

**Market Feasibility Study**  
**For A**  
**Port Technology Incubator**  
**At**  
**The Port of Los Angeles**

December 20, 2010



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# Executive Summary

## Study Purpose

In 2008 a coalition of the San Pedro and Wilmington Chambers of Commerce came together to establish a technology incubator focused on “green” technologies and innovations needed by the Ports of Los Angeles/Long Beach, port tenants and the worldwide maritime shipping industry. The purpose of this effort was to clarify the market opportunity and validate the feasibility of a San Pedro/Wilmington based Port Technology Incubator.

## Defining the Primary Market Area

Based on a review of published data and anecdotal information obtained from interviewees, Claggett Wolfe Associates concluded that the primary market area for drawing resident incubator clients to a San Pedro/Wilmington-based Port Technology Incubator would encompass an area extending approximately fifteen (15) miles from San Pedro. Due to the prominence of the Ports of Los Angeles/Long Beach and the unique focus of the Port Technology Incubator, non-resident (or temporary use) clients may be attracted from other areas within the Los Angeles region as well as from other domestic and international locations.

## Feasibility Assessment

The feasibility assessment focused on the level of venture formation and expansion that would fall under the port technology umbrella and could be supported by a San Pedro/Wilmington based incubation program. Port technologies were categorized into three (3) primary technology classifications which best reflected the opportunities associated with the Ports of Los Angeles/Long Beach: container handling/terminal logistics; environment, health and safety; and customs and security. With the primary market area and port technologies defined, Claggett Wolfe Associated conducted quantitative and qualitative assessment of a number of different factors which can influence the feasibility of a business incubator. These were:

- Potential market demand for incubator facilities and services;
- Local conditions and their effect on business formation and expansion;
- Project’s ability to meet community/stakeholder objectives and garner local support;
- Suitability of local real estate; and
- Availability of funding.

The assessment involved a review of published data sources and reports, and over 65 face-to-face and telephone interviews with key informants from the community, the ports, academia, business and government.

## Conclusions

The following conclusions were reached when assessing each of the factors that would influence the feasibility of a San Pedro/Wilmington based Port Technology Incubator.

### Market Demand

Claggett Wolfe Associates anticipates that the greatest level of market demand will come from assisting more established domestic and international companies (e.g., Advanced Algae, Boeing and Siemens) with existing technology products/services that may have port applications (see Table 1). There will be opportunities to mine new technologies developed by local innovators/university researchers, and build startup companies around them (e.g., Marine Oil Technologies) through an incubation process, but the research did not show this to be a robust and sustainable source of near-term deal flow (i.e., within the next three (3) to five (5) years). Consequently, the program’s greatest value will be in bridging the gap between companies that may have existing technologies with port applications and Port tenant/service businesses that have specific operational or regulatory compliance needs. Nurturing the formation of new companies to fill these needs will be useful, but the Port of Los Angeles/Long Beach (and other ports around the world) tenants/service businesses are consumers versus creators of new technologies so the program’s primary emphasis will be to support these businesses. The program should be positioned to attract clients from a global (versus local) market as projections indicate that over half of the program’s clients will come from outside San Pedro/Wilmington and/or the City of Los Angeles.

**Table 1: Projected Incubator Demand by Source**

	<b>Estimated # of Resident Clients</b>	<b>Estimated # of Non-resident Clients</b>
<b>Venture Generators</b>		
Company Spin-offs and Local Entrepreneurial Activity	4 to 6 every 2 to 3 years	Included below under Other Domestic Companies
Universities & Federal Labs	None	1 to 2 every 2 to 3 years
<b>Other Demand Generators</b>		
Other Domestic Companies	Conversion of 1 to 2 non-resident clients every 2 to 3 years	6 to 8 every 2 to 3 years
International Companies	2 to 3 every 2 to 3 years	2 to 3 every 2 to 3 years
Student Ventures	No anticipated near term demand	No anticipated near term demand

## **Local Conditions**

The resources needed to operate a business (e.g., human capital and infrastructure) and services need to grow a business (e.g., service providers, equity investors, etc.) were found to be sufficient to support businesses in the port technology sector. The San Pedro/Wilmington area's image as place to operate a technology business was found to be challenging. Local business owners and community representatives had significant pride in their communities, both as a place to work and live. However, interviewees from outside the area indicated that San Pedro/Wilmington were viewed as being remote with further concerns about crime, both of which run counter to the type of environment that would attract technology entrepreneurs. A number of interviewees from outside the community that had recently visited San Pedro noted that it was much nicer than they had envisioned, but their previous perceptions were less than positive. Although not an insurmountable hurdle to operating an incubator, the program would have to implement an aggressive public relations effort to change these perceptions.

## **Community/Stakeholder Support**

Community representatives, economic development professionals, business assistance organizations, educators, business owners and elected officials all agreed on the need to stabilize and diversify the San Pedro/Wilmington economy. The hiring of a full-time Executive Director (Jeff Milanette) for PortTechLA in the Fall of 2009 was a pivotal point in positioning port technology as a targeted sector to support the growth of businesses and jobs. Through the efforts of Mr. Milanette, these efforts have taken shape with educational/networking events highlighted by the highly successful PortTech Expo. The momentum gained from these efforts has brought together key partners, and garnered stronger recognition and commitment from the Port of Los Angeles. This alignment of major stakeholders, combined with the global recognition that will be garnered through the commitment of the Port of Los Angeles, lays the groundwork for developing a more robust Port Technology Incubation program. The program still faces challenges since the project team did not find consensus that a Port Technology Incubator was the appropriate economic development tool to drive a port focused economic development agenda. However, the program has a solid footing on which to move to the next step in developing a full complement of port technology incubation/commercialization services.

## **Local Real Estate**

Projected demand from resident and part-time clients would necessitate a facility with approximately 15,000 sq. ft. of office and light industrial space. The facility should be configured with approximately 3,000 sq. ft. to 4,000 sq. ft. of office space, 3,600 sq. ft. to 4,800 sq. ft. of light industrial space (i.e., high bay space with roll up doors and a single office), and 2,000 sq. ft. to 3,000 sq. ft. of high bay demonstration space.

Given these parameters a San Pedro/Wilmington based Port Technology Incubator faces significant challenges from a real estate perspective. In addition to a diverse set of space requirements, clients locating in a facility-based program will want to be in proximity to amenities (e.g., restaurants, coffee shops and office supply stores) and in a location that is

perceived as safe on a 24/7 basis. A very limited number of San Pedro/Wilmington properties/sites reviewed by Claggett Wolfe Associates met these and other site selection criteria outlined in the full report. However, suitable facilities to house non-resident clients or program graduates were identified in surrounding areas such as Long Beach and Harbor City/Harbor Gateway.

## **Funding Availability**

Port Tech LA has already received fifty thousand dollars (\$50,000) from Supervisor Knabe and two hundred fifty thousand dollars (\$250,000) from the U.S. Small Business Administration made possible by Senator Feinstein. An additional one hundred seventy-five thousand dollars (\$175,000) was contributed by the LA Regional SBDC as part of its regional business assistance efforts. The availability of additional funding from these sources is not clear at this time. Discussions with the City of Los Angeles indicated that current economic conditions and fiscal challenges may preclude any financial commitment from the City at this time. The Port of Los Angeles has committed funds to keep the project moving forward for the next few years, but has indicated that at some point in the future the program would have to become self-sustainable. Other sources of funding (e.g., Bank of America Foundation, U.S. Department of Commerce Economic Development Administration and U.S. Small Business Administration) have become increasingly more competitive as both new and existing programs tap these sources to establish, expand or sustain their programs.

## **Financial Feasibility**

As noted above the projected demand from resident clients would support a 15,000 sq. ft. incubator, which is significantly smaller than the 35,000+ sq. ft. typically associated with sustainable incubators. In order to reach financial sustainability the Port Technology Incubator would have to develop a hybrid model that either generates rental income or is rent neutral (e.g., rental revenue covers rental costs), and provides sufficient value to its sponsors and clients to warrant outside investment and fee for service revenue to cover operations. This type of model has been implemented successfully by other programs (e.g., the Environmental Business Cluster in San Jose, CA and the William Factory Small Business Incubator in Tacoma, WA), but it requires clear delineation of the program's value to each investor and client with regular adherence to quantifiable performance metrics.

## **Recommendations**

Claggett Wolfe Associates recommends that the Port of Los Angeles and its partners move forward with a Port Technology Commercialization/Incubation program with the objective of establishing sufficient value to warrant future investment and reach financial sustainability. Project sponsors and supporters should also consider the following.

- Focus on Commercialization versus Incubation
- Develop a Technology Mining/Commercialization Process

- Make TAP or TAP Type Funding Available to Program Clients
- Work to Combine the Port of Los Angeles and Port of Long Beach Incubator Efforts
- Prepare a Business/Implementation Plan
- Establish a Temporary Port Technology Commercialization/Incubation Facility
- Evaluate Opportunities for Sharing Resources and Facilities with the Proposed Marine Science Institute Incubator
- Enhance San Pedro's and Wilmington's Entrepreneurial Culture
  - Entrepreneurship Training
  - Entrepreneurship/Small Business Recognition Activities

In summary, the Port of Los Angeles and its partners have an opportunity to lay the groundwork for the first Port Technology Commercialization/Incubation program in the world and establish the San Pedro Bay as the hub of port technology development world-wide. The business activity resulting from this effort would help to diversify the area economy while assisting the Ports of Los Angeles/ Long Beach and their tenants improve operations, address homeland security concerns, and meet air and water emission goals.



# Section 1: Introduction

## 1.1 Study Purpose

In 2008 a coalition of the San Pedro and Wilmington Chambers of Commerce came together to establish a technology incubator focused on “green” technologies and innovations needed by the Ports of Los Angeles/Long Beach, port tenants and the worldwide maritime shipping industry. The resulting San Pedro Bay Port Technology Development Center (PTDC) was formalized in a business plan completed in February 2009 and proposed as an initiative of the City and Port of Los Angeles. In November of 2009 the PTDC was able to secure sufficient funding commitments to contract with a full-time director from a number of different sources the largest being the Los Angeles Regional Small Business Development Center (SBDC) and the Port of Los Angeles. These commitments were also used to fund this study whose purpose is to clarify the market opportunity for the PTDC and the on-going feasibility of the program. (Note: In the spring of 2010, the PTDC changed its name to PortTechLA.)

## 1.2 Business Incubation Overview

A business incubation program is:

“A program in which entrepreneurs, existing business owners, principal investigators of funded research projects, corporate development teams and other innovators can receive pro-active support and access to critical tools, information, contacts, resources, and coaching that may otherwise be unaffordable, inaccessible, or unknown. The resulting services provide value to, and assist in the growth of, client businesses served by the incubator.”<sup>1</sup>

The first business incubator was established in Batavia, New York, in 1959 as a response to local plant closures. Recognized as a practical approach for creating new jobs through business formation and expansion, business incubators became recognized as viable tools for economic development. In the 50 years since their inception, approximately 1,100 business incubators have been developed in North America<sup>2</sup> and an estimated 5,000 to 6,000 have been developed worldwide. Business incubators support diverse economic goals ranging from economic empowerment (for minority and disadvantaged business owners)

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<sup>1</sup> Chuck Wolfe, *Claggett Wolfe Associates*.

<sup>2</sup> Knopp, Linda, *2006 State of the Business Incubation Industry*, NBIA Publications, 2007, p.1.

and economic diversification to technology commercialization and industry cluster development.<sup>3</sup>

A nationwide survey of incubators conducted in 2006 reported the following:

- The average size of the incubation facilities was 37,000 square feet.<sup>4</sup>
- The average number of client companies served was twenty-five (25), including resident and affiliate clients.<sup>5</sup>
- The average number of incubator staff was 1.8 (down from 2.8 in 1998).<sup>6</sup>
- The median time clients were served by the incubation program was thirty-six (36) months.<sup>7</sup>
- The top four venture development obstacles encountered by incubator clients were:<sup>8</sup>
  - Incomplete or inadequate management team;
  - Lack of financing for company;
  - Lack of background or expertise in entrepreneurship; and
  - Limited access to relevant networks or expertise.

Although many individuals associate business incubators with a physical facility, it has limited impact on growing successful companies. Successful business incubators (both those with and without a facility) have selective entrance criteria, and are characterized by a dynamic, pro-active support structure, including business coaching; high-quality, value-added resource networks; experienced mentors; peer-to-peer networking/support programs; corporate/university linkages; and other services that help clients build viable companies. The selective entrance criteria and pro-active support structure are key elements to “best practice” business incubators, and distinguishes them from other

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<sup>3</sup> Cluster focused incubators have been developed for the arts, bio sciences, information/communications technology, clean technology, homeland security, precision machining and tool, food processing, telecommunications, etc.

<sup>4</sup> Knopp, Linda, *2006 State of the Business Incubation Industry*, NBIA Publications, 2007, p. 2.

<sup>5</sup> Ibid, p.2.

<sup>6</sup> Ibid, p. 38.

<sup>7</sup> Ibid, p. 43.

<sup>8</sup> Ibid, p. 48.

assistance programs such as the U.S. Small Administration's Small Business Development Centers (SBDC).<sup>9</sup>

The business incubator concept has been expanded since its early beginnings to include: incubation networks, which integrate multiple business incubator facilities and business assistance programs throughout a region; virtual incubation programs, where clients are served without the aid of a physical location; soft-landings, where domestic and international clients can gain a foothold in a different economic region by setting up shop (or landing) in an established incubation program; and cluster focused incubators that support selected industries such as clean technology, specialty foods and the arts.

Interviews with "best practice" incubation program managers conducted by Claggett Wolfe Associates have indicated that client success rates range from 80% to 90%. In addition, over 84% of the businesses locate within five (5) miles of the incubator site after graduating from the program.<sup>10</sup> The most successful business incubators in the US (judged by how thoroughly they fulfill their mission and meet stakeholder goals) are directed by highly skilled managers who: 1) understand entrepreneurship and can address the unique issues of small and growing young businesses; and 2) are effective in marketing the incubator, facilitating the use of value added resources and services, and establishing broad collaborations among stakeholders and supporters.

"Best practice" business incubators focus on adding value to their clients and generating measurable outcomes that meet the goals and objectives of their stakeholders (e.g., local governments, universities and private sector sponsors). However, some industry clusters, as well as some businesses, are better served by a business incubator than others. As a result, when assessing the feasibility of a business incubator a number of factors must be considered.<sup>11</sup>

- Potential market demand for incubator facilities and services from resident and non-resident clients.
- Local conditions and their affect on business formation and expansion.
- Project's ability to meet community/stakeholder objectives and garner local support.
- Availability of funding and the project's financial viability.

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<sup>9</sup> SBDCs have been used effectively by a number of incubation programs to provide supplemental support to the broader incubation service offerings.

<sup>10</sup> Molnar, Lawrence; et.al, *Business Incubation Works*, NBIA Publications, 1997, E-13.

<sup>11</sup> Additional factors must also be considered when evaluating the financial feasibility of a business incubation program.

### **1.3 Report Organization**

The three subsequent sections of this report are designed to evaluate the factors above and point to issues bearing on the feasibility, or not, of a Port Technology Incubator. The Defining the Primary Market Area section describes the geographic area that might be served by a San Pedro/Wilmington based Port Technology Incubator. The Feasibility Assessment section assesses industry sectors that might be supported by a business incubator and other conditions that might affect the feasibility of such a program. The Conclusions and Recommendations section summarizes study findings and outlines actions that may be taken relative to a San Pedro/Wilmington based Port Technology Incubator.

## Section 2: Defining the Primary Market Area

A business incubator's primary market area is defined as the geographic area from which the program will draw a majority of its clients. Defining this area varies by region and may be influenced by a number of factors, including accessibility, industry focus, competitive forces, the presence of unique assets such as a research university, and the availability of services to differentiate the incubator from other competing programs.

The project team made the following observations as it evaluated the market area that might be served by a Port Technology Incubator based in San Pedro/Wilmington.

- The cluster of Port related business activity extends out from the Ports of Los Angeles/Long Beach into Los Angeles and Orange Counties. However, the project team found that most of the innovation (as measured by patent and research grant activity) was concentrated within a fifteen (15) mile radius in cities such as Torrance, Hawthorne, Compton, and Long Beach.
- The principal means of travel within the San Pedro/Wilmington area of Los Angeles is by automobile. Commute patterns vary due to the economic diversity of the area.
- San Pedro and Wilmington are viewed as remote, less appealing areas to individuals from outside the immediate communities. This image along with the Los Angeles region's issues with congestion (and the resulting perceptions of acceptable travel distances) will limit the geographic area from which a San Pedro/Wilmington-based technology incubator can draw resident clients.
- Although the Ports of Los Angeles/Long Beach are not generators of new innovations they serve as significant assets to engage non-resident incubator clients who wish to sell to the ports and/or test new port technologies/services.
- San Pedro and Wilmington are not currently served by an existing incubator focused on port technologies although the City of Long Beach is considering such an effort.

Based on a review of this information and anecdotal information obtained from interviewees, the project team concluded that the primary market area for drawing resident incubator clients to a San Pedro/Wilmington-based Port Technology Incubator would encompass an area extending approximately fifteen (15) miles from San Pedro as shown in Figure 2.1. Due to the prominence of the Ports of Los Angeles/Long Beach and the unique focus of the Port Technology Incubator, non-resident (or temporary use) clients may be attracted from other areas within the Los Angeles region as well as from other domestic and international locations.



## **Section 3: Feasibility Assessment**

### **3.1 Introduction**

A feasibility assessment was conducted to identify the market opportunity and feasibility of a Port Technology Incubator located in San Pedro/Wilmington. The chief focus was on the level of venture formation and expansion that would fall under the port technology umbrella and could be supported by the incubation program. This process involved both a quantitative and qualitative assessment of a number of different factors which can influence the feasibility of a business incubator. These are:

- Potential market demand for incubator facilities and services.
- Local conditions and their effect on business formation and expansion.
- Project's ability to meet community/stakeholder objectives and garner local support.
- Suitability of local real estate.
- Availability of funding.

To complete the feasibility assessment the project team gathered information from published data sources and reports, and from over 65 face-to-face and telephone interviews with key informants from the community, the ports, academia, business and government.

### **3.2 Defining Port Technology**

Port technology is not a clearly defined industry sector. Consequently the project team began developing an appropriate definition by considering the nine (9) classifications identified by Port Technology International (<http://www.porttechnology.org/>): port planning, design and construction; environment, health and safety; vessel traffic services (VTS) and aids to navigation; mooring and berthing; container handling; terminal logistics; dry bulk handling; customs and security; and liquid, chemical and gas handling (see Appendix A for a more detailed presentation of these classifications). Following discussions with port staff, these classifications were refined into three (3) primary technology classifications: container handling/terminal logistics; environment, health and safety; and customs and security. The VTS and navigation classification was also included as part of the assessment of other business activity due to the concentration of military contractors in the Los Angeles region and the current activity involving these technologies at the POLA.

### **3.3 Market Demand Analysis**

Demand for a port technology focused business incubator within the primary market area (see Section 2) may come from a number of different sources including regional business activity, local innovation (e.g., funded research and patent filings), entrepreneurship

programs, and non-resident businesses seeking to have a presence near the Ports of Los Angeles/Long Beach. Determining the level of demand involved a quantitative assessment of information including:

- Existing Business Activity,
- Trends in Startup Activity,
- Levels of Funded Research and Innovation,
- Level of spin-off activity from local corporations, and

This was followed by a qualitative assessment of other factors that may influence demand including:

- Entrepreneurial culture,
- Availability of value added business services, and
- Competitive forces.

Each of these quantitative and qualitative measures is discussed below.

### **3.3.1 Existing Business Activity**

To evaluate existing business activity within the primary market area the project team identified Standard Industrial Classification (SIC) codes<sup>12</sup> representing businesses involved in activities that might fall within the port technology classifications outlined above. These SIC codes were used to generate a list from the Dun & Bradstreet Zapdata.com database which served as the baseline of existing business activity within the primary market area. The search resulted in the identification of approximately nineteen hundred (1,900) businesses which were separated by SIC code classification as presented in Appendix A. To ensure that the findings within the primary market area did not misrepresent unexpected port technology opportunities occurring within a broader radius from San Pedro/Wilmington, the project team reviewed U.S. Census Bureau County Business Pattern data for Los Angeles County for the period 2003 to 2007 in addition to its review of Funded Research and Innovation (see Section 3.3.3) which also included the broader Los Angeles Region. A review of the U.S. Census Bureau County Business Pattern revealed that, as anticipated, the port cluster extended further from the port than the fifteen (15) mile radius selected for this study. However, activity outside the fifteen (15) mile radius was primarily concentrated in non-port technology subsectors (e.g., freight transportation and freight transportation arrangement) and the trends between 2003 and 2007 showed significant declines, rather

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<sup>12</sup> The Dun & Bradstreet Zapdata.com database groups businesses by SIC code rather than the more current the NAICS code.

than growth, in most of the port technology subsectors. As a result, the project team concluded that the current business activity within the primary market area would best reflect the potential demand for space at a Port Technology Incubator located in the San Pedro/Wilmington area.

The marine science sector may provide additional opportunities that could be supported by the Port Technology Incubator if the proposed Marine Research Institute at City Dock No. 1 is developed. However, the status and potential opportunities associated with the sector could not be fully analyzed as part of this study.<sup>13</sup>

### **Container Handling/Terminal Logistics**

The primary market area is home to approximately sixty-five (65) businesses involved in port operations (e.g., railroad switching/terminal operations, marine cargo handling, and transportation services) which fall outside the port technology classifications that could be supported by a technology incubator, but are essential port businesses. The container handling/logistics classification does include a small cross section of business categories represented by local companies such as Balqon Inc. (electric truck manufacture), Pan Pacific Surveyors (surveyors of marine cargo), and Progress Rail Services Corp. (railroad maintenance and repair services) that might benefit from a Port Technology Incubator. The project team found evidence of potential activity within this classification as follows:

- Tractors/trailer manufacturing – with twelve (12) businesses involved in truck and bus body manufacturing (SIC 3713), eighty-three (83) businesses involved in motor vehicle parts and accessory manufacturing (SIC 3714), and one (1) business involved in truck trailer manufacturing. Additional businesses may be involved in the repair/service of vehicles in the classification, but this subsector was not well defined for port specific businesses and was not considered in the analysis.
- Warehousing design and transportation logistics – with twenty-seven (27) businesses involved in providing transportation consulting (SIC 8742).
- Crane service – with six (6) businesses involved in providing crane and aerial lift services (SIC 7389).
- Marine Surveyors and Weighing Services – with two (2) businesses involved in surveying marine cargo and two (2) businesses providing weighing services connected with transportation (SIC 4785).

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<sup>13</sup> The project team has taken the Marine Science Institute effort into consideration during this effort and has included the project in the Conclusions and Recommendations section of the study.

Additional activity may be occurring in the customization and maintenance of terminal operating systems (TOS) and other port related computer support services. Unfortunately, current SIC codes do not separate port related activity amongst the nine hundred and nineteen (919) businesses currently providing computer programming (SIC 7371), computer integrated systems design (SIC 7373), computer processing and data preparation (SIC 7374), or other computer related services (SIC 7379) within the primary market area.<sup>14</sup>

## **Environment, Health and Safety**

The environment, health and safety classification includes companies such as ACTI (air pollution prevention), Clean Harbors Wilmington (spill response), Mobius Energy Systems (environmental/energy consulting) and Simeken Inc. (remediation). The project team found evidence of potential activity within this classification as follows:

- Air/water pollution control equipment – with one (1) business involved in air pollution control equipment.
- Energy research and conservation – with two (2) businesses involved in environmental research (SIC 8731), six (6) businesses involved in energy conservation engineering (SIC 8711), and twenty (20) businesses involved in energy conservation consulting (SIC 8748).
- Environmental research, testing and consulting – with three (3) businesses involved in the manufacture of environmental testing equipment, nine (9) businesses involved in environmental research (SIC 8731), five (5) businesses involved in pollution and water testing (SIC 8734), and one hundred seven (107) businesses involved in environmental consulting (SIC 8748).

A number of new ventures such as MH Systems, Marine Hydroelectric and A Better Choice Biodiesel have been involved in the Port Tech LA program, but are located outside the primary market area.

## **Customs and Security**

The customs and security classification includes companies such as Boeing (video triggers) and Forrell Enterprises (cargo scanning). The project team found evidence of potential activity within this classification as follows:

- Cargo scanning – with two (2) businesses involved in cargo scanning equipment manufacturing.

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<sup>14</sup> Interviewees also did not identify any specific businesses focused specifically on port applications and service.

- Sonar equipment – with one (1) business involved in sonar equipment manufacturing.
- Mobile communication equipment – with five (5) businesses involved in mobile communications equipment manufacturing.

It is likely that additional businesses exist that provide port related services (e.g., IT products/services to support homeland security needs) and would be within this classification, but the customs and security classification is not clearly identified within the SIC code system.

### **Other Business Activity**

In addition to the activity outlined above, the project team identified additional activity in the maritime and clean technology classifications.

- Maritime – with one (1) business involved in industrial coating manufacturing (SIC 2851), three (3) businesses involved in diesel engine manufacturing/reconditioning (SIC 3519), one (1) business involved in propeller manufacturing (SIC 3599), eight (8) businesses involved in ship building and repair (SIC 3731), and twenty-six (26) businesses involved in boat building and repair (SIC 3732), and seven (7) businesses involved in navigation equipment manufacturing (SIC 3812).
- Clean Technology (Energy) – with four (4) businesses involved in turbine and turbine generator set manufacturing (SIC 3511), ten (10) businesses involved in power, distribution and specialty transformer manufacturing (SIC 3612), thirteen (13) businesses involved in motor and generator manufacturing (SIC 3621), eight (8) businesses involved in electronic coils and transformers manufacturing (SIC 3677), five (5) businesses involved in storage battery manufacturing (SIC 3691), and eight (8) businesses involved in electrical signal measuring and testing equipment manufacturing (SIC 3825).

A summary of the activity highlighted above is presented in Table 3.1.

### **3.3.2 Trends in Startup Activity**

Startup activity was measured by reviewing the startup date provided in the Zapdata.com data file for approximately seventeen hundred (1,700) of the nineteen hundred (1,900) businesses within the targeted SIC code range. An overview of startup activity is presented below and summarized in Table 3.1.

- Two hundred thirty-one (231) businesses in the targeted SIC code range have been started since 2006 represented by fifty-three (53) startups in 2006, one hundred ten (110) startups in 2007, forty-one (41) startups in 2008, and twenty-seven (27) startups in 2009.

