create historic and projected estimates of employment by industry and occupation. The company uses proprietary methods to 1) update government employment data based on other more timely economic indicators; 2) estimate suppressed data; and 3) connect industry data to occupations.
- ³ Time series data are typically indexed to a particular point in an economic cycle (e.g., the peak or trough). In this case, employment figures were indexed to 2001—the first year for which EMSI data are available—in order to provide the longest time horizon possible.
- ⁴ IHS, *The Economic Impact of the US Virgin Islands Economic Development Commission Program (February 5, 2013)* page 31: “Overall, the federal policy has created doubts for many of those operating as EDC businesses about whether they will continue to operate in the USVI. Between 2004 and 2009, 36 companies cited the Jobs Act as the primary reason for terminating or suspending operations in the USVI,³⁴ more than 35% of the number of EDC certificates that were activated during that same period.³⁵ Another 22 companies, or one out of five approved during this period declined to commence activities in the USVI subsequently and let their EDC operating certificate expire.³⁶ Of these expiries, 14 firms let benefits expire between 2004 and 2011, though it is not clear why.³⁷ The lower numbers of expiries in recent years may actually have more to do with the smaller number of applicants the EDC program has received since 2004. Further, the uncertainty of federal tax policy makes business planning difficult—both with US legislative changes and IRS tests.”

Referenced footnotes from IHS report:

³⁴ Closeout Beneficiaries 093011 from EDC.

³⁵ According EDC’s Application Stats 2001-12, 101 companies activated their EDC certificate during the period 2004-2009.

³⁶ Closeout Beneficiaries 093011 from EDC and Application Stats 2001-2012.

³⁷ Closeout Beneficiaries 093011 from EDC

- ⁵ US Bureau of Economic Analysis, *The Bureau of Economic Analysis (BEA) releases 2013 estimates of gross domestic product for the U.S. Virgin Islands* (BEA 14-38), August 19, 2014, press release. http://www.bea.gov/newsreleases/general/terr/2014/VIGDP_081914.pdf
- ⁶ St. Croix Source, “WAPA Switch to Propane Will Improve the USVI Economy,” March 28, 2014 <http://stcroixsource.com/content/commentary/op-ed/2014/03/28/wapa-switch-propane-will-improve-usvi-economy>