

**APPENDIX B: DETAILS ON MOST PROMISING
GROWTH OPPORTUNITIES**

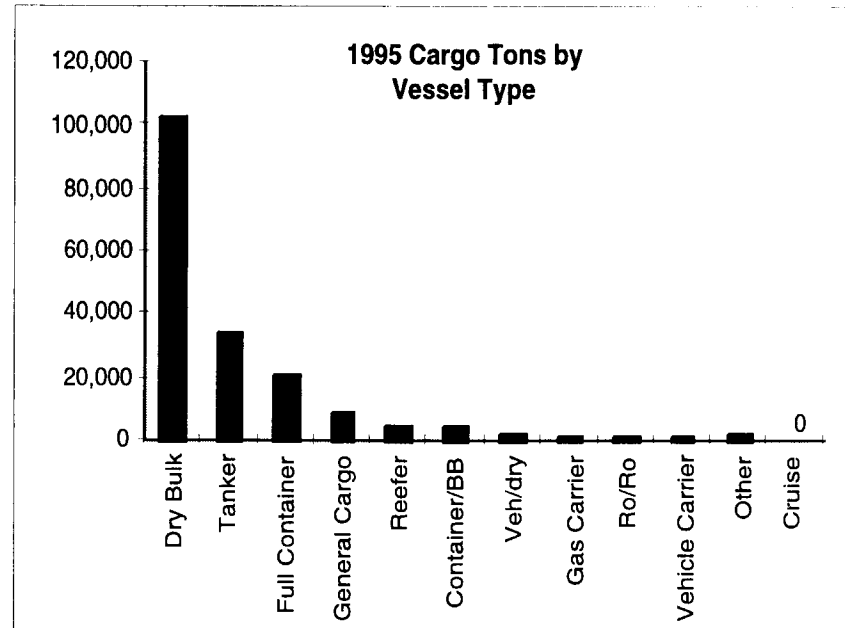
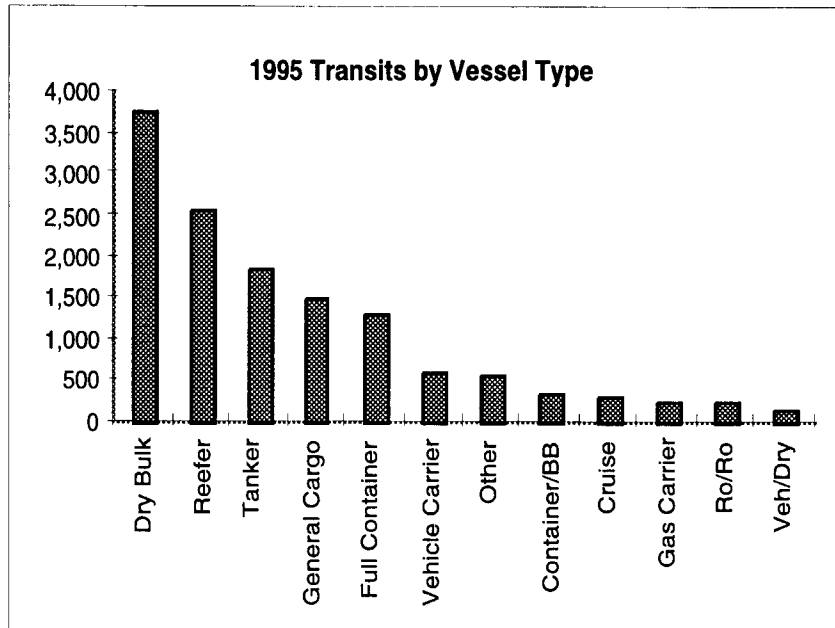
Appendix B: Growth Opportunities...Introduction to Details...

APPENDIX B PROVIDES FURTHER DETAIL ON THE GROWTH OPPORTUNITIES WHICH SCORED HIGHEST USING BOOZ·ALLEN'S EVALUATION METHODOLOGY

- First, toll and tariff management is explored
- Next, five new or expanded business opportunities are examined
 - Electricity (Utilities)
 - Ship Repair - Drydock
 - Port/Transshipment Facility
 - Heavy Lift Services
 - Tourism/Cruise Infrastructure
- Finally, four process improvements are presented
 - Investing Cash Balances
 - Inventory Management
 - Sourcing Optimization
 - Payroll Processing

TOLLS AND TARIFFS MANAGEMENT

FY 1995 Vessel Traffic Statistics by Vessel Type



CANAL TRAFFIC IS PRINCIPALLY COMPOSED OF BULK, BREAKBULK AND CONTAINER VESSELS WITH BULK CARGOES SUPPLYING THE GREATEST CARGO VOLUMES TRANSITING THE CANAL

- Dry bulk vessels and tankers made over 5,800 transits in 1995, comprising 44 percent of oceangoing traffic, and carried 73 percent of the total cargo tons transiting the Canal
 - The largest single commodity transiting the canal was grain at 44 million tons or 23 percent of total volumes
 - Petroleum and petroleum products accounted for an additional 27 million tons (14 percent of total cargo tons)
 - Other significant bulk commodities included fertilizers, coal, and ores
- Reefer vessels comprised 19 percent (nearly 2,600) of the total transits, but carried only 3 percent of the cargo due to their small average size. General cargo carriers, which are also significant in the breakbulk trades, accounted for another 11 percent of transits
- Fully containerized and container compatible vessels made up 13 percent of transits and carried 14 percent of total volumes

IN ITS TOLL STRUCTURE, THE PANAMA CANAL ATTEMPTS TO BE NON-DISCRIMINATORY BETWEEN TYPES OF VESSELS AND THEIR RELATIVE TRANSIT AND CARGO ACTIVITY LEVELS

Waterway Comparison of Toll Structures and Activity Levels

| Waterway | Toll Base | Charges By Cargo Type | Rebates | Total Transits | Toll Revenue (Millions of \$) | Cargo Tons (Millions) | Revenue Per Cargo Ton |
|----------------------|--------------------------------------|-----------------------|---------|----------------|-------------------------------|-----------------------|-----------------------|
| Panama Canal | Panama Canal defined vessel capacity | No | No | 13,600 | \$460 | 190 | \$2.40 |
| Suez Canal | Suez Canal defined vessel capacity | Yes | Yes | 15,000 | \$2,000 | 360 | \$5.50 |
| St. Lawrence Seaway* | Cargo tons, vessel capacity | Yes | Yes | 2,900 | \$60 | 40 | \$1.50 |

* 1994 statistics, includes Canadian tolls only as US tolls have been suspended

THE PANAMA CANAL MAINTAINS A SIMPLE TOLL SYSTEM WHICH IS BASED ON A STANDARD CHARGE FOR A VESSEL'S MEASURED CAPACITY. THIS DIFFERS SIGNIFICANTLY FROM SUEZ CANAL AND ST. LAWRENCE SEAWAY TOLL CHARGES WHICH ALSO REFLECT THE COMMODITY BEING CARRIED

- Each of the three waterways has a unique method of assessing tolls with distinct differences regarding types of cargo
 - The Panama Canal charges on assessed ship capacity, differentiating only between laden and ballast vessels
 - The Suez Canal charges based upon both capacity of the ship and the type of cargo being carried
 - The St. Lawrence Seaway charges on cargo tons by commodity type as well as ship capacity
- In addition, the Suez Canal and the St. Lawrence Seaway use rebates as a means of attracting and retaining business while the Panama Canal does not
 - Recognizing cargo can move other than via the Canal, the Suez Authority offers rebates based upon the cost of alternative routings (e.g. transit around the Cape of Good Hope)
 - The St. Lawrence Seaway offers new business discounts
- The impact of this differentiated pricing is striking. While transiting only 10 percent more vessels, the Suez Canal has revenue over 4 times that of the Panama Canal. This reflects not only the size of the vessels the Suez can accommodate (roughly twice as great for a laden vessel), but also the average charges per ton of cargo: \$2.40 for the Panama Canal versus \$5.50 for the Suez Canal