- The highest concentration of startup activity was with businesses involved in computer programming services (SIC 7371), computer processing (SIC 7374) and computer related services (SIC 7379) which accounted for forty-five percent (45%) of the activity or one hundred four (104) businesses. This was followed by management and business consulting services (SICs 8742 and 8748) which accounted for approximately twelve percent (12%) of the activity or twenty-seven (27) businesses.
- Activity across all SIC codes in each of the targeted classifications outlined above is as follows:
  - Container Handling/terminal logistics – twenty (20) startup businesses.
  - Environment, health and safety – nine (9) startup businesses.
  - Customs and security – one (1) startup business.
  - Maritime – four (4) startup businesses.
  - Clean technology (energy) – five (5) startup businesses.

A summary of the project team’s assessment of existing business activity and trends in startup activity within the primary market area is presented in Table 3.1.

<b>Table 3.1: Summary of Business Activity in Primary Market Area</b>					
	<b>Container Handling/ Logistics</b>	<b>Environment Health &amp; Safety</b>	<b>Customs &amp; Security</b>	<b>Maritime</b>	<b>Clean Tech</b>
<b>Current Business Activity</b>	Modest (123)	Modest (153)	Very Limited (6)	Limited (46)	Limited (48)
<b>Startup Business Activity (2006 to 2009)</b>	Limited (20)	Very Limited (9)	Very Limited (1)	Very Limited (4)	Very Limited (5)

### 3.3.3 Level of Funded Research and Innovation

The level of funded research and innovation serve as indicators of potential incubator demand to support the commercialization of these efforts. Assessing the level of funded research involved a review of research expenditures at three research universities (UCLA, USC and Cal Tech). In addition, the project team reviewed grant awards from the U.S. Small Business Administration’s SBIR/STTR programs that might have relevance to the port technology sector (see Appendix C for a more detailed discussion of these programs). Assessing the level of innovation within the primary market area focused on U.S. Utility Patent activity. A summary of research funding and patent activity that may impact business activity in the primary market area is presented below.

## Funded Research

- The University of California Los Angeles (UCLA), University of Southern California (USC) and the California Institute of Technology (Cal Tech) had combined research expenditures in excess of \$1.5 billion in 2008 (Sources: <http://www.ovcr.ucla.edu/> and AUTM Licensing Activity Survey FY 2008).
- UCLA, USC and Cal Tech executed thirty-eight (38), thirty-one (31) and fifty-seven (57) licenses and options in FY 2008, respectively (Sources: UCLA Invents Vol. IV, 2009, and AUTM Licensing Activity Survey FY 2008).
  - USC and Cal Tech executed seven (7) and twenty-seven (27) of these agreements with start-ups, respectively.
  - USC and Cal Tech executed twenty-two (22) and seven (7) of these agreements with small companies, respectively.<sup>15</sup>
- Research at UCLA, USC and Cal Tech has lead to Clean Technology innovations and/or startups (estimated at two (2) to three (3) per year) that may have port applications (e.g., new battery technologies and water purification technologies). However, no information was obtained that would indicate that port specific research or resulting technologies were currently emerging from these institutions.

## SBIR/STTR Activity

The following summary represents SBIR/STTR activity for the period 2004 to 2009. The results for the Los Angeles region<sup>16</sup> highlighted below were tabulated for projects containing selected key words;<sup>17</sup>

- SBIR/STTR grants were awarded for seven hundred and thirty-three (733) distinct projects (Phase I and Phase II awards for the same project title were tabulated as a single award).
- The Department of Defense (DOD) had the highest number of awards with four hundred seventy-six (476) followed by the Department of Energy (DOE) with ninety-

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<sup>15</sup> AUTM Licensing Activity Survey data related to activity with start-ups and small companies was aggregated by the University of California System so individual activity at UCLA could not be determined.

<sup>16</sup> The Los Angeles region is represented by the 2-digit zip code areas of 90 and 91, and the northern portion of 92.

<sup>17</sup> Key words selected for evaluating SBIR/STTR activity project included: marine, maritime, ship, transportation, logistics, rail, freight, water, power, energy, pollution, bioagent and security. Key words may be located in project titles, abstracts, comments/remarks or expected results.

nine (99). NASA and the Department of Homeland Security (DHS) awarded fifty-five (55) and forty-two (42) grants, respectively.

- Six hundred and four (604) Phase I awards were granted totaling approximately \$56.7 million.
- Two hundred thirty-six (236) Phase II awards were granted totaling approximately \$164.3 million.

## **U.S. Patent Activity**

The project team found the patent activity search for port technology to be challenging due to the diversity of technologies (as outlined in Appendix A), the difficulty in identifying key words unique to port technology, and the cross over applications of many of these technologies (e.g., hand-held scanner technology with retail and cargo tracking applications). Consequently, a limited number of key words were selected based on the likelihood that the technology would have a direct link to port technology.<sup>18</sup> Results were tabulated to show comparative figures for all patent activity, activity within California and activity in the Los Angeles region.<sup>19</sup> These results are summarized below and presented in Table 3.2.

- The Los Angeles region has a significant portion of California's patent activity under the cargo container, ship and marine key word categories, but lags other parts of the state for activity under the maritime key word category.
- Other patent activity under the cargo container, ship and marine key word categories is concentrated in the San Diego and San Francisco Bay regions.
- The Los Angeles region significantly lags in terms of its percentage of all patent activity (includes all patents filed with the U.S. Patent Office) under each key word category, although it has a stronger showing for activity under the cargo container key word category.
- California accounts for more than twenty percent (20%) of all patent activity under the cargo container key word category.

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<sup>18</sup> Key words were refined from those used for the SBIR/STTR analysis due to a review of search resulting that indicated that some key words were not reflective of activity within the targeted sectors. The key words used for the patent search included: cargo container, ship, maritime, and marine. The results represent patents where the selected key word is located in the patent abstracts.

<sup>19</sup> Patent activity was included if one or more of the inventors lived in a community within the Los Angeles region.

- California also accounts for more than twenty percent (20%) of all patent awards under the maritime key word category, but only eleven percent (11%) of the patent applications.
- California accounts for just over ten percent (10%) of all patent activity under the ship key word category likely reflecting the state’s limited ship building industry.

**Table 3.2: U.S. Utility Patent Activity by Key Word – 2006 to 2009**

<b>Key Word</b>	<b>LA Region</b>	<b>CA</b>	<b>Total</b>	<b>LA as % CA</b>	<b>LA as % Total</b>
<b>Cargo Container</b>					
Patents Issued	10	26	112	38%	9%
Patent Applications	19	32	147	59%	13%
<b>Ship</b>					
Patents Issued	15	43	360	35%	4%
Patent Applications	25	57	536	44%	5%
<b>Maritime</b>					
Patents Issued	1	4	19	25%	5%
Patent Applications	1	5	46	20%	2%
<b>Marine</b>					
Patents Issued	24	48	796	50%	3%
Patent Applications	25	64	1092	39%	2%

### 3.3.4 Technology Advancement Program Activity

The Ports of Los Angeles/Long Beach established the Technology Advancement Program (TAP) in 2006 as part of the San Pedro Bay Clean Air Action Plan (CAAP). The program’s mission is to accelerate the verification or commercial availability of new, clean technologies, through evaluation and demonstration, to move towards an emissions free port. The program was officially launched in 2007. By 2011 the fund will reach fifteen

million dollars (\$15,000,000).<sup>20</sup> A summary of TAP activity through December 2009 is highlighted below (Source: Port of Los Angeles).

- Business/technologist inquiries - ninety-nine (99),
- TAP proposals submitted – thirty-six (36)
- TAP projects completed – six (6)
- TAP projects in review – eight (8)
- TAP projects in negotiation or awaiting Board approval – eight (8)
- Tap proposals denied – eleven (11)
- Action unknown – two (2)
- Program participants included local businesses, other U.S. based business (e.g., Seattle, WA and Tuscaloosa, AL) and international companies (e.g., Canada and Japan)

Three (3) additional demonstration projects with Pacific Harbor Lines were documented, but reports indicated that no application was required. Information on the dollar amount contributed to each project was not available.

TAP staff indicated that the program has evolved over time as they gained experience with both the technologies and the selection process. Currently, the program focuses on more mature technologies that can have a near-term impact on reducing air emissions. Anecdotal information indicated that the TAP program was beneficial in introducing potential technologies into the port environment, but some questioned the process used to evaluate technologies and found the overall program to be somewhat cumbersome.

### **3.3.5 Level of Spin-off Activity**

Spin-off activity from local corporations can generate demand for a business incubator. However, based on a review published data and information gathered during the interview process the project team found no evidence of any significant levels of spin-off activity over the past four (4) years from existing port related businesses in the primary market area.

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<sup>20</sup> The Ports of Los Angeles/Long Beach each committed to contribute \$1.5 million per year for five (5) years beginning in 2006.

### 3.3.6 Entrepreneurial Culture

For a technology business incubator to attract clients and become an effective tool in supporting economic diversification and growth, it is important that the area it serves has an entrepreneurial culture. Certain areas of the United States are readily identifiable as having an entrepreneurial culture (e.g., Silicon Valley; Austin, Texas; Seattle, Washington; and Boston, Massachusetts). In these areas, new ventures are viewed as vital components of the economy, and the individuals who start them are viewed as heroes regardless of whether they succeed or fail. In addition, government, academic, and community organizations in these communities have embraced entrepreneurship with policies and support programs that foster new business formation and growth.

An entrepreneurial culture does not just appear. The culture evolves over a period of time as the number and diversity of new ventures increases. In many areas, such as those noted above, local research universities, acting in concert with industry and government, have played a key role in catalyzing this change.

The community culture in San Pedro/Wilmington and nearby areas has evolved over time as the Ports of Los Angeles/Long Beach transitioned from the fishing industry to cargo/container handling. With this and other regional economic changes, area residents have chosen a path that favors working for an employer rather than one involving starting a new venture, especially in the port technology arena. There have been a number of successful businesses established in the consumer service/retail sectors, but the project team did not find evidence of a significant level of start-up activity in the technology sector. Interviewees consistently referred to Balqon Corporation as an example of a local success story and a number of individuals referred to Advanced Cleanup Technologies Inc. (ACTI) as a local startup in its early stages of development. However, the examples did not typically extend beyond these two companies. Other port related technology startup activity was also evident from past attendance at the PTDC's Tuesday forums, but the number of locally based entrepreneurs was very limited. These findings are consistent with general perceptions that the Los Angeles region lacks an entrepreneurial culture focused on technology venture formation even though it has a significant number of technology startups. This situation was attributed to the size of the region, the fragmented nature of technology support programs, difficulties in building and maintaining networks,<sup>21</sup> and the complexity of the jurisdictional/political environment in Los Angeles County that has precluded a cohesive regional approach that supports technology startups.

Based on these findings (and the limited start-up activity identified in Section 3.3.2) the project team concluded that the entrepreneurial culture in the primary market was currently

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<sup>21</sup> Interviewees indicated that it was difficult to maintain personal contact with others in the region due to the difficulties encountered when traveling around the region. This situation may change with increased use of social networking platforms, but many felt the face-to-face interface was essential at the early-stages of the networking process.

limited, and would not likely increase the level of port technology startup activity over historic levels. This environment may change as entrepreneurial initiatives such as PortTechLA, the Port Technology Incubator, the Los Angeles Clean Technology Incubator, and the proposed youth entrepreneurship program sponsored by the San Pedro Chamber take hold.

### **3.3.7 Availability of Value Added Business Services**

All businesses require basic support, such as legal and accounting services. As companies grow, however, they tend to require more specialized services, often tailored to their industry, to support growth. These services may include specialized consulting, market intelligence, commercial test and evaluation facilities, intellectual property protection, and mergers and acquisition support. An overview of the project team's assessment of the services available within the market area is presented below.

#### **Accounting/Financial Services**

Accounting and financial services in the market area are provided by a number of local firms. Sources indicated that local accounting/financial services are adequate to meet general business needs as well as more sophisticated accounting and financial services that might be needed to support technology venture formation and growth (e.g., equity capital negotiations, private equity, mergers and acquisitions and IPO).

#### **Legal Services**

As with accounting/financial services, legal resources in the market area are adequate to handle basic and sophisticated legal needs of local technology businesses. In some circumstances firms may rely on specialists in other locations to assist local staff in specific technology sectors.

#### **Business Assistance Programs**

In addition to the PTDC, the primary market area is served by a number of local assistance organizations.

- Small Business Development Center (SBDC) – Offers no-cost business counseling and fee-based educational programs with a strong presence in the San Pedro/Wilmington area. The SBDC is also a principal supporter of PortTechLA. Like similar programs, service delivery from SBDC staff is based on user inquiries rather than pro-active outreach and support, which is envisioned to be handled by PortTechLA staff. SBDC staff has experience with technology ventures and has an established network of service providers to assist businesses, but no specific experience with port related technology.
- Chambers of Commerce (i.e., San Pedro and Wilmington) - Provide business networking opportunities, but limited business assistance services.

The existing business assistance programs provide a platform for establishing a Port Technology Incubator. Formal entrance and graduation criteria would have to be developed as part of the incubator's business planning process. Client services and networks (e.g., mentors, professional service providers, technical advisors and investors) would have to be enhanced significantly to support port related technologies/services.

### **Industry Specific Support and Networks**

PortTechLA has established a monthly event held the second Tuesday of each month to bring together entrepreneurs, service providers, investors and community representatives interested in port technologies and the Ports of Los Angeles/Long Beach. The events have a featured speaker and have regularly attracted twenty (20) to thirty (30) attendees. The events have attracted approximately seventeen (17) entrepreneurs/company representatives with port related technologies along with a variety of service providers and community representatives. Some entrepreneurs are from the Los Angeles region, but the event has attracted representatives from companies located outside the area (e.g., New York City and San Diego) that are seeking relationships with the POLA. It is anticipated that once the Port Technology Incubator is established its clients could utilize PortTechLA's networks as well as those of other established incubators (e.g. the Business Technology Center of Los Angeles County in Altadena with its ties to Cal Tech, the UCLA Technology Incubator and the proposed Los Angeles Clean Tech Incubator) and program's affiliated with the port incubator (i.e., other appropriate regional, national and international technology development programs).

### **Financial Capital**

Financial capital, especially risk-oriented and "patient" capital, is the life blood of early stage companies and a necessary input to any successful business incubator program. Debt and equity funds are limited in the current economic climate, but this is a circumstance that extends beyond the proposed market area and should not affect the decision on the feasibility of the Port Technology Incubator. The broader question is whether a viable port technology business deal could secure debt capital or attract equity capital.

The Los Angeles region is served by numerous institutional lenders (e.g., banks and investment banks), and community-based lending program. In line with national trends, lenders in the region have tightened their underwriting criteria making it more difficult for early-stage companies and those with limited collateral to secure financing. Based on current conditions the project team concluded that debt capital availability for incubator clients was limited although a variety of sources exist for those clients that begin generating revenue and develop stable business operations.

The Los Angeles region is also served by a variety of equity investors (e.g., Angel funds, venture capitalist and private equity). Interviewees indicated that the Angel groups serving the area (e.g., Tech Coast Angels and Pasadena Angels) are very active, and

have supported numerous start-ups. Interviewees also indicated that venture capital was available within the region, but the pool of VCs investing in earlier stage deals was somewhat limited forcing entrepreneurs to seek financing from outside the area (e.g., Silicon Valley and New York).

The Ports of Los Angeles/Long Beach Technology Advancement Program (TAP) is a unique fund established to support the development and commercialization of technologies to reduce air emissions. Total TAP funding will reach fifteen million dollars (\$15,000,000) in 2011 (i.e., \$1.5 million from each port per year for five (5) years beginning in 2006). The project team was unable to obtain information as to the current fund balance, but the annual contributions from each port are scheduled to sunset in 2011.

### **3.3.8 Competitive Forces Affecting Incubator Demand**

Competition comes in many forms and can influence an incubation program's capacity to attract clients, garner community support, recruit business support service providers and secure funding. The project team evaluated three types of competitive forces in terms of their potential impact on the demand for (and success of) a San Pedro/Wilmington based Port Technology Incubator.

- Existing and proposed business assistance/incubation programs that serve all (or a portion of) the primary market area.
- Existing economic development programs or initiatives.
- Potentially competing commercial office and industrial flex space that could provide an alternative location for potential incubator clients.

An overview of each of the potential competitive forces is discussed below and presented in Table 3.3.

#### **Existing and Proposed Business Assistance/Incubation Programs**

Existing (and proposed) business assistance programs and incubators can have a significant impact on the feasibility of a new incubator project. It is important to look at these programs and determine opportunities for collaboration or to assess their impact on demand for the Port Technology Incubator. A summary of the project team's assessment of potential competition from these programs/incubators is presented in Table 3.3. Based on a review of each program, the project team concluded that existing programs would not affect the demand for a San Pedro/Wilmington-based Port Technology Incubator. However, two proposed incubators are likely to have a significant impact on the demand the program if or when they are established.

## **Compatibility with Clean Tech LA**

Clean Tech LA is the only relevant economic development program that could affect the Port Technology Incubator. This initiative has garnered a lot of press, but it is still in its very earlier stages of development in terms of being a functional program. Discussions with representatives from Clean Tech LA indicated that the Port Technology Incubator is an important component of the Mayor's clean tech strategy and that it would align with the organization's current and future objectives.

## **Real Estate**

An abundance of low cost commercial real estate can diminish the demand for space within a San Pedro/Wilmington-based Port Technology Incubator. Commercial office space in San Pedro is readily available at competitive rates with additional office space coming on-line as Northrop Grumman moves its current San Pedro operation. Light industrial space is limited in San Pedro/Wilmington, but readily available at competitive rates in Long Beach, Torrance and the Harbor City/Harbor Gateway area. The City of Los Angeles' gross receipts tax was identified by interviewees as a potential impediment that could lead incubator clients to located outside the city's boundaries and take advantage of the program as affiliate (non-resident) members of the incubation program.

Based on the current environment, the Port Technology Incubator would face modest competition for both office and light industrial users from existing commercial real estate with a significant portion of the competition coming as a result of the gross receipts tax.

## **3.4 Local Conditions Assessment**

Local conditions can play an important role in the formation and expansion of businesses within the San Pedro/Wilmington area and, in turn, impact the success of a Port Technology Incubator. In addition to the conditions addressed above (e.g., entrepreneurial culture, value added business services and competitive forces) the project team assessed three (3) additional factors that may impact a business' ability/willingness to operate in the San Pedro/Wilmington area; human capital, quality of life and physical infrastructure. An assessment of each of these conditions is presented below.

### **3.4.1 Human Capital**

A primary element of successful business incubation is human capital. Businesses with high-growth potential typically start (or locate) and grow where the human capital is strong. This holds true at all levels of employment from labor to management. Due to the project's location within the greater Los Angeles region and the diversity of its existing workforce, human capital would be considered to be adequate to support Port Technology Incubator clients and graduates.

**Table 3.3: Assessment of Competition from Business Assistance/Incubation Programs**

Program	Assessment
SBDC	<ul style="list-style-type: none"> <li>▪ Viewed as a collaborative partner versus a competitor.</li> <li>▪ Existing staff and volunteers with diverse backgrounds and linkages to specialized resources through the SBDC network.</li> <li>▪ Greatest benefit is in providing general business support and facilitating interaction with broader resource networks.</li> <li>▪ If properly utilized this program would assist in delivering services to incubator clients.</li> </ul>
<p>Existing Incubators</p> <ul style="list-style-type: none"> <li>▪ Business Technology Center (BTC)</li> <li>▪ Long Beach State Incubator</li> </ul>	<ul style="list-style-type: none"> <li>▪ Discussion with the BTC indicated a willingness to collaborate with the Port Technology Incubator.</li> <li>▪ Potential client benefits include access to technical staff, resource networks, equity capital and specialty equipment/facilities.</li> <li>▪ Potential program benefits include peer-to-peer support amongst incubator staff.</li> <li>▪ Interviewees indicated that the Long Beach State Incubator is currently working to re-establish itself and is unlikely to focus on port related technologies.</li> </ul>
<p>Proposed Incubators</p> <ul style="list-style-type: none"> <li>▪ Clean Tech Incubator – City of LA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Discussion with City of Los Angeles staff and project consultant indicated a willingness to collaborate with the Port Technology Incubator. They envision the Port Technology Incubator’s efforts strengthening the City’s Clean Tech image.</li> <li>▪ Potential competition with City of LA Clean Tech Incubator for cross over clean technologies whose primary market is outside the port environment.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Clean Tech/Port Tech Incubator – City of Long Beach</li> </ul>	<ul style="list-style-type: none"> <li>▪ Discussion with the City of Long Beach indicated that they are awaiting the results of this study before continuing their efforts.</li> <li>▪ If Long Beach establishes a clean tech/port tech incubator it will have a significant impact on the feasibility of the Port Technology Incubator with both programs facing significant impact from cannibalization of clients and resources.</li> </ul>

### **3.4.2 Community Image**

Determining a community's image is highly subjective and difficult to measure but generally includes the perceptions of local businesses as well as those from outside the area. Local business owners had significant pride in their community both as a place to work and live. However, interviewees from outside the area indicated that San Pedro/Wilmington faced challenges in terms of their images as places to do business. The area was viewed as being remote with further concerns about crime, both of which run counter to the type of environment that would attract technology entrepreneurs. A number of interviewees from outside the community that had recently visited San Pedro noted that it was much nicer than they had envisioned, but their previous perceptions were less than positive. Based on the information gathered during the interview process, the project team would consider the community's image to be challenged the near term which may affect the incubator's ability to attract resident clients.

### **3.4.3 Physical Infrastructure**

Infrastructure addresses the services and systems that facilitate the transaction of business and make a community livable. Infrastructure, including basic utilities, telecommunications, and transportation systems, must be in place before a community becomes an attractive place for the formation, expansion, or attraction of businesses.

#### **Public Utilities**

Access to affordable and reliable water and sewer is a primary infrastructure need for any type of development. Limitations to these utilities, real or perceived, can be a factor in a county's ability to support, retain, or attract industry, commercial activity, and a high quality work force. Based on interviews conducted by the project team, the current capacity of both public water and sewer systems are adequate in San Pedro/Wilmington and other Port of Los Angeles properties although improvements might be required to provide the necessary utilities to a specific site. These services would be considered adequate to support incubator clients and graduates.

#### **Energy**

Although not relevant to all industry sectors, many technology oriented firms (e.g., electronics and information/communications technology) rely heavily on reliable, high quality electricity supplies. Many of these firms have the further requirement of redundancy from either a separate sub-station or power source. If unavailable, firms in these sectors are not likely to locate within the county. Based on the presence of the Ports of Los Angeles/Long Beach and their affiliated business operations an adequate source of energy would be available for incubator clients and graduates.

#### **Transportation**

Businesses today (whether in software design, specialty food processing or green technology) depend heavily on reliable transportation systems including highway and air

systems. Although there are issues with congestion, the San Pedro/Wilmington area has adequate highway, rail, port and airport infrastructure to meet the needs of incubator clients and graduates.

## **Telecommunications**

Modern industry requires increasing amounts of bandwidth to support the critical flow of data, and nowhere is this more important than in technology-related businesses. Much like the requirements for energy, these systems must provide quality, reliability, and, to a large extent, redundancy. The San Pedro/Wilmington area has adequate telecommunications infrastructure to meet the needs of incubator clients and graduates, although additional improvements may be required to bring high speed telecommunication lines to specific sites.

### **3.5 Community/Stakeholder Objectives & Local Support Assessment**

Two key factors that can affect the feasibility of a business incubator are its ability to conform to the objectives of the community and its stakeholders, and to garner a sufficient level of local support. Without the first, the incubator loses its effectiveness as an economic development tool since its role is not clearly understood. Without the second, the incubator will not likely survive the typical challenges (e.g., delays in ramping up operations, realignment of program offerings to meet changing market conditions and the ability to raise capital) that face any new program. An assessment of each of these key factors is presented below.

#### **3.5.1 Economic Development Objectives**

Interviews with local community representatives revealed the following overarching economic development objectives within San Pedro/Wilmington:

- Diversifying the local economy with specific emphasis on industries that maintain the quality of life and support a diversified work force with opportunities for earning livable wages.
- Creating or attracting a highly qualified work force that meets the demands of the local businesses and provides a skill base that can help to start, expand and support competitive local industries.
- Build smaller business operations in low impact, clean industry sectors (e.g., port technology and clean tech).
- Providing employment and entrepreneurship opportunities for the youth and residents of San Pedro/Wilmington.

Based on a review of these objectives and the opportunities provided by a Port Technology Incubator the project team concluded that the incubator was consistent with the community's economic development objectives.

### **3.5.2 Local Leadership and Support**

Launching a business incubator is much like launching a new business venture. The project requires a strong group of core stakeholders (e.g., 3 to 5 individuals/organizations) with the time and resources to weather the program's start-up period (i.e., 3 to 5 years). A summary of the project team's assessment of local leadership and support is highlighted below.

- The community (e.g., San Pedro and Wilmington) has provided the strongest level of leadership and support for PortTechLA and the proposed Port Technology Incubator.
- The SBDC has also been a strong proponent of PortTechLA and the Port Technology Incubator by providing financial support and offering business assistance support to port technology businesses.
- The Port of Los Angeles has taken a leadership role in assessing the feasibility of the proposed Port Technology Incubator, and has worked with the community to further the efforts of PortTechLA. The Port of Los Angeles has been a significant financial contributor to date and port management has continued to increase its recognition of the value provided by PortTechLA and its support for the program and the proposed Port Technology Incubator; both important factors to the eventual success of both efforts.
- The Port of Long Beach has not supported PortTechLA, although the port has supported technology commercialization through its contributions and participation in the TAP program.
- The City of Los Angeles has acknowledged the San Pedro/Wilmington port technology efforts, but has not taken a leadership role in moving PortTechLA or the Port Technology Incubator project forward. However, Councilwoman Janice Hahn has expressed her support for the project. The City has not provided financial support for the project although there are current efforts to direct Community Development Block Grant (CDBG) funds to support the project.
- Supervisor Knabe has been very supportive of incubators in Los Angeles County, and has provided financial support to this effort.
- Senator Feinstein has been supportive of projects that improve economic conditions and provide jobs, and assisted the community in securing federal funding through the U.S. Small Business Administration.
- Local universities (e.g., UCLA, USC and Cal Tech) are supportive of technology incubation and would support a Port Technology Incubator. However, the project team

found this support to be limited to a few individuals rather than from the administration as a whole.

- Local professionals (e.g., accountants, attorneys and marketing consultants) were found to be supportive of Port Tech LA and the Port Technology Incubator.
- Port tenants have provided limited leadership or support to PortTechLA or the Port Technology Incubator, although SA Recycling has been an active supporter of both efforts. Other port tenants (and organizations representing labor) consistently indicated that they would support the Port Technology Incubator if it did not impact them financially (e.g., higher fees or tariffs from the Port of Los Angeles).