Profile of Vessels/Commodities Transiting the Panama Canal

| Ship Type | % of 1995 Transits | Avg Toll Per Cargo Ton | Avg. Cargo Value Per Transit (\$ Thousands) | Avg Toll as a % of Cargo Value | Time Sensitivity | Perishable Goods |
|--------------------|--------------------|------------------------|---|--------------------------------|------------------|------------------|
| Pure Containership | 10% | \$3.29 | \$75,900 | .07% | ● | ◐ |
| Container/BB/Ro-Ro | 5% | \$2.81 | \$30,800 | .11% | ◐ | ○ |
| Vehicle Carriers | 5% | \$25.97 | \$33,850 | .26% | ◐ | ○ |
| General Cargo | 11% | \$2.68 | \$5,050 | .33% | ○ | ○ |
| Reefer | 19% | \$5.57 | \$2,900 | .56% | ● | ● |
| Tanker | 14% | \$1.38 | \$4,575 | .77% | ○ | ○ |
| Dry Bulk | 28% | \$1.36 | \$3,350 | 1.30% | ○ | ○ |

| | |
|---|--------|
| ● | High |
| ◐ | Medium |
| ○ | Low |

IN TERMS OF THE VALUE AND TIME SENSITIVITIES OF THE CARGOES THEY CARRY, THE VESSELS TRANSITING THE PANAMA CANAL HAVE VERY DIFFERENT PROFILES

- Fully containerized vessels transiting the Canal have the highest average cargo values, estimated at \$75 million per shipload. As a result, tolls equate to a mere 0.07 percent of the cargo value. This is also partially attributable to the Canal's definition of capacity which omits above deck storage thereby limiting tolls
- Conversely, vehicle carriers have excessive amounts of space and low relative cargo weight, driving the average the toll per cargo ton to nearly \$26 as compared to a range of \$1.36 to \$5.57 for other cargoes. The high value of vehicles, however, means toll charges only amount to .26% of the cargo value
- Tolls for dry bulk cargoes equate to a more substantial 1.3 percent of cargo value due to the lower value of the commodities these vessels carry
- Along with cargo value, transiting vessels also have varying time sensitivities
 - Container vessels are schedule driven and often have set windows for port calls
 - The use of container carriers by industry as a part of just-in-time inventory systems helps reduce inventory carrying costs but also places great demands on carrier schedules
 - Reefer vessels also need to maintain tight schedules with their perishable cargoes

THESE FACTORS IMPLY AN OPPORTUNITY FOR PRICE DIFFERENTIATION - POTENTIALLY LINKED TO PREFERENCES IN SCHEDULING

THIS HIGH USE OF THE CANAL'S CURRENT RESERVATION SYSTEM BY SHIPPING COMPANIES WITH HIGH VALUE AND/OR TIME SENSITIVE CARGOES SUGGESTS THAT THEY ARE WILLING TO ABSORB HIGHER TOLLS

**Summary of Panama Canal
1995 Reservation Activity**

| Ship Type | Reservation Transits | Fees (Millions \$) | Cargo Tons (Millions) | Reservations as % of Transits |
|------------------|-----------------------------|---------------------------|------------------------------|--------------------------------------|
| Container | 813 | \$5.7 | 14.2 | 62% |
| Reefer | 1,554 | \$3.5 | 4.0 | 60% |
| Vehicle Carriers | 203 | \$2.1 | 0.7 | 33% |
| Tankers | 352 | \$1.8 | 7.8 | 19% |
| General Cargo | 256 | \$0.7 | 1.8 | 17% |
| Dry Bulk | 611 | \$3.6 | 18.7 | 16% |
| Other | 261 | \$1.4 | 3.6 | 14% |
| Totals | 4,050 | \$18.8 | 50.8 | 30% |

PRICING BY COMMODITY IS ACTUALLY THE RULE RATHER THAN THE EXCEPTION IN THE MARITIME INDUSTRY AND IS WIDELY PRACTICED BY PORTS AND SHIPPING COMPANIES ALIKE

**Container/Breakbulk Ship Carrying Containers and Steel
(Far East to South Atlantic)**

| | Container* | Steel |
|------------------------------------|-------------------|--------------|
| Canal Charge Per Ton** | \$2.80 | \$2.80 |
| Freight Cost Per Ton | \$155.00 | \$13.00 |
| Port Wharfage / Throughput Per Ton | \$6.10 | \$2.00 |

** Assumes forty foot box, 20 tons, high value goods*

*** Average charge per ton for container/breakbulk vessels*

**Panama Canal Transit Restrictions And Resource Requirements
By Vessel Type**

| Characteristics | | | Restrictions | | | Tug Requirement | | | |
|------------------|----------|-----------|---------------|-----------------|------------------|-----------------|--------------|----------------|--------|
| Vessel Size/Type | LOA (ft) | Beam (ft) | Clear Channel | Daylight In/Out | Daylight Transit | Locks(In/Out) | Gaillard Cut | Mules Per Lock | Pilots |
| Panamax | 900 + | 100 + | Yes | Yes | Yes | 2/1 | 1 | 6 to 8 | 2 |
| Handysize | 600 | 80 | No | No | No | 1/0 | 0 | 4 | 1 |
| Reefer | 450 | 75 | No | No | No | 1/0 | 0 | 4 | 1 |
| Small Boat | | Under 75 | No | No | No | 0/0 | 0 | 0 | 0 |

ADDITIONALLY, LARGER VESSELS ARE SUBJECT TO TRANSIT RESTRICTIONS AND CONSUME MORE OF CANAL RESOURCES THAN SMALLER SHIPS, AND IMPACT CAPACITY

- Larger vessels are most restricted in their ability to transit due to the care which must be taken in guiding them through the locks and Gaillard Cut
- These restrictions/required procedures have an impact on capacity and place greater demands on scheduling to ensure efficient operations
- Larger vessels will be the primary beneficiaries of the Cut widening effort, a \$300 million program
- Larger ships also require a greater overall number of mules and tugs - the capital costs for which are split among all vessels through the toll system