Community representatives, economic development professionals, business assistance organizations, educators, business owners and elected officials all agreed on the need to stabilize and diversify the San Pedro/Wilmington economy. The hiring of a full-time Executive Director (Jeff Milanette) for PortTechLA in the Fall of 2009 was a pivotal point in positioning port technology as a targeted sector to support the growth of businesses and jobs. Through the efforts of Mr. Milanette, these efforts have taken shape with educational/networking events highlighted by the highly successful PortTech Expo. The momentum gained from these efforts has brought together key partners, and garnered stronger recognition and commitment from the Port of Los Angeles. This alignment of major stakeholders, combined with the global recognition that will be garnered through the commitment of the Port of Los Angeles, lays the groundwork for developing a more robust Port Technology Incubation program. The program still faces challenges since the project team did not find consensus that a Port Technology Incubator was the appropriate economic development tool to drive a port focused economic development agenda. However, the program has a solid footing on which to move to the next step in developing a full complement of port technology incubation/commercialization services. An additional, area that consistently garnered positive support was youth entrepreneurship, which may serve as a platform for future locally-based entrepreneurial activity. However, a youth entrepreneurship effort will not generate near-term demand for establishing a sustainable business incubator. In general terms, the project team concluded that leadership was adequate to continue pursuing the development of a Port Technology Incubator in San Pedro/Wilmington.

### **3.6 Facility/Property Assessment**

The project team considered commercial facilities/property in Wilmington and San Pedro as potential locations for both a temporary and permanent locations for the Port Technology Incubator. The ideal facility would be able to handle all three uses under one roof.<sup>22</sup>

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<sup>22</sup> Managing multiple facilities is difficult and costly since staff will be required at both locations. The project team does not recommend the two facility concept initially proposed until a single incubation can be established and stabilized.

Locating an incubator in existing commercial real estate can provide a good alternative to building new incubator space. Based on information gathered during the interviews the facility should have demonstration space in addition to any office and light industrial space that may be used by client companies.

In the competition for clients, business incubators must provide an appealing environment to attract and retain technology businesses and their current/future employees. Ideally, that includes:

### **Office Setting**

- Easy access by car and/or transit,
- Adequate parking for both incubator clients and guests (estimated at approximately five spaces per thousand),
- Nearby residential development to allow short commute distances,
- A pleasant operating environment not impacted by truck traffic, noise, or odors,
- Nearby places to eat and gather,
- An active/safe place with people in the area after 5 pm. weekdays and weekends, and
- Easy access to support services (e.g., professional help), airports, etc.

### **Light Industrial Setting**

- Easy access by car and/or transit,
- Easy truck access with appropriate turning clearances,
- Adequate parking for both incubator clients and guests (estimated at approximately three to five spaces per thousand depending on industry types being incubated),
- Nearby residential development to allow short commute distances,
- Nearby places to eat,
- A safe place for after-hours and weekend operations, and
- Easy access to support services (e.g., professional help), airports, rail (if appropriate), etc.

Commercial real estate in the area was evaluated in Terminal Island, Wilmington and San Pedro. A review of each of these areas relative to their suitability for the Port Technology Incubator is presented below.

## **Terminal Island**

- Facilities on Terminal Island were found to be dated requiring significant investment to adapt them for incubator use. Building sizes and configurations were also found to be difficult for incubator use.
- A Terminal Island location would present challenges in terms of accessibility, isolation from amenities (e.g., restaurants, coffee shops, etc.), appearance and safety.
- A Terminal Island location would also present challenges in terms of visibility and image especially for visitors, donors, etc. not familiar with the area.

## **Wilmington**

- A limited number of existing facilities in the Wilmington Industrial Park may present opportunities for an incubator facility to handle office, light industrial and demonstration space (e.g., 508 East E Street).
- Like Terminal Island, locations within the Wilmington Industrial Park present challenges in terms of accessibility, isolation from amenities (e.g., restaurants, coffee shops, etc.), appearance and safety.
- A Wilmington location would also present challenges in terms of visibility and image especially for visitors, donors, etc. not familiar with the area.
- Existing land in the Wilmington Industrial Park found to be very limited. Information gathered during the interview process also indicated that other potential issues may exist on some parcels in terms of contamination.

## **San Pedro**

- A number of existing facilities are available for office type settings with one potential location (the former Bank of America building) also provide an opportunity for offering demonstration space. Light industrial space is very limited in San Pedro.
- Various San Pedro locations would meet the needs of an incubator in terms of accessibility, amenities, appearance and safety.
- San Pedro provides a more highly visible location due to the Port of Los Angeles' presence in the community and the associated business activity it draws to the area.
- Existing land in San Pedro was found to be limited although potential opportunities may exist in the future with the proposed waterfront development.

The greatest challenges facing a Port Technology Incubator facility in San Pedro/Wilmington is the diversity of space needs (e.g., office, light industrial and demonstration) and the need to be in proximity to amenities (e.g., restaurants and coffee shops) in a location that will

perceived to be safe by incubator clients on a 24/7 basis. A multi-location strategy had been proposed to address this challenge, but the project team would not recommend this model until a single location can be developed and operated successfully.<sup>23</sup>

### 3.7 Funding Availability Assessment

Funds are needed to develop the incubator facility (either new construction or rehabilitation of an existing facility) and to cover operating expenses during program start-up. In many cases incubators also rely on additional contract income or subsidies to supplement rental income. Port Tech LA has already received fifty thousand dollars (\$50,000) from Supervisor Knabe and two hundred fifty thousand dollars (\$250,000) from the U.S. Small Business Administration made possible by Senator Feinstein. An additional one hundred seventy-five thousand dollars (\$175,000) was contributed by the LA Regional SBDC as part of its regional business assistance efforts. The availability of additional funding from these sources is not clear at this time. Discussions with the City of Los Angeles indicated that current economic conditions and fiscal challenges may preclude any financial commitment from the city at this time.<sup>24</sup> The Port of Los Angeles has committed funds to keep the project moving forward for the next few years, but has indicated that at some point in the future the program would have to become self-sustainable. Other potential funding sources are listed below.

- **U.S. Department of Commerce Economic Development Administration Grants –** The Economic Development Administration (EDA) is one of the single largest funders of incubators providing grants ranging from \$250,000 to \$3,000,000 for facility construction. The EDA typically requires a local match of 50%. The agency does not provide funds to cover operations. Projects are measured on their ability to generate significant economic returns to the areas they serve.<sup>25</sup>
- **Contract Services –** Revenue from contract services can be a viable source of funding for incubator operations. Incubators have received contracts for workforce development (e.g., entrepreneurship training and support), technology commercialization (e.g., assisting in the commercialization of agency/university research) and individual market studies. However, the incubator has to have the capacity or relationships to provide these services. Consequently, it is difficult to determine the level of contract revenue that might be obtained prior to opening the incubator. It is also important to note that

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<sup>23</sup> A multi-location model increases development and operating costs, and places additional stresses on management. Each of these conditions could jeopardize the viability of the project.

<sup>24</sup> There was some discussion that the project might be able to received U.S. Department of HUD CDBG funding if it complies with CDBG eligibility requirements and sufficient funds were available.

<sup>25</sup> For example, a project completed by Claggett Wolfe Associates that was requesting \$2.5 million in EDA funding was anticipated to generate approximately \$200 million in economic return over the grants 20 year life.

most incubators capitalize on this revenue opportunity a number of years after they are in operation when they can establish a clear value for their services.

- **Donations** – Corporate and private donations can be a component of an incubator’s revenue. Port Tech LA has already secured funding (or commitments) from private corporations such as Bank of America and Chevron. This may continue to be a viable source of additional funds if the Port Technology Incubator can position itself to donors in meeting their specific corporate or individual business objectives.

The number of factors influencing an incubator’s feasibility is diverse with no one dominant factor influencing the outcome of the feasibility assessment. As with the level of business activity and start-up trends, the evaluation of these factors is both quantitative and qualitative relying heavily on the project team’s experience with “best practice” incubation programs around the world. Table 3.3 presents a summary of the project team’s assessment of each of these factors.

**Table 3.4: Summary of Factors Influencing Incubator Feasibility**

<b>Factor</b>	<b>Container Handling/ Logistics</b>	<b>Envir. Health &amp; Safety</b>	<b>Customs &amp; Security</b>	<b>Maritime</b>	<b>Clean Tech</b>
Level of Funded Research/ Innovation - SBIR/STTR Activity	Very Limited	Modest	Very Limited	Very Limited	Modest
Level of Funded Research/ Innovation - Patent Activity	Modest	Modest	Limited	Modest	Modest
Entrepreneurial Culture	Limited	Limited	Limited	Limited	Limited
Availability of Value Added Business Services					
Accounting/Financial Services	Adequate	Adequate	Adequate	Adequate	Adequate
Legal Services	Adequate	Adequate	Adequate	Adequate	Adequate
Business Assistance Programs	Adequate	Adequate	Adequate	Adequate	Adequate
Industry Specific Support Programs & Networks	Adequate	Adequate	Adequate	Adequate	Adequate
Financing – Debt/ Equity	Adequate	Adequate	Adequate	Adequate	Adequate

**Table 3.4: Summary of Factors Influencing Incubator Feasibility (Continued)**

<b>Factor</b>	<b>Container Handling/ Logistics</b>	<b>Envir. Health &amp; Safety</b>	<b>Customs &amp; Security</b>	<b>Maritime</b>	<b>Clean Tech</b>
Competitive Forces					
Existing Business Assistance Programs	Supportive	Supportive	Supportive	Supportive	Supportive
Existing Incubators	Limited	Limited	Limited	Limited	Limited
Proposed Incubators – LA Clean Tech	Supportive	Potential	Supportive	Supportive	Potential
Proposed Incubators – Long Beach Clean Tech/Port Tech	Very Competitive	Very Competitive	Very Competitive	Very Competitive	Very Competitive
Existing ED Programs	Not Applicable	High for Funding	High for Funding	High for Funding	High for Funding
Existing Real Estate	High for Office	High for Office	High for Office	High for Office	High for Office
Local Conditions					
Human Capital – skilled	Adequate	Adequate	Adequate	Adequate	Adequate
Human Capital – unskilled	Adequate	Adequate	Adequate	Adequate	Adequate
Image – place to start/grow a business	Challenged	Challenged	Challenged	Challenged	Challenged
Physical Infrastructure					
Public Utilities/Energy	Adequate	Adequate	Adequate	Adequate	Adequate
Transportation – Highway/Air	Adequate	Adequate	Adequate	Adequate	Adequate
Telecommunications	Adequate	Adequate	Adequate	Adequate	Adequate

**Table 3.4: Summary of Factors Influencing Incubator Feasibility (Continued)**

<b>Factor</b>	<b>Container Handling/ Logistics</b>	<b>Envir. Health &amp; Safety</b>	<b>Customs &amp; Security</b>	<b>Maritime</b>	<b>Clean Tech</b>
Compatibility w/ ED Objectives	Compatible	Compatible	Compatible	Compatible	Compatible
Compatibility w/ Clean Tech LA	Compatible	Compatible	Compatible	Compatible	Compatible
Project Leadership	Adequate	Adequate	Adequate	Adequate	Adequate
Project Support	Mixed	Mixed	Mixed	Mixed	Mixed

## Section 4: Conclusions and Recommendations

The process of determining the feasibility of a Port Technology Incubator involved an assessment of sectors suitable for incubation and current conditions within the primary market area, (i.e. a fifteen (15) mile radius from San Pedro/Wilmington). The conclusions and recommendations that follow are based on this assessment, and are supported by the project team's experience in working with business incubator development in settings with similar or comparable characteristics in the U.S. and around the world.

### 4.1 Conclusions

Study conclusions were divided into three (3) categories as follows:

- Projected market demand,
- Market Feasibility, and
- Financial Feasibility.

Conclusions for each of these categories are presented below.

#### 4.1.1 Market Demand Conclusions

The project team looked at a broad base of potential users that might utilize a Port Technology Incubator and various factors that could influence this demand (see Section 3.3 Market Demand Analysis). When considering these potential users it is important to understand that "best practice" incubation programs do not accept every applicant into the program. Acceptance rates when an incubator is first established are typically one-in-five (1 in 5) while acceptance rates in more mature programs are typically one-in-ten (1 in 10).<sup>26</sup> Overviews of each of these potential users (and the projected market demand they might generate within four (4) years of facility opening) are presented below and highlighted in Table 4.1. These figures reflect projections for a single Port Technology Incubator serving the San Pedro Bay and would be significantly impacted by the presence of the proposed Long Beach Clean Tech/Port Technology Incubator. These figures are also predicated on the fact that TAP type funding is made available to incubator clients and marketing efforts continue within the local area.

#### Local Companies Spin-offs

The market area is home to a number of companies involved in activities that could result in R&D or applied technology development spin-offs (e.g., Microcosm and Boeing).

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<sup>26</sup> Based on research conducted by Claggett Wolfe Associates during training workshops and one-on-one interviews with incubator managers of "best practice" programs from around the world.

However, development associated with these and other firms in the primary market area appears to be focused on internal product development/enhancement and is not likely to generate spin-off activity. Anecdotal information gathered during the interview process supported these findings. Consequently, the Port Technology Incubator would likely see very limited to no deal flow from spin-offs from local companies.

### **Local Entrepreneurial Start-ups**

The level of port related start-up activity in the primary market area is limited to modest with the highest concentration of activity in the computer and consulting sectors. In addition, area's entrepreneurial culture is limited. Based on an assessment of the information presented in Section 3 the project team anticipates that the local area will generate four (4) to six (6) resident incubator clients every two (2) to three (3) years.

### **Colleges, Universities and Federal Labs**

UCLA, USC and Cal Tech research expenditures and start-up activity are significant. However, the segments of this activity that might be supported by Port Technology Incubator (e.g., water/air purification technologies, alternative energy/energy efficiency, and advanced materials) are also likely to have cross-over market opportunities that might be supported by the Los Angeles Clean Tech Incubator. In addition, the distance from each institution to San Pedro/Wilmington will likely deter university affiliated startups from becoming resident clients within the incubator. Based on an assessment of the information presented in Section 3 the project team anticipates that one (1) to two (2) non-resident incubator clients will come from university affiliated startups every two (2) to three (3) years.

### **Other Demand Generators**

Other demand generators represent less conventional business activity that could benefit from a Port Technology Incubator program, but can create supplemental demand that may enable the project's feasibility. In some cases, these sources may be viewed as potential tenants for a future technology park where the incubation program serves as the platform for bringing more established business operations to the area to meet the needs of Port tenants as they work to improve operations and comply with local regulations. As part of this effort, the project team considered three (3) additional types of potential users. Each of these sources is highlighted on the next page.

- Other Domestic Companies – Although the primary market area has limited port technology activity, the area has attracted a number of startups and existing companies from outside the Los Angeles region.<sup>27</sup> These firms may initially need

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<sup>27</sup> Both TAP and Port Tech LA have attracted startups and existing businesses from other areas of California (e.g., San Diego) and the U.S. (e.g., Florida and Alabama).

part-time incubator space with the potential of expanding to full-time space as they move their product/service from concept to commercialization. It is likely that a San Pedro/Wilmington based Port Technology Incubator would be able to lure domestic companies as evidenced by the current reach of the TAP program, and the prominence of the Ports of Los Angeles/Long Beach and their environmental initiatives. From its assessment, the project team anticipates that under current conditions the Port Technology Incubator would be able to generate demand translating into six (6) to eight (8) non-resident clients every two (2) to three (3). The project team would anticipate that one (1) to two (2) of these non-resident clients would establish a permanent presence within the incubator (or within a nearby technology park) after one (1) year of participating in the non-resident program.

- International Companies – A number of incubators around the world have established a platform to help foreign companies expand into their domestic markets. In the U.S. some incubators such as U.S. Market Access Center in San Jose, CA and the Danville Business Development Center in Danville, VA have formalized this process by obtaining a Soft Landings designation through the National Business Incubation Association. Others have chosen to capitalize on international linkages to host international companies without seeking this designation. In all cases these incubators have established distinctive value propositions to support international clients (e.g. access to intellectual property, unique assets such as laboratories, equity capital, and markets). It is likely that a San Pedro/Wilmington based Port Technology Incubator would be able to lure international companies as evidenced by the current reach of the TAP program, and the prominence of the Ports of Los Angeles/Long Beach and their environmental initiatives. From its assessment, the project team anticipates that under current conditions the Port Technology Incubator would be able to recruit two (2) to three (3) resident international clients every two (2) to three (3) years. The incubator could also recruit two (2) to three (3) non-resident international clients every two (2) to three (3) years.
- Student Ventures – There is interest in developing a youth entrepreneurship program in San Pedro at the Port of Los Angeles High School, but no formal program exists at this time. Based on current conditions, the project team does not anticipate any near-term demand from student ventures although this opportunity may improve if the youth entrepreneurship program is established and the Port Technology Incubator facility is easily accessible by students.

Additional demand may be generated by establishing a business plan competition for port technologies similar to the Clean Tech Open. Such a program would take significant planning, coordination and funding, and should be investigated further during the business planning process.

**Table 4.1: Projected Incubator Demand by Source**

	<b>Estimated # of Resident Clients</b>	<b>Estimated # of Non-resident Clients</b>
<b>Venture Generators</b>		
Company Spin-offs and Local Entrepreneurial Activity	4 to 6 every 2 to 3 years	Included below under Other Domestic Companies
Universities & Federal Labs	None	1 to 2 every 2 to 3 years
<b>Other Demand Generators</b>		
Other Domestic Companies	Conversion of 1 to 2 non-resident clients every 2 to 3 years	6 to 8 every 2 to 3 years
International Companies	2 to 3 every 2 to 3 years	2 to 3 every 2 to 3 years
Student Ventures	No anticipated near term demand	No anticipated near term demand

#### 4.1.2 Market Feasibility Conclusions

Market feasibility was determined by considering the market demand figures outlined above, the information compiled in Section 3, and the supporting information detailed in the appendices. Specific conclusions are outlined below.

- The Ports of Los Angeles/Long Beach are primarily consumers versus generators of port technologies, and lack a research center that could change this dynamic. As a result, the primary purpose of a Port Technology Incubator would be to provide businesses with a place to test their technology, help them gain access to the Ports (major potential customers), and/or assisting them in gaining business credibility and technology validation so they can sell to other ports. This environment is atypical to most incubators that focus on building companies from local talent and innovation, and is more in line with a limited number of incubators or commercialization programs, such as the US Market Access Center in San Jose, that help clients access markets.<sup>28</sup> It is important to understand these differences because the economic impact of this latter model can be significantly different from what would be generated by a conventional incubator model. Specific differences include:

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<sup>28</sup> The U.S. Market Access Center helps international technology businesses access U.S. markets.

- Local business activity may only consist of sales, support and service operations which can result in significantly less employment in comparison to a headquarters or manufacturing/production operation.
- A significant portion of the wealth generated from sales may leave the area, going to the region where the business is headquartered.
- The business may have more flexibility in terms of its ability to relocate to another area since it is not reliant on a specific local technology or the technical talent needed to develop/refine its products/services.<sup>29</sup>

These businesses add value to the community, but project sponsors and supporters should understand all potential outcomes when assessing the feasibility of the project. It is also important to understand that the current situation could change if the proposed Marine Science Institute is developed on City Dock No. 1, thus creating a center of innovation and potential technology development. If this project moves forward (including the proposed marine science incubator), both the Port Technology Incubator and the Marine Science Institute incubator programs should be coordinated to take advantage of both programmatic and operating efficiencies that might be gained.

- PortTechLA has secured the support of the Port of Los Angeles as a lead project champion which brings sufficient stature and financial resources to move the Port Technology Incubator to the next level. The Port of Los Angeles' commitment will also provide the national and international credibility to further each program's efforts to commercialize port technologies. PortTechLA's Board and members from the local community are also important champions in their own right, providing leadership and support to develop and market these programs to the various targeted clients outlined above.
- Considering current conditions, a Port Technology Incubator would be feasible (from a market perspective) if the following conditions were met.
  - The program would have to develop a sophisticated, port technology focused services package focused on commercialization in addition to incubation. The services package would have to differentiate the program from the SBDC, other business assistance programs, and other technology incubators. The package should, at a minimum, provide distinct value to incubator clients by providing:
    - Pro-active business coaching from individuals with relevant port technology experience,

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<sup>29</sup> Typically 84% of incubator graduates stay in the community in which they were incubated (Source: *Business Incubation Works*, National Business Incubation Association Publications).

- Access to top tier service providers and technologists,
  - Coaching for investor presentations and access to equity capital,
  - Peer-to-peer networking opportunities with other port technology companies,
  - Access to port markets. Initially this should involve providing access to the Ports of Los Angeles/Long Beach and their tenant/service businesses. As the program evolves a critical value proposition will be expand market access to include other domestic and international ports.<sup>30</sup>
- The program would have to be positioned (and the resources provided) to attract clients from a global versus local market. The project team anticipates that over half the incubator’s clients would come from outside San Pedro/Wilmington and/or the City of Los Angeles.
  - The program would have to pro-actively reach out to established corporations, research universities, and federal labs to promote port technology needs and to mine technologies that may have port applications (e.g., energy efficiency, improved logistics, reduced air and water emissions, homeland security IT, etc.). The project team anticipates that over fifty percent (50%) of the Port Technology Incubator’s clients will be established corporations that will be adapting an existing product/service to a port application.
  - The program would benefit from a physical location that provides identity to the program, centralizes program related activities (e.g., counseling, workshops and showcases), and provides demonstration space in proximity to port tenants. The program would also benefit from a physical location that provides temporary flex and permanent space that can be used by each of the targeted users outlined above.
  - The quantity and quality of businesses seeking entry into the program would increase significantly if a TAP type fund were made available to qualified clients as part of the incubation process whether or not they are resident in the incubator facility. Based on the experience of other technology commercialization efforts, it would be important to distribute smaller amounts of funding to a larger number of clients to improve the level of commercialization.<sup>31</sup>

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<sup>30</sup> The project team anticipates that a technology that receives approval for use in the Ports of Los Angeles/Long Beach will be able to use this validation to sell to other ports around the world.

<sup>31</sup> Based on the experience of the Environmental Business Cluster (EBC) with California Energy Commission. The EBC convinced the CEC to provide smaller amounts of funding to a much larger number of projects (20 vs. 4 to 5) with a resulting tenfold increase in technology commercialization.

- At this time the projected demand from resident and part-time clients would necessitate a facility with approximately 15,000 sq. ft. of office and light industrial space. The facility should be configured with approximately 3,000 sq. ft. to 4,000 sq. ft. of office space, 3,600 sq. ft. to 4,800 sq. ft. of light industrial space (i.e., high bay space with roll up door and single office), and 2,000 sq. ft. to 3,000 sq. ft. of high bay demonstration space.
- PortTechLA has been successful in raising initial seed funding for the project, but larger funding sources such as EDA are highly competitive in today's environment with other incubators in the region currently approaching this source for funding.<sup>32</sup>

In summary, the project team found sufficient market opportunity for a Port Technology Incubator that serves a more global market and provides distinct value to its clients beyond the space available within the incubator facility. A key component of the program would be to help Port tenants and port-related businesses (e.g., trucking companies) identify new and existing technologies to improve operations and/or comply with regulatory requirements, and to assist the Ports of Los Angeles/Long Beach address homeland security needs.

#### **4.1.4 Financial Feasibility Conclusions**

Financial feasibility is typically determined during the business planning phase of an incubator development project. However, as part of the feasibility assessment it is important to evaluate the factors that could influence the project's financial feasibility to determine if the project warrants preparing a business plan. Sustainable incubator programs are typically operated out of 35,000 sf. ft. to 40,000 sq. ft. facilities developed with little or no debt, and having approximately seventy (70%) net rentable space.<sup>33</sup> Ongoing operating revenues are derived from rental income from both incubator client companies and, in many cases, existing companies and other users for whom the space is suitable. These non-incubator tenants/users help to provide rental income, and concentrate business activity within the area until there is sufficient client activity to occupy a significant portion of the incubator space.

As noted in the previous section the projected demand from resident clients (see Table 4.1) would support a 15,000 sq. ft. incubator, which is significantly smaller than the size highlighted above for sustainable incubators. In order to reach financial sustainability the Port Technology Incubator would have to do one, or a combination of, the following.

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<sup>32</sup> The City of Los Angeles is currently submitting a pre-application for funding for its Clean Tech Incubator.

<sup>33</sup> Smaller facilities may prove sustainable if the market area and value of the incubation services will allow the program to charge the equivalent of executive suite rates for incubator space (e.g., 3 to 4 times market rates).

- Develop a larger facility (with no debt) leasing excess space to existing businesses and incubator graduates.
- Develop a smaller facility (with no debt) with the expectation that other sources of revenue would be needed to cover on-going operations (e.g., contracts for entrepreneurial workforce development programs, commercialization contracts, etc.).
- Rent existing commercial space with the objective of developing a rent neutral model where rental income from clients covers the facility lease and fees (i.e., common area maintenance, insurance, etc.). This model would require the program to secure funding from other sources (as noted above) to cover on-going operations.
- Secure (for a minimum of three (3) years) an underutilized or vacant property at no cost (except utilities).
- Adopt a contract model similar to that used by the Environmental Business Incubator in San Jose where the incubator receives a fix fee per client served to help them commercialize a technology/service.<sup>34</sup>

## 4.2 Recommendations

Claggett Wolfe Associates recommends that the Port of Los Angeles and its partners move forward with a Port Technology Commercialization/Incubation program with the objective of establishing sufficient value to warrant future investment and reach financial sustainability. However, all parties should thoroughly review the results of this study and determine whether the market opportunity and the proposed commercialization/incubation model are consistent with their respective organizational/individual goals and objectives. If there is consistency of purpose, and the Port of Los Angeles continues its commitment to the program, the foundation is in place to continue moving forward with the project. If all parties can agree to the proposed commercialization/incubation model, the project team also recommends the following.

- **Focus on Commercialization versus Incubation** – As identified in Section 4.1.1, the project team anticipates that the greatest market opportunity will come from assisting more established domestic and international companies (e.g., Advanced Algae, Boeing and Siemens) with existing technology products/services that may have port applications. At the same time, there will be opportunities to mine new technologies developed by local innovators/university researchers, and build startup companies around them (e.g., Marine Oil Technologies) through an incubation process, but the research did not show this to be a robust and sustainable source of near-term deal flow (i.e., within the next three (3) to five (5) years). Consequently, the program’s greatest

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<sup>34</sup> The California Energy Commission contracted with the EBC to assist ten (10) businesses commercialize CEC funded technologies at a cost of \$25,000 per business per year.

value will be in bridging the gap between companies that may have existing technologies with port applications and Port tenant/service businesses that have specific operational or regulatory compliance needs. Nurturing the formation of new companies to fill these needs will also be useful, but the program's primary emphasis will be on supporting the Ports of Los Angeles/Long Beach (and other ports around the world) which are consumers versus creators of new technologies. Consequently, the project team suggests that the program focus on a theme of commercialization versus incubation, and utilize a name (or tag line) that promotes this activity.