GIVEN THE DEMANDS LARGE VESSELS PLACE ON THE CANAL, A MORE PROGRESSIVE PRICING SCHEDULE MAY BE APPROPRIATE

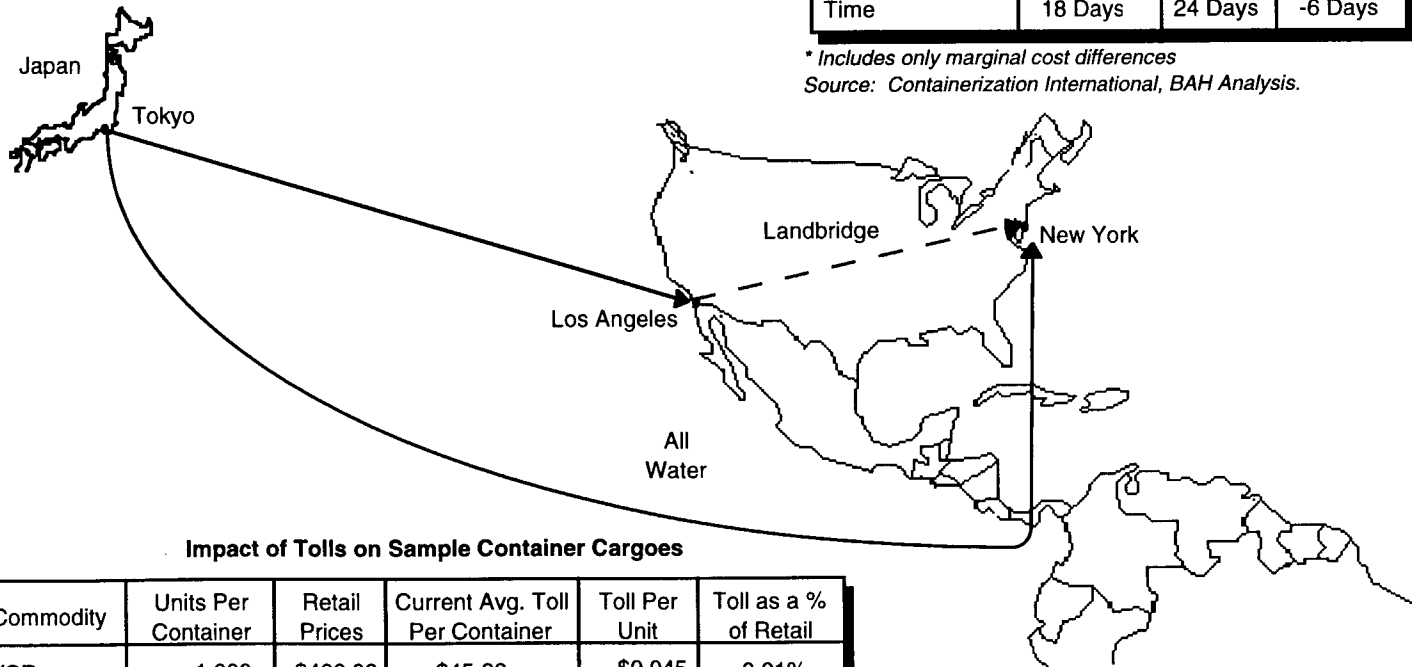
Alternative Container Routing - Preliminary Analysis

Alternative Container Routing Preliminary Analysis

Comparisons for a 40 ft. Container

| | Landbridge | All Water | All Water Advantage |
|-------------------|------------|-----------|---------------------|
| Price | \$3,900 | \$3,100 | \$800 |
| Incremental Cost* | \$1,360 | \$600 | \$760 |
| Time | 18 Days | 24 Days | -6 Days |

* Includes only marginal cost differences
Source: Containerization International, BAH Analysis.



Impact of Tolls on Sample Container Cargoes

| Commodity | Units Per Container | Retail Prices | Current Avg. Toll Per Container | Toll Per Unit | Toll as a % of Retail |
|-----------|---------------------|---------------|---------------------------------|---------------|-----------------------|
| VCRs | 1,000 | \$400.00 | \$45.00 | \$0.045 | 0.01% |
| Note Pads | 260,000 | \$1.50 | \$45.00 | \$0.0002 | 0.01% |

ANY NEW PRICING STRUCTURE, HOWEVER, MUST RECOGNIZE ALTERNATIVES TO THE CANAL - SUCH AS LANDBRIDGING ACROSS THE US - AND THE IMPACT ON THE COMMODITY PRICE WHICH CAN AFFECT SOURCING DECISIONS

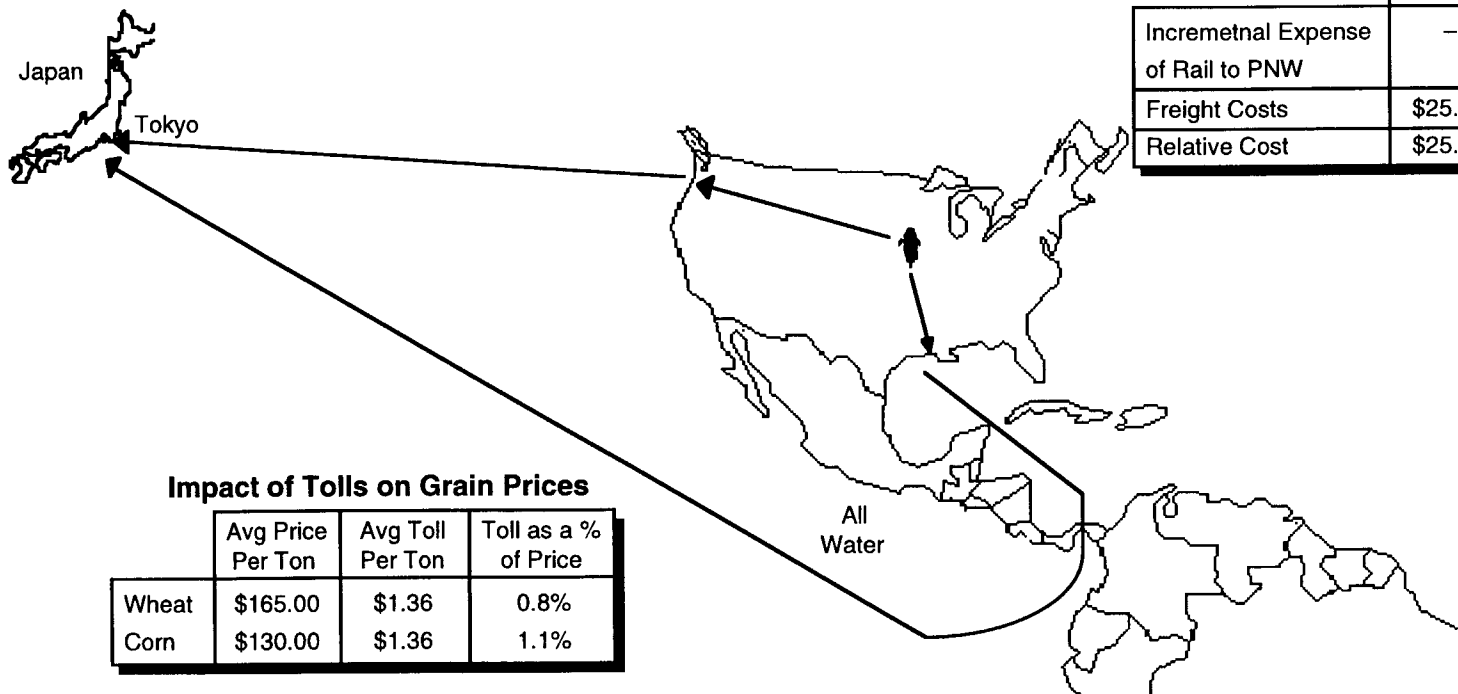
- Tolls on containers, which averaged \$45 per laden container on pure containerships in 1995, appear to be able to support a significantly higher toll due to higher alternative routing costs and the low impact tolls have on the commodity retail price
 - The landbridge routing is at a cost disadvantage to a Canal all-water route on the order of \$760 to \$800 per container but offers a time savings of approximately 6 days
 - Current tolls make up only 0.01 percent of the retail price of sample commodities
- Because container traffic has relatively fixed origin/destination points, substitution of product from different geographies does not play as important of a role in the short term

Alternative Grain Routing - Preliminary Analysis 60,000 Ton Grain Movement

**Alternative Grain Routing
Preliminary Analysis
60,000 Ton Grain Movement**

**Relative Cost Per Ton
of Grain to Japan**

| | Via Gulf, Canal | Via Pacific Northwest |
|---------------------------------------|--------------------|--------------------------|
| Incremental Expense of Rail to PNW | - | \$10.00 |
| Freight Costs | \$25.50 | \$14.00 |
| Relative Cost | \$25.50 | \$24.00 |



Impact of Tolls on Grain Prices

| | Avg Price Per Ton | Avg Toll Per Ton | Toll as a % of Price |
|-------|----------------------|---------------------|-------------------------|
| Wheat | \$165.00 | \$1.36 | 0.8% |
| Corn | \$130.00 | \$1.36 | 1.1% |

ANY NEW PRICING STRUCTURE, HOWEVER, MUST RECOGNIZE ALTERNATIVES TO THE CANAL - SUCH AS LANDBRIDGING ACROSS THE US - AND THE IMPACT ON THE COMMODITY PRICE WHICH CAN AFFECT SOURCING DECISIONS (CONTINUED)

- A similar analysis of grain movements revealed only marginal toll increases could likely be absorbed
 - Ocean freight rates for grains from the Gulf to Japan are over \$10 per ton higher than rates from the Pacific Northwest (\$25.50 vs. \$14.00), eliminating the inland cost advantage of shipping from the Gulf
 - Current tolls add approximately 1 percent to the price of grains
- Higher tolls on other bulks, such as coal and ores, can also affect delivered price and drive commodity purchases to other providers such as Australia or South Africa

A NEW TOLL STRUCTURE, SHOULD THEREFORE CONSIDER SIGNIFICANT COMMODITIES/SHIP TYPES ON AN INDIVIDUAL BASIS

PRELIMINARY ESTIMATES PLACE INCREMENTAL REVENUES FROM A TARIFF STRUCTURE WHICH FOCUSES ON CARGO CARRIED RATHER THAN VESSEL CAPACITY OVER \$125 MILLION

Incremental Revenue Estimates From Cargo Specific Toll Structure

| Commodity | Current Effective Price Per Unit | Target Price Per Unit | Incremental Revenue (Millions) | Vessels Impacted |
|---------------------|---|------------------------------|---------------------------------------|--|
| Containerized Goods | \$45/container | \$90 | \$80 | Pure Containerships Container/BB Ships General Cargo Ships |
| Vehicles | \$40/car | \$60 | \$20 | Vehicle Carriers |
| Reefer Goods | \$5.60/ton | \$6.50 | \$4 | Reefers |
| Liquid Bulks | \$1.38/ton | \$1.60 | \$7 | Tankers |
| Dry Bulks | \$1.36/ton | \$1.50 | <u>\$16</u> | Dry Bulk Carriers |
| | | | \$127 | |

VERIFICATION OF THIS FIGURE WILL BE DRIVEN BY RIGOROUS ANALYSIS OF THE ELASTICITY OF CANAL DEMAND BY COMMODITY TYPE

ELECTRICITY - UTILITIES

THE PCC IS WELL POSITIONED TO GENERATE SIGNIFICANT REVENUES FROM THE SALE OF ELECTRICITY AND WATER AS ADDITIONAL PRODUCTION CAPACITY BECOMES AVAILABLE POST TREATY

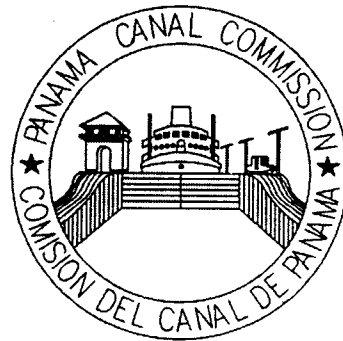
- Demand for electricity is currently growing in excess of 5 percent per year – and currently is outpacing the growth of the economy as a whole
- Privatization plans for utilities in Panama have been slow, with no significant increases in electrical production capacity or distribution expected in the near-term
- IRHE is expected to incur problems in meeting demand for electricity in the upcoming years, becoming ever more dependent on producers such as PCC, DoD and off-shore production sites, such as Honduras
- Historic power generation per year for the PCC has been relatively constant at 510GW. However, internal consumption of this power is expected to significantly decrease as Canal properties and military bases revert to Panamanian management and ownership. By the year 2000, non-committed electrical generation capacity of nearly 400 GW will be available for sale to IHRE.

IN AGGREGATE, POTENTIAL REVENUES FROM THE SALE OF ELECTRICITY AND OTHER UTILITIES EXCEEDS \$50 MILLION PER ANNUM

Potential Revenues from the Sale of Utilities

| Growth Opportunity | Methodology for Calculating Revenue Potential | Estimated Annual Revenue (Millions of Dollars) |
|---------------------------|--|---|
| Electricity | Retail excess electrical generating capacity within canal area (estimated @ 390 GW by 2001) @ \$0.13 per KW. A wholesale price of \$0.065 per KW would yield revenues of \$21.5 million if retail sales were not possible. | \$50.8 |
| Water | Wholesale excess water filtration capacity to IOAAN (estimated at 7.45 MGD by 2001) @ \$0.415/100 cubic feet. | \$1.5 |
| Chilled Water | Sell cooling system capacity to residential, public and commercial properties @ \$58.10/month per cooling system. Available capacity by 2001 is 2046.7 cooling tons. | \$1.4 |
| Total | | \$53.7 m |

**PANAMA CANAL GROWTH STRATEGY
PHASE I - FINAL REPORT**



June 28, 1996

BOOZ·ALLEN & HAMILTON INC.

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I. INTRODUCTION

AS PART OF A TWO PHASE PROJECT TO STUDY AND DEVELOP A MULTI-YEAR GROWTH STRATEGY FOR THE PANAMA CANAL, BOOZ-ALLEN WAS ASKED TO ASSIST THE PANAMA CANAL COMMISSION (PCC) IN THE COMPLETION OF PHASE I

- The Phase I assignment encompassed two major directives:
 - Identify growth opportunities for the post-transition Canal organization
 - Develop an evaluation methodology to evaluate and implement recommended growth opportunities in Phase II

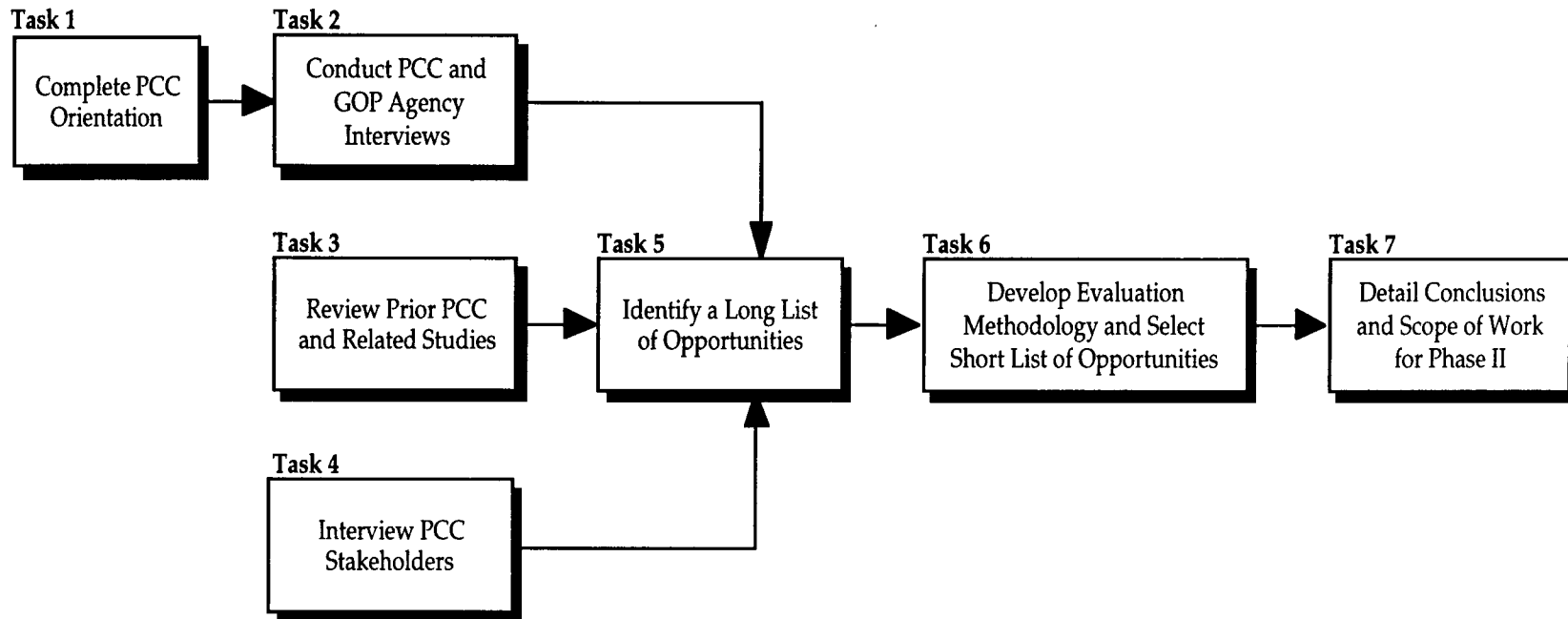
- In addition, the PCC provided the following guidance in completing Phase I:
 - Assess opportunities within the core transit services with a view towards:
 - Potential increases in core business through the implementation of a growth strategy
 - Changes or improvements to increase transit volume and tolls revenue
 - Evaluation of PCC's tolls and tariff systems

 - New growth opportunities beyond the core service should consider:
 - Impact to Canal's core transit services
 - Competitive advantages of Canal due to geography, physical plant, natural resources or areas leveraging skill sets of PCC employees
 - Similar successful private sector services (i.e.: competition)
 - Strong cash flow and financial base of the PCC
 - No restrictions due to law, organization, boundaries or treaty

Introduction...