- **Develop a Technology Mining/Commercialization Process** – To support the shift from pure incubation of startups to commercialization, the project team recommends that a technology mining/commercialization process be developed to:
  - Determine Port and Port tenant/service business needs (e.g., interviews, port technology symposiums, etc.);<sup>35</sup>
  - Identify existing technologies with potential port applications (e.g., patent searches, SBIR/STTR searches, trade journal research, university inquiries and corporate inquiries); and
  - Provide comprehensive commercialization support (e.g., analyzing markets, testing and scaling products/services, securing capital, guiding product production, outlining sales and distribution channels, etc.).
- **Make TAP or TAP Type Funding Available to Program Clients** – Program specific or affiliated seed capital funds are a valuable tool for marketing a program and attracting high quality applicants.<sup>36</sup> In addition, seed funding can be used to induce clients to move all (or a portion) of their operation to an area. Consequently, the project team recommends that project supporters investigate opportunities for leveraging the existing TAP program with the commercialization/incubation and for developing integrated due diligence processes, selection criteria, performance metrics, etc. The focus should be on making smaller investments (e.g., \$100,000 to \$250,000) in a larger number of companies with small initial grants/investments (e.g., \$20,000 to \$25,000) to cover the cost of taking selected companies through the proposed commercialization process.<sup>37</sup> If

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<sup>35</sup> These efforts should initially focus on the Ports of Los Angeles/Long Beach, but eventually be extended to other ports around the world.

<sup>36</sup> Based on anecdotal information gathered by Claggett Wolfe Associates from directors of technology incubation programs with resident or affiliated seed capital funds.

<sup>37</sup> The \$20,000 to \$25,000 grants/investments would be provided to the commercialization program operator to cover the cost of business coaching, specialized consulting, etc. and the administrative costs to provide the services. This model has been effectively used by the Environmental Business Cluster in San Jose, CA for a clean technology commercialization program supported by the California Energy Commission.

the programs cannot be integrated, project supporters should investigate opportunities for developing a new TAP type seed capital fund (i.e., \$15,000,000 available over a five (5) year period) or to develop more formal relationships with existing Angel investment groups.

- **Work to Combine the Port of Los Angeles and Port of Long Beach Incubator Efforts** – The San Pedro Bay cannot support two separate port technology incubators. Consequently, the project team recommends that the parties representing both projects come together to discuss how the projects can be combined into a single effort. If both parties cannot come to an understanding that will result in a single program, the project team would recommend that the Port of Los Angeles and its partners re-evaluate the situation knowing that two separate programs would jeopardize the viability of both projects. In line with this strategy, the project team suggests that program sponsors investigate further the impact the current name, PortTechLA, may have on the region’s ability to combine these efforts and secure funding from a broader audience (e.g., Port of Long Beach, City of Long Beach and City of Torrance).<sup>38</sup>
- **Prepare a Business/Implementation Plan** – With the completion of market feasibility study, the next step will be to prepare a business/implementation plan for the commercialization/incubation effort. The plan should include the following sections and clearly define the role of Port Tech LA.
  - Mission statement and goals.
  - Description of programs and services that conform to the market opportunity identified in this study and clearly articulate the value proposition for incubator clients (see Section 4.1.2).
  - Marketing plan.
  - Client application and selection process.
  - Client graduation policies.
  - Organizational plan including the legal and management structure.
  - Facility specifications, location analysis and design.
  - Program budget including capital and operating budgets, cash flow analysis and break-even analysis.
  - Fund raising plan.

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<sup>38</sup> The name, PortTechLA, should have no impact on the program’s capacity to attract clients.

- Implementation actions and timelines.
- Performance metrics and reporting.
- **Establish a Temporary Port Technology Commercialization/Incubation Facility** – Although PortTechLA operates out of shared space with the San Pedro Chamber of Commerce, a more visible location with additional space is need if the project is to move forward and capture the momentum begun by PortTechLA. The project team visited a number of potential facilities during its site visit and determined that the former Bank of America building across from the Port of Los Angeles headquarters was the strongest candidate for a temporary incubator facility (in accordance with the criteria outlined in Section 3.6). A minimum three (3) year lease would be needed to justify any investment in the site. Projected project costs are outlined below and detailed in Appendix D.
  - Facility rehabilitation - \$356,000
  - Furniture & equipment - \$217,000<sup>39</sup>
  - Operating subsidy ( three (3) years) - \$1.5 million
- **Evaluate Opportunities for Sharing Resources and Facilities with the Proposed Marine Science Institute Incubator** – The status of the proposed Marine Science Institute incubator is currently unknown, but it would be prudent to monitor the progress of this effort. The project team understands that it would be inappropriate to locate maritime (or more industrial) type businesses in a joint facility, but compatible technology ventures (e.g., water technologies and marine mapping technologies) could be co-located with other marine technologies emanating from the Institute. The benefits of sharing facilities are highlighted below.
  - Shared common areas/facilities (e.g., reception, conference rooms, kitchen, equipment closets, bathrooms, etc.) would greatly reduce the space requirements and costs for each project.
  - Shared administrative staffing and shared administrative offices would reduce project overhead.
  - Increased activity within the facility (e.g., visitors, events, client activity, etc.) would create a more energetic/innovative environment for technology commercialization.<sup>40</sup>

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<sup>39</sup> It has been the project team’s experience that much of the furniture and equipment can be obtained through donations..

<sup>40</sup> The project team has found that incubators with a limited number of resident clients lacks the energy needed to create a positive/innovative environment for technology entrepreneurs.

- A combined incubation effort would create a greater critical mass of technology commercialization activity at the Port which would improve the areas image as a technology hub.
- **Enhance San Pedro's and Wilmington's Entrepreneurial Culture** – San Pedro and Wilmington should take steps to improve the entrepreneurial culture (or mindset) in the area by expanding the breadth of entrepreneurial support activity in the community through the following initiatives.<sup>41</sup>
  - Entrepreneurship Training – Entrepreneurial training is available through Los Angeles Harbor College (e.g., Management 13: Small Business Management) and the Small Business Development Center. However, these resources are not specifically targeted to the residents of San Pedro/Wilmington and they are likely to have limited impact on changing the community's mindset towards entrepreneurship. A more strategic approach would be to focus on introducing entrepreneurship to area youth who are at a stage where they are open to new ways of thinking and can carry these attitudes home to their families. To this end, the project team recommends that project supporters and community leaders continue to support local efforts to establish a youth entrepreneurship program at Port of Los Angeles High School and consider expanding this effort into other area schools (e.g., Dana Middle School). This effort could build on existing curriculum such as that offered by Junior Achievement <http://www.ja.org/> and the National Foundation for Teaching Entrepreneurship (NFTE) <http://www.nfte.com/>.
  - Entrepreneurship/Small Business Recognition Activities – Local residents typically are unaware that an innovative/entrepreneurial class exists within their community because of the visibility of more prominent economic drivers (e.g., the Ports of Los Angeles/Long Beach). Consequently, to increase local awareness, a community must aggressively identify and recognized the accomplishments of this group. To this end, the project team recommends that San Pedro/Wilmington bring together existing business recognition programs (e.g., those sponsored by the San Pedro Chamber of Commerce) to create a more robust series of programs/events to acknowledge entrepreneurship and small business achievements within San Pedro/Wilmington. Specific awards may include Entrepreneur of the Year, Small Business of the Year, Most Innovative New Product/Service, Fastest Growing Company, etc. The programs/events should be developed through a collaborative effort of the various community-based organizations (e.g., Chambers of Commerce) and programs (e.g., PortTechLA). In addition, local business support programs (e.g., PortTechLA and SBDC) should encourage client businesses to compete for regional and national

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<sup>41</sup> Funding may be available from Hewlett Packard (e.g., the HP Technology for Entrepreneurship Education Leadership Award), The Coleman Foundation, Inc., and The Kaufman Foundation to support these initiatives although funding may be limited by the location and the demographics of the populations served.

entrepreneurial awards (e.g., U.S. Chamber of Commerce's Dream Big Small Business of the Year Award sponsored by Sam's Club). Local events should have broad sponsorship and public relations support. Timing the events with the U.S. Small Business Administration's National Small Business Week can help San Pedro/Wilmington piggyback local public relations efforts with the regional and national press surrounding this national event.

In summary, the Port of Los Angeles and its partners have an opportunity to lay the groundwork for the first Port Technology Incubator in the world and establish the San Pedro Bay as the hub of port technology development world-wide. The business activity resulting from this effort would help to diversify the area economy while assisting the Ports of Los Angeles/ Long Beach and their tenants improve operations, address homeland security concerns, and meet air and water emission goals.

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# Appendix A: Port Technology Classifications

The following nine (9) classifications were developed by Port Technology International to cover all areas of port and terminal operations (Source: <http://www.porttechnology.org/>). An expanded description of each of these classifications is provided below.

- **Port Planning, Design and Construction** – This classification includes master planning, port expansion and upgrading, multidisciplinary engineering, GIS, finance, dredging vessels, and survey equipment.
- **Environment, Health and Safety** – This classification includes oil spill management, air/water pollution, ISO14001 emergency management systems, planning/training equipment, remediation, and alternative energy.
- **Vessel Traffic Services (VTS) and Aids to Navigation** – This classification includes radar, automated identification system (AIS), vessel traffic management information systems (VTMIS), infra-red, very high frequency (VHF), global positioning system (GPS), marker and navigator buoys, LED lights, and thermal imaging.
- **Mooring and Berthing** – This classification includes fenders, tugs, docking systems, corrosion, pilings, cathodic protection, single point mooring, and mooring hooks.
- **Container Handling** – This classification includes ship-to-shore cranes, spreader systems, positioning tools, rubber-tired gantries (RTG), rail-mounted gantries (RMG), crane components, drives, brakes, mobile harbor cranes, and above ground storage tanks.
- **Terminal Logistics** – This classification includes terminal operating systems (TOS), straddle carriers, reach stackers, fork lift trucks, warehousing design, roll on-roll off (Ro-Ro), hand held scanners, and tractors and trailers.
- **Dry Bulk Handling** – This classification includes loaders/unloaders, dust suppression, silos, domes, floating platforms, grabs, and conveyors.
- **Liquid, Chemical and Gas Handling** – This classification includes vapor recovery and control systems, LNG/LPG loading arms, terminal automation, tank gauging, and storage tanks.

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## **Appendix B: Current Business Activity**

Data was gathered from the Dun & Bradstreet Zapdata.com database in May 2010 to serve as the baseline for the current business activity analysis. Tables B.1 through B.3 present the data for the SIC codes identified by the project team to represent potential business activities that might be supported by a Port Technology Incubator in San Pedro/Wilmington.

**Table B.1: Current Port Related Business Activity in Primary Market Area:  
San Pedro, Wilmington and Long Beach**

<b>SIC Code</b>	<b>Industry Description</b>	<b>San Pedro</b>	<b>Wilmington</b>	<b>Long Beach</b>
2833	Medicinal Chemicals and Botanical Products	0	1	1
2834	Pharmaceutical Preparations	0	0	1
2851	Paints, Varnishes, Lacquers, Enamels & Allied Products	0	0	1
3491	Miscellaneous Fabricated Metal Products	0	0	1
3498	Fabricated Pipe and Pipe Fittings	0	0	1
3511	Turbines and Turbine Generator Sets	0	0	0
3519	Internal Combustion Engines, Not Elsewhere Classified	0	1	0
3599	Industrial and Commercial Machinery & Equipment, Not Elsewhere Classified	0	1	0
3612	Power, Distribution and Specialty Transformers	0	0	1
3621	Motors and Generators	1	0	2
3624	Carbon and Graphite Products	0	0	1
3625	Relays and Industrial Controls	0	0	2
3629	Electrical Industrial Apparatus, Not Elsewhere Classified	0	1	0
3663	Radio and Television Broadcasting and Communications Equipment	0	1	1
3669	Communications Equipment, Not Elsewhere Classified	0	0	2
3677	Electronic Coils, Transformers and Other Inductors	0	0	0
3678	Electronic Connectors	0	0	0
3679	Electronic Components, Not Elsewhere Classified	0	0	3

**Table B.1: Current Port Related Business Activity in Primary Market Area:  
San Pedro, Wilmington and Long Beach (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>San Pedro</b>	<b>Wilmington</b>	<b>Long Beach</b>
3691	Storage Batteries	0	0	0
3713	Truck and Bus Bodies	0	1	1
3714	Motor Vehicle Parts and Accessories	1	5	11
3731	Ship Building and Repairing	1	1	4
3732	Boat Building and Repairing	1	2	9
3812	Search, Detection, Navigation, Guidance, Aeronautical and Nautical Systems and Instruments	0	0	1
3823	Industrial Instruments for Measurement, Display and Control of Process Variables and Related Products	0	1	3
3824	Totalizing Fluid Meters and Counting Devices	0	0	0
3825	Instruments for Measuring and Testing of Electricity and Electrical Signals	0	0	3
3826	Laboratory Analytical Instruments	0	0	2
3829	Measuring and Controlling Devices, Not Elsewhere Classified	1	0	0
4013	Railroad Switching and Terminal Establishments	0	3	0
4491	Marine Cargo Handling	7	4	16
4499	Water Transportation Services, Not Elsewhere Classified	0	2	9
4785	Fixed Facilities and Inspection and Weighing Services for Motor Vehicle Transportation	1	3	3
4789	Transportation Services, Not Elsewhere Classified	0	0	0
4953	Refuse Systems	1	8	14
4959	Sanitary Services, Not Elsewhere Classified	1	0	3

**Table B.1: Current Port Related Business Activity in Primary Market Area:  
San Pedro, Wilmington and Long Beach (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>San Pedro</b>	<b>Wilmington</b>	<b>Long Beach</b>
7371	Computer Programming Services	8	1	55
7373	Computer Integrated Systems Design	2	0	5
7374	Computer Processing and Data Preparation and Processing Services	5	1	24
7379	Computer Related Services, Not Elsewhere Classified	16	1	53
7389	Business Services, Not Elsewhere Classified	1	1	19
8711	Engineering Services	2	0	17
8731	Commercial Physical and Biological Research	0	1	6
8734	Testing Laboratories	0	1	2
8742	Management Consulting Services	0	1	8
8748	Business Consulting Services, Not Elsewhere Classified	9	0	33
	<b>Total</b>	<b>58</b>	<b>42</b>	<b>318</b>

**Table B.2: Current Port Related Business Activity in Primary Market Area:  
Harbor City, Torrance and Los Angeles**

<b>SIC Code</b>	<b>Industry Description</b>	<b>Harbor City</b>	<b>Torrance</b>	<b>Los Angeles</b>
2833	Medicinal Chemicals and Botanical Products	0	1	0
2834	Pharmaceutical Preparations	0	0	0
2851	Paints, Varnishes, Lacquers, Enamels & Allied Products	0	0	0
3491	Miscellaneous Fabricated Metal Products	0	2	0
3498	Fabricated Pipe and Pipe Fittings	0	0	2
3511	Turbines and Turbine Generator Sets	0	1	0
3519	Internal Combustion Engines, Not Elsewhere Classified	0	1	0
3599	Industrial and Commercial Machinery & Equipment, Not Elsewhere Classified	0	0	0
3612	Power, Distribution and Specialty Transformers	0	0	0
3621	Motors and Generators	0	3	0
3624	Carbon and Graphite Products	0	0	0
3625	Relays and Industrial Controls	1	4	0
3629	Electrical Industrial Apparatus, Not Elsewhere Classified	0	0	1
3663	Radio and Television Broadcasting and Communications Equipment	1	4	1
3669	Communications Equipment, Not Elsewhere Classified	0	0	0
3677	Electronic Coils, Transformers and Other Inductors	0	1	0
3678	Electronic Connectors	0	2	0
3679	Electronic Components, Not Elsewhere Classified	2	10	2

**Table B.2: Current Port Related Business Activity in Primary Market Area:  
Harbor City, Torrance and Los Angeles (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>Harbor City</b>	<b>Torrance</b>	<b>Los Angeles</b>
3691	Storage Batteries	0	2	0
3713	Truck and Bus Bodies	0	2	0
3714	Motor Vehicle Parts and Accessories	1	9	2
3731	Ship Building and Repairing	0	0	0
3732	Boat Building and Repairing	0	0	0
3812	Search, Detection, Navigation, Guidance, Aeronautical and Nautical Systems and Instruments	0	0	0
3823	Industrial Instruments for Measurement, Display and Control of Process Variables and Related Products	0	3	1
3824	Totalizing Fluid Meters and Counting Devices	0	1	0
3825	Instruments for Measuring and Testing of Electricity and Electrical Signals	0	2	0
3826	Laboratory Analytical Instruments	0	1	0
3829	Measuring and Controlling Devices, Not Elsewhere Classified	0	0	0
4013	Railroad Switching and Terminal Establishments	0	0	0
4491	Marine Cargo Handling	0	1	0
4499	Water Transportation Services, Not Elsewhere Classified	0	1	0
4785	Fixed Facilities and Inspection and Weighing Services for Motor Vehicle Transportation	0	0	0
4789	Transportation Services, Not Elsewhere Classified	0	0	1
4953	Refuse Systems	1	3	5
4959	Sanitary Services, Not Elsewhere Classified	0	0	0

**Table B.2: Current Port Related Business Activity in Primary Market Area:  
Harbor City, Torrance and Los Angeles (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>Harbor City</b>	<b>Torrance</b>	<b>Los Angeles</b>
7371	Computer Programming Services	3	63	14
7373	Computer Integrated Systems Design	0	10	3
7374	Computer Processing and Data Preparation and Processing Services	1	23	5
7379	Computer Related Services, Not Elsewhere Classified	1	55	7
7389	Business Services, Not Elsewhere Classified	0	15	2
8711	Engineering Services	1	8	4
8731	Commercial Physical and Biological Research	0	8	2
8734	Testing Laboratories	0	1	0
8742	Management Consulting Services	0	5	3
8748	Business Consulting Services, Not Elsewhere Classified	1	13	3
	<b>Total</b>	13	255	58

**Table B.3: Current Port Related Business Activity in Primary Market Area:  
All Other Communities**

<b>SIC Code</b>	<b>Industry Description</b>	<b>All Other Communities</b>
2833	Medicinal Chemicals and Botanical Products	11
2834	Pharmaceutical Preparations	12
2851	Paints, Varnishes, Lacquers, Enamels & Allied Products	2
3433	Heating Equipment, Except Electric and Warm Air Furnaces	1
3491	Miscellaneous Fabricated Metal Products	3
3494	Valves and Pipe Fittings, Not Elsewhere Classified	4
3498	Fabricated Pipe and Pipe Fittings	3
3511	Turbines and Turbine Generator Sets	3
3519	Internal Combustion Engines, Not Elsewhere Classified	1
3561	Pumps and Pumping Equipment	4
3599	Industrial and Commercial Machinery & Equipment, Not Elsewhere Classified	1
3612	Power, Distribution and Specialty Transformers	9
3613	Switchgear and Switchboard Apparatus	8
3621	Motors and Generators	7
3624	Carbon and Graphite Products	1
3625	Relays and Industrial Controls	10
3629	Electrical Industrial Apparatus, Not Elsewhere Classified	8
3663	Radio and Television Broadcasting and Communications Equipment	16

**Table B.3: Current Port Related Business Activity in Primary Market Area:  
All Other Communities (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>All Other Communities</b>
3669	Communications Equipment, Not Elsewhere Classified	3
3677	Electronic Coils, Transformers and Other Inductors	7
3678	Electronic Connectors	8
3679	Electronic Components, Not Elsewhere Classified	19
3691	Storage Batteries	3
3713	Truck and Bus Bodies	8
3714	Motor Vehicle Parts and Accessories	54
3715	Truck Trailers	1
3731	Ship Building and Repairing	3
3732	Boat Building and Repairing	14
3812	Search, Detection, Navigation, Guidance, Aeronautical and Nautical Systems and Instruments	6
3822	Automatic Controls for Regulating Residential and Commercial Environments and Appliances	3
3823	Industrial Instruments for Measurement, Display and Control of Process Variables and Related Products	15
3824	Totalizing Fluid Meters and Counting Devices	5
3825	Instruments for Measuring and Testing of Electricity and Electrical Signals	3
3826	Laboratory Analytical Instruments	3
3829	Measuring and Controlling Devices, Not Elsewhere Classified	0
4013	Railroad Switching and Terminal Establishments	1

**Table B.3: Current Port Related Business Activity In Primary Market Area:  
All Other Communities (Continued)**

<b>SIC Code</b>	<b>Industry Description</b>	<b>All Other Communities</b>
4491	Marine Cargo Handling	3
4499	Water Transportation Services, Not Elsewhere Classified	6
4785	Fixed Facilities and Inspection and Weighing Services for Motor Vehicle Transportation	2
4789	Transportation Services, Not Elsewhere Classified	2
4953	Refuse Systems	45
4959	Sanitary Services, Not Elsewhere Classified	6
7371	Computer Programming Services	210
7373	Computer Integrated Systems Design	22
7374	Computer Processing and Data Preparation and Processing Services	94
7379	Computer Related Services, Not Elsewhere Classified	237
7389	Business Services, Not Elsewhere Classified	67
8711	Engineering Services	47
8731	Commercial Physical and Biological Research	21
8734	Testing Laboratories	17
8742	Management Consulting Services	28
8748	Business Consulting Services, Not Elsewhere Classified	85
	<b>Total</b>	1152

## Appendix C: SBIR/STTR Program Overview

### SBIR Overview<sup>42</sup>

The federal Small Business Innovation Research program is designed to encourage small business product commercialization by providing financial support to explore the market viability of technological enhancements. In particular, the SBIR program targets small businesses with serious research and development needs that they are unable to fund on their own, and reserves a specific percentage of federal R&D funds for these businesses. The program enables small businesses to compete on the same level as larger businesses by awarding grants to fund the critical startup and development stages. It also encourages the commercialization of technology products/services that will stimulate the economy.

SBIR grants are awarded to small businesses that meet the following qualifications:

- American-owned and independently operated
- For-profit
- Company size limited to 500 employees
- Principal researcher employed by business

SBIR grants are awarded to small businesses in a three-step process:

- Phase I is the startup phase. Awards of up to \$100,000 for approximately six (6) months are made to support exploration of the technical merit or feasibility of an idea or technology.
- Phase II awards of up to \$750,000 for as many as two (2) years expand Phase I results. During this time, the business performs its R&D work and evaluates its commercialization potential. Only Phase I award winners are considered for Phase II.
- Phase III is the period during which Phase II innovation moves from the laboratory into the marketplace. No SBIR funds support this phase. The small business must find funding in the private sector or other non-SBIR federal agency funding.

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<sup>42</sup> Source: U.S. Small Business Administration

## STTR Overview<sup>43</sup>

The federal Small Business Technology Transfer (STTR program) expands small business funding opportunities for research and development projects as they relate to expanding public/private sector partnerships, and fostering joint venture opportunities for small businesses and nonprofit research institutions. As with the SBIR program, STTR is a highly competitive program focusing on the transition of technological theory into practical application.

Small businesses must meet all the requirements outlined for the SBIR program with the one exception; the principal researcher does not need to be an employee of the business. The grant process is very similar to the three-step process described above for SBIR grants. However, the maximum Phase II award is limited to \$500,000, rather than the \$750,000 Phase II cap for SBIR.

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<sup>43</sup> U.S. Small Business Administration (<http://www.sba.gov/aboutsba/sbaprograms/sbir/index.html>)

## Appendix D: Temporary Facility Financials

The following table present background data and preliminary pro forma financials for developing a temporary Port Technology Incubator facility at the former Bank of America building in San Pedro.

<b>Operating Expenses</b>	<b>Unit Cost</b>	<b>Units or SF</b>	<b>Unit Total</b>
Common Area Maintenance Fees	\$2.50	11,250	\$28,125
<b>Staffing</b>			
Director (Contract)	\$169,000	100%	\$169,000
Program Manager	\$110,500	100%	\$110,500
Receptionist (Wages & Benefits)	\$58,500	100%	\$58,500
Rent	\$1.25	11,250	\$14,063
Utilities	\$2.25	11,250	\$25,313
Janitorial	\$1.44	11,250	\$16,200
High Speed Telecom			\$48,000
Marketing and Promotion			\$60,000
Insurance			\$2,500
Telephone & Data Line			\$1,800
Postage & Delivery			\$480
Maintenance			\$1,200
Office Supplies			\$1,200
Misc. (5% Contingency)			\$22,000
<b>Financial Adjustments</b>			
Annual Inflation Adjustment	3%		
Annual Wage Adjustment	6%		
<b>Monthly Rental Rates</b>	<b>Rate</b>	<b>Total Units</b>	
Office Cubicle (based on 34 units)	\$75	34	
Storage - no charge			
Demonstration Area - no charge			
<b>Hourly Rental Rates</b>			
Conference Rental Rate - Small	\$0		
Conference Rental Rate - Large	\$0		
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Units Rented</b>			
Office Cubicle (based on 34 units)	5	12	18
Avg. Monthly Telecom Fee	\$49		
Avg. Annual Telecom Subscribers	5	12	18

	<b>Unit Cost</b>	<b>Units or SF</b>	<b>Unit Total</b>
<b>Facility Improvements</b>			
General Rehab - Tenant Improvements	\$20.36	11,250	\$229,000
Permits		1.5%	\$3,435
Project Mgmt., Planning & Design Services		17%	\$38,930
Construction Management		10%	\$22,900
Escalation per year		2%	\$4,580
Construction Contingency		25%	\$57,250
<b>Subtotal Construction &amp; Fees</b>			<b>\$356,095</b>
<b>Furniture &amp; Equipment</b>			
Cubicles	\$2,000	34	\$68,000
Office Furniture	\$5,000	2	\$10,000
Misc. Furniture - Reception/Conference	\$20,000	1	\$20,000
Kitchen	\$4,000	1	\$4,000
Copier	\$5,000	1	\$5,000
Computers & network equipment			\$40,000
Basic facility security devices & systems			\$20,000
Data/telephone equipment & cabling			\$50,000
<b>Subtotal Furniture &amp; Equipment</b>			<b>\$217,000</b>
<b>Total Project Cost</b>			<b>\$573,095</b>