WE ARE NOW AT THE END OF AN INTENSIVE SEVENTY DAY ASSIGNMENT, HAVING COMPLETED THE SEVEN TASKS IDENTIFIED IN OUR PROJECT SCHEDULE

Workplan for PCC Growth Strategy - Phase I Study



OVER THE COURSE OF THE ASSIGNMENT, WE HAVE DEVELOPED A COMPREHENSIVE UNDERSTANDING OF YOUR BUSINESS THROUGH A PROCESS OF INTERVIEWS WITH PCC BOARD MEMBERS, STAFF AND STAKEHOLDERS – IN ADDITION TO REVIEWING RELATED STUDIES AND CONDUCTING SITE VISITS AT VARIOUS PCC FACILITIES

- Conducted a total of 30 interviews with PCC board members and staff
 - Board members (6)
 - Administrators Office (1)
 - Executive Planning (3)
 - Financial Management (5)
 - Marine Bureau (5)
 - Engineering and Construction (6)
 - General Services (1)
 - Personnel (1)
 - Other (2)
- Conducted over 20 interviews with PCC stakeholders and GOP agencies
 - Carriers and barge operators
 - Shipping Agents
 - Classification Societies
 - Port Authorities
 - Tourism Professionals
 - ARI
 - EDAN
 - IRHE
 - Canal Operators (Suez, St. Lawrence)
 - Panamanian Business Leaders
- Reviewed over 20 studies addressing the transition, capacity enhancement and operations of the Panama Canal in addition to Panama’s maritime strategy and businesses
- Toured all major facilities of the Panama Canal including locks, industrial facilities, dredging division, training programs, etc.

Introduction...

THE CONTENT OF THIS REPORT WILL ADDRESS THE THREE MAJOR PRODUCTS OUTLINED IN THE PHASE I SCOPE OF WORK

- Present general growth strategy concepts and their application to the Panama Canal
- Identify a select list of the most promising growth opportunities to be studied in detail in Phase II
- Detail the objectives, methodology and parameters to be utilized in the development of a growth strategy for the Panama Canal, including:
 - Core transit-related business
 - Promising new businesses

THE REMAINDER OF THIS PRESENTATION WILL HIGHLIGHT OUR FINDINGS AND CONCLUSIONS

II. EVALUATION OF ALTERNATIVE MISSIONS

Mission Statement...

THE FIRST STEP IN THE DEVELOPMENT OF A GROWTH STRATEGY IS TO ACHIEVE CONSENSUS THROUGH THE ARTICULATION AND EVALUATION OF ALTERNATIVE VISION OR MISSION STATEMENTS

- A mission statement defines the fundamental purpose and principal role of an organization or activity
- It provides the management and staff with the direction and guidance necessary to develop goals and objectives and the plans, programs and activities required to achieve them
- And more importantly, and relevant to Phase I of this project, it enables the organization to identify the appropriate growth targets and objectives, and provides the strategy and plan to capture or achieve growth
- And, as a by-product, it releases the organization from being shackled by traditional values and constraints and provides the opportunity to embrace unconventional and creative ideas.

Mission Statement...

DURING PHASE I, BOOZ-ALLEN WAS CONFRONTED WITH A DIVERSE SET OF OPINIONS CONCERNING THE FUTURE MISSION OF THE CANAL ORGANIZATION

- One school of thought would restrict the mission to a narrow definition of the core transit business
 - “The more responsibility the PCC takes on – the more inefficient it will become.”
 - “For the first five years post 2000, the PCC should fully focus on transiting ships.”
 - “Let the PCC stick to its knitting and let ARI do the rest.”

- A second view would exploit and extend existing activity into a much broader set of economic developments
 - “The political objective of 1979 was to remove the US from commercial activities – we now want to reverse that decision as the Canal reverts to Panama.”
 - “Maximizing revenues and jobs is the purpose of the Growth Strategy.”
 - “The Growth Strategy should enable the Canal to become a billion dollar plus enterprise.”
 - “The Growth Strategy is for the Canal Area. There is no pink area.”
 - “The PCC should be a catalyst for growth – which will enhance Canal operation, the GOP and Panama in general.”
 - “Encompassing all development in one Canal organization, to some degree, may result in accelerating development in general – avoiding political and bureaucratic complexities of interagency development projects.”

Mission Statement...

IN AGGREGATE AND WITHOUT CONSIDERING SUBGROUP AFFILIATION, THERE APPEARS TO BE A GENERAL PREFERENCE TO LIMIT THE GROWTH OF THE CANAL ORGANIZATION TO THE EFFICIENT MANAGEMENT OF ITS CORE TRANSIT BUSINESS

Aggregate Score of Mission Statement Preference Survey

| Mission Statement | Mission Statement Preference Score | | |
|---------------------------------------|------------------------------------|---------------|--------------|
| | First Choice | Second Choice | Third Choice |
| Mission 1 (Core Specialization) | 11 | 8 | 9 |
| Mission 2 (Broader Maritime Strategy) | 11 | 13 | 4 |
| Mission 3 (Economic Catalyst) | 6 | 7 | 15 |



Indicates high score in each choice category

**First Choice Score of Mission Statement
Preference Survey by Interview Category**

| Mission Statement | Mission Statement First Choice Score | | |
|---------------------------------------|---|------------------|-------------------------------|
| | PCC Board and Secretary | PCC Staff | Non-PCC Interviews |
| Mission 1 (Core Specialization) | 2 | 3 | 6 |
| Mission 2 (Broader Maritime Strategy) | 2 | 8 | 1 |
| Mission 3 (Economic Catalyst) | 3 | 3 | 0 |



Indicates high score in each interview category

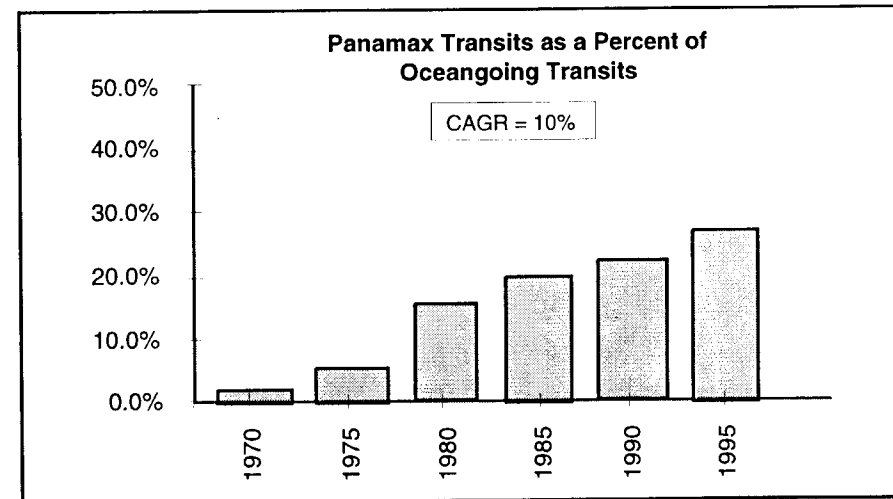
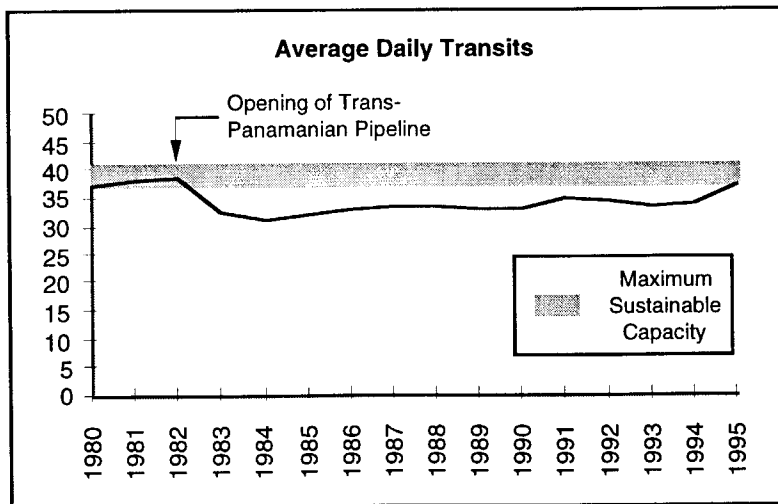
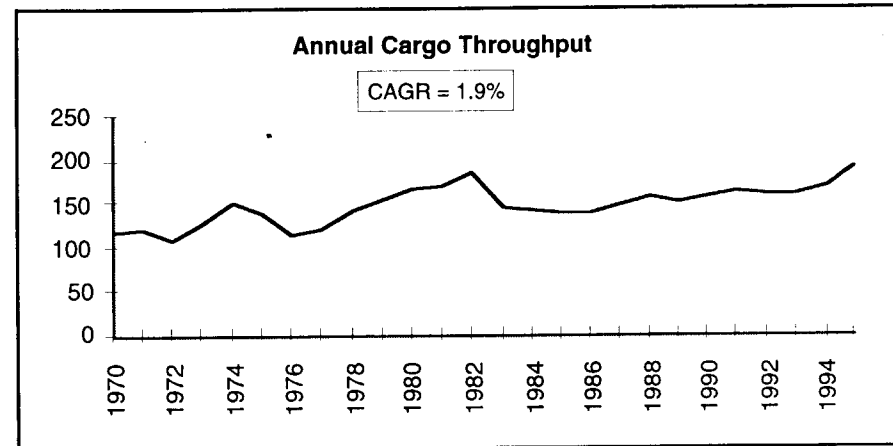
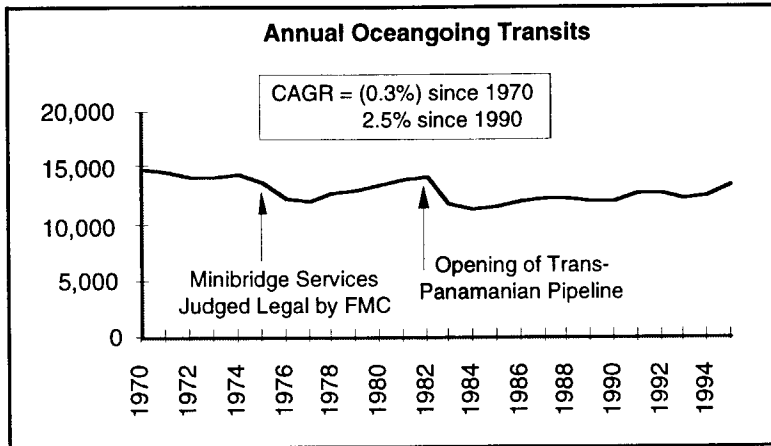
Mission Statement...

HOWEVER, THERE WAS LITTLE OR NO CONSENSUS BETWEEN THE THREE SUBGROUPS CONCERNING THE FUTURE MISSION OF THE CANAL ORGANIZATION

- The Commissioner subgroup, which included all Panamanian Board members, preferred the broader economic development role – but only after assuring an efficient and effective transition
- The staff demonstrated a preference for a broader maritime role – perhaps not too unlike that which existed before 1979
- The Non-PCC group, and particularly customers, strongly preferred the core mission statement.

**III. GROWTH STRATEGY CONCEPTS AND
STRATEGIC IMPERATIVES**

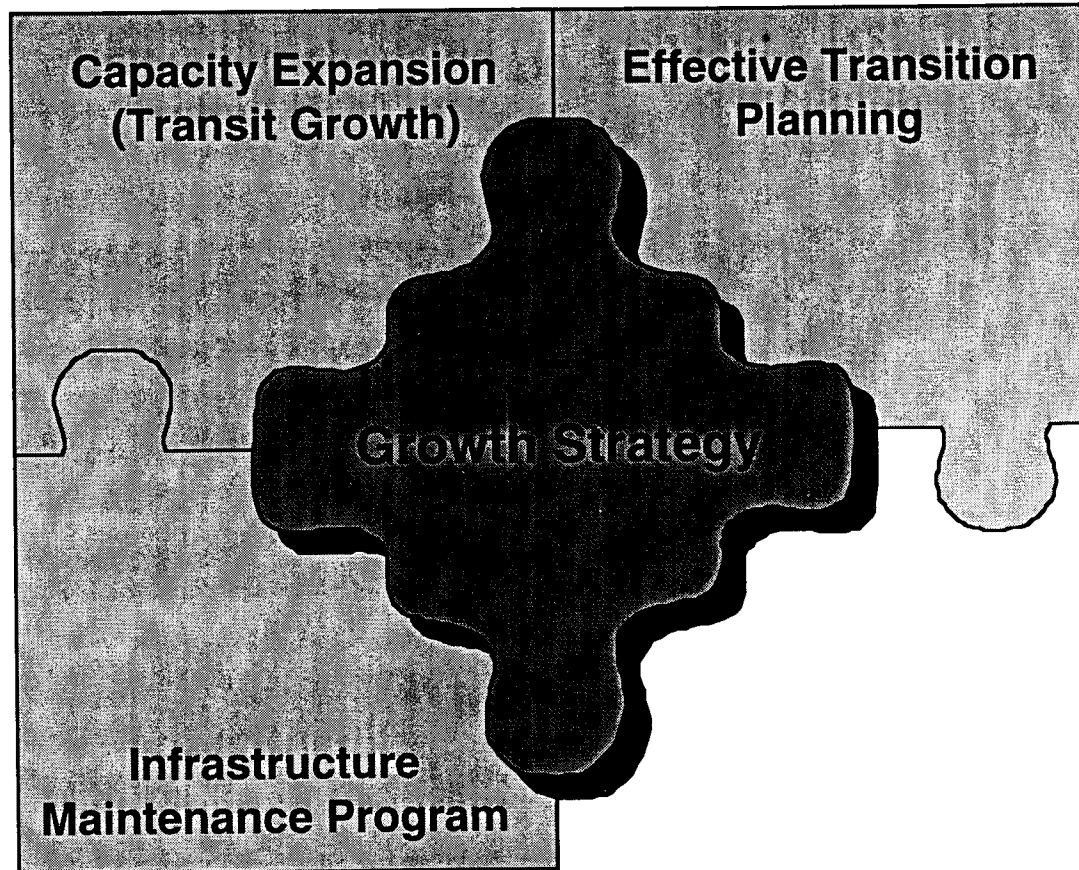
Historical Growth Metrics of the Panama Canal



THE ROLE OF THE CONSULTANTS IN PHASE I IS TO INTRODUCE GROWTH STRATEGY CONCEPTS AND IDENTIFY A NUMBER OF GROWTH OPPORTUNITIES

- Notwithstanding the substantial growth realized during 1995 and thus far in 1996, long-term growth at the Panama Canal has been modest (see facing page)
- This long-term growth track and the future prognosis for growth stimulated this two phase strategy study
- While Phase I of this study is to be unconstrained by treaty, law and current practices to enable consultants to think “out of the box”, any strategy must consider the fundamental economic, geographical, physical and political environments within which the system and organization does now and will operate.

The Growth Strategy Puzzle

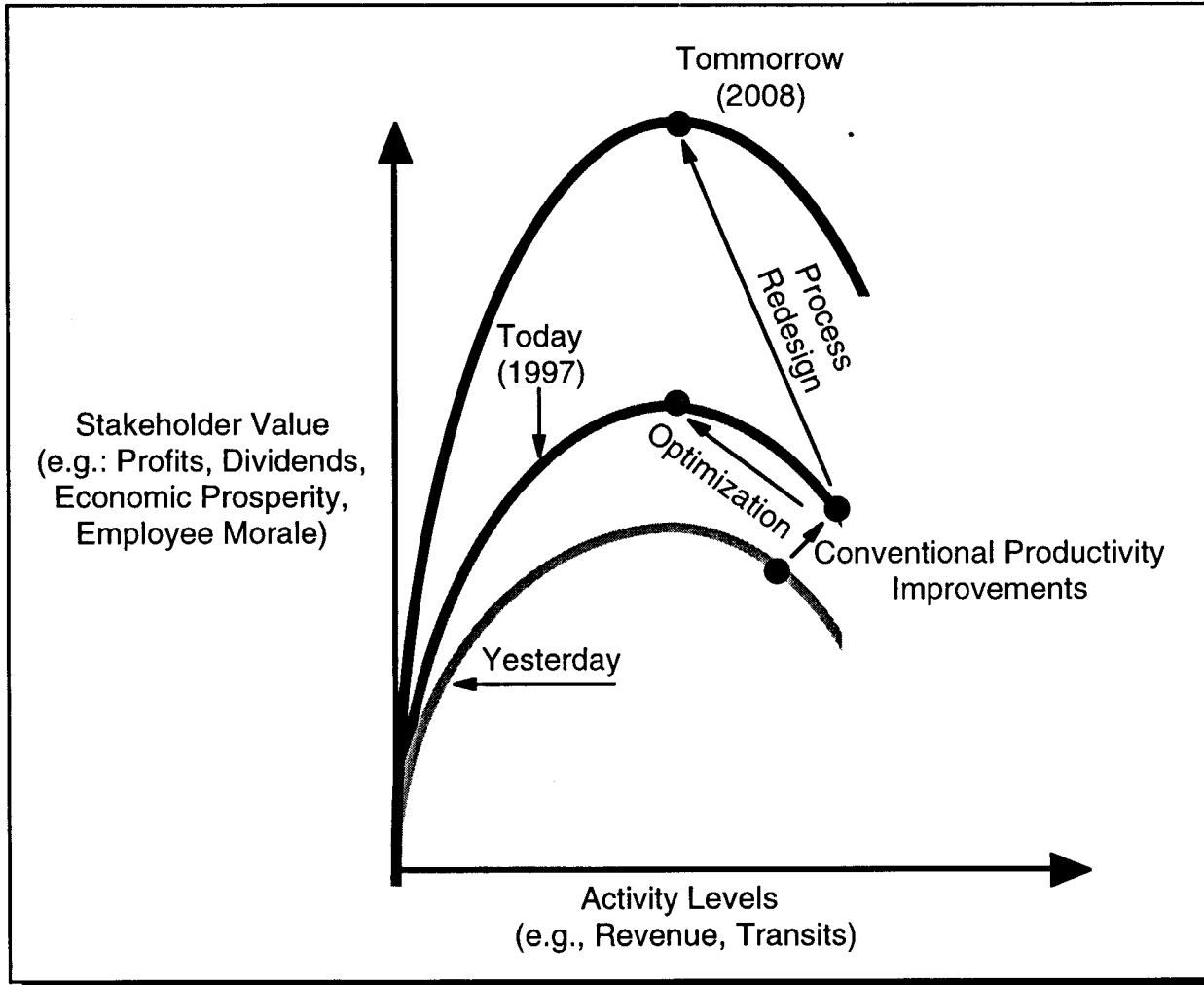


THE PCC, IN FACT, HAS A GROWTH STRATEGY. HOWEVER, A CRITICAL PIECE MAY BE MISSING AND WILL PREVENT THE ORGANIZATION FROM ACHIEVING THE MISSION ENVISIONED BY A NUMBER OF COMMISSIONERS

- The current growth strategy consists of three elements (see facing page)
 - Expansion of existing infrastructure through the cut widening program, vessel traffic management program, and tug and locomotive purchase programs
 - Implementing major maintenance program, such as those identified in the C.I.P. and by the Corps of Engineers
 - Accelerating and improving the effectiveness of the transition planning process.

- However, to achieve the objectives of the Commissioners and the future needs of Panama, a paradigm change will be needed in the organization's definition of growth and view of growth opportunities.

Processes and Enablers for Growth



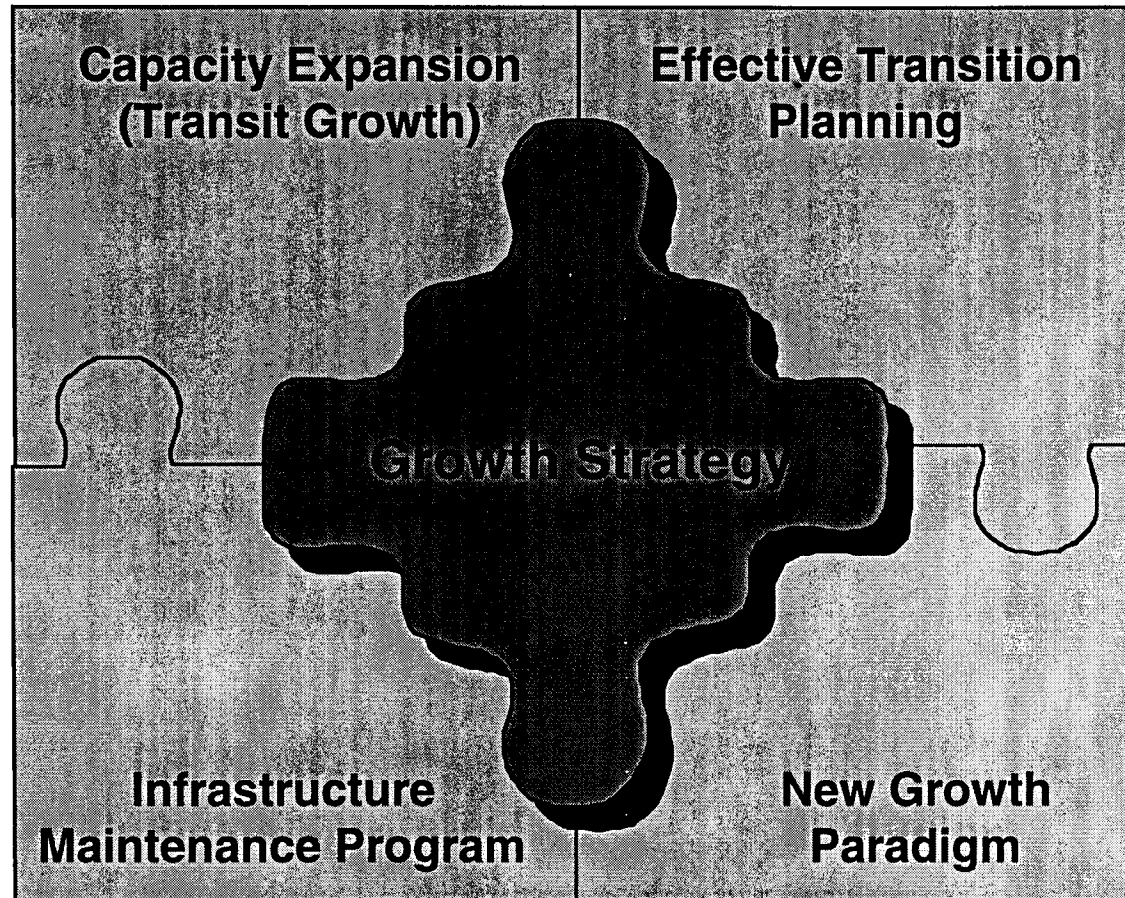
THIS PARADIGM SHIFT WILL REQUIRE THE COMMISSION TO INTRODUCE ENTIRELY NEW PROCESSES AND ENABLERS TO ACHIEVE GROWTH OBJECTIVES

- Current growth programs (labeled conventional productivity improvements in the facer) will only produce minor improvements in activity levels and value
- New growth paradigms could result in a step change in the value curve and could be achieved in the short (today) or long-term (tomorrow)¹
 - A managed growth paradigm could optimize current assets, resources and opportunities and could be implemented in the short-term
 - An innovative growth paradigm would entail major policy (and perhaps law) change but could require a longer period of time to produce results.

BOTH COULD PRODUCE SUBSTANTIAL INCREASES IN VALUE WITHOUT NECESSARILY INCREASING THE NUMBER OF VESSEL TRANSITS.

¹ For additional information on these new growth strategies, refer to "The Next Wave: Re-engineering for Growth" in *Strategy and Business* magazine, Winter 1996, by Booz-Allen & Hamilton Inc

The Growth Strategy Puzzle



GROUPED IN DIFFERENT MANAGEMENT PHILOSOPHIES, BOTH THE MANAGED AND INNOVATIVE GROWTH PARADIGMS COULD HAVE FULL OR PARTIAL APPLICATION TO THE FUTURE STRATEGY AND POLICIES OF THE FUTURE CANAL ORGANIZATION

- A **Managed Growth Paradigm** focuses on achieving market and cost positions superior to competitors through better planning and management. Within this paradigm, organizations are able to create stronger stakeholder value with the most successful companies (e.g. General Electric) achieving value creation by:
 - Driving increases in labor and asset productivity year after year through re-engineering and continuous improvement programs
 - Setting aggressive management targets for both revenue and profit growth
 - Identifying and pursuing new market opportunities as part of a continuing culture.

- A **Innovative Growth Paradigm** leverages strategic or product innovation to drive long term growth in profitability and revenues. Within this paradigm, organizations are perceived by customers to provide significant value. By sharing this superior value with customers and capturing the remainder as profit, a successful organization (e.g. Southwest Airlines) simultaneously creates rapid growth in revenue, profit and stakeholder value. Typically, this is characterized by:
 - Leaders with an unwavering commitment to being the absolute best
 - Rapid improvements in the growth engine (may be strategic innovation or product innovation), both through periodic leapfrogs and continuous improvement every day
 - A motivated workforce working as an integral element of the growth strategy
 - A defined growth trajectory.

ON DECEMBER 31, 1999, OWNERSHIP AND MANAGEMENT OF THE CANAL WILL BECOME SOLE RESPONSIBILITY OF A NEW ORGANIZATION. WELL IN ADVANCE OF THIS DATE, TRANSITION PLANNING MUST DEVELOP A RELEVANT BUSINESS SYSTEM THAT WILL ADAPT THE BEST PRACTICES OF THE EXISTING ORGANIZATION, BUT FOR FUNDAMENTALLY DIFFERENT PURPOSES AND OBJECTIVES

- A **New Business Model** must be developed that recognizes its responsibility to the Government and people of Panama, while incorporating private sector practices and techniques
- A trained and **Capable Management Team** must be in place
- **New Management Systems** will be developed not to meet the needs of the U.S. Government or Department of Defense, but to support a more flexible and customer responsive, commercially oriented enterprise
- All of which suggests the need to **re-engineer the corporate culture and business processes** of the current Panama Canal Commission.

Strategic Imperatives of the Canal Organization

| Function | Strategic Imperative |
|---------------------------|--|
| Policy | Promote the achievement of the Canal vision and mission while maintaining the Canal Stakeholders' confidence |
| Management and Operations | Build and enable an efficient organization to carry out day-to-day Canal operations which achieve the Canal Organizations' goals |
| Market | Expand markets, capture new opportunities while supporting core businesses by providing the best customer service |
| Financial | Establish best practices in capital and operating funds management, risk management, and returns on investments |
| Economic | Promote business development and job creation in the region and foster the best possible community relations |
| Asset Management | Ensure highest and best use of Canal property and optimal financial returns |

BUSINESS PROCESS RE-ENGINEERING – THE DOMINANT CORPORATE INITIATIVE OF THE 1990s WILL BE REQUIRED IN SOME FORM TO ENABLE AN EFFECTIVE TRANSITION AND IMPLEMENT A MEANINGFUL GROWTH STRATEGY

- Such a process can:
 - Result in culture change within the organization
 - Break down the vertical silos or barriers to horizontal work process which exists, and stimulate the flow of work and information horizontally across the organization.
 - Flatten the organization
 - Introduce process improvement and cost reduction
 - Enhance cross-functional operations (e.g.: customer evaluation, pricing) and prepare managers to work in team based environment
 - Promote understanding and agreement of the Strategic Imperatives facing the organization (see facing page)

- And most importantly will facilitate the implementation of a growth strategy that otherwise will fail.

IV. GROWTH OPPORTUNITIES

Comparison of Pre-Treaty and Current Canal Services

| | Pre-Treaty Services | Current Services |
|-------------------------------------|---------------------|------------------|
| <i>Canal Transit Tolls</i> | √ | √ |
| <i>Other Transit Activities:</i> | | |
| Towing and Assisting Ships | √ | √ |
| Line Handling | √ | √ |
| Booking Fees | | √ |
| Transit and Port Pilotage | √ | √ |
| Storehouse Sales | √ | |
| Vessel Repairs | √ | |
| Dredging Services | √ | |
| Maintenance Services | √ | |
| Electrical Services | √ | |
| <i>Supporting Services:</i> | | |
| Retail Sales | √ | |
| Food (Cafeteria) Sales | √ | |
| Terminal Services (Ports) | √ | |
| Utilities (Electrical, Water, etc.) | √ | √ |
| Railroad Services | √ | |
| Water Transportation Services | √ | |
| Bunkers | √ | |
| Housing | √ | √ |

IMPLEMENTATION OF THE GROWTH STRATEGY WILL INCLUDE A COMBINATION OF CORE SERVICE AND NEW BUSINESS DEVELOPMENT. AS A FIRST STEP TO IDENTIFYING GROWTH OPPORTUNITIES, WE LOOKED TO THE PAST TO THOSE SERVICES PROVIDED PRE-TREATY

- A comparison of pre-treaty services to those currently provided shows a significantly scaled down Canal organization, focusing primarily on its core business
 - The elimination of some services is the result of a number of Canal properties and businesses reverting to GOP control (e.g.: railroad, bunkers, Balboa drydock, etc.)
 - Other services no longer provided are a result of treaty imposed limitations on commercial oriented activities outside of the core business (e.g.: dredging, maintenance & electrical, retail, water transportation, etc.)
- However, without the restrictions of the current Canal organization, a number of services provided pre-treaty offer promising growth opportunities for the future

Growth Opportunity Areas Selected for Analysis

| Core Business | | New Business |
|---|--|---|
| <p>1. Tolls/tariff management</p> <p>2. Process improvement:</p> <ul style="list-style-type: none"> - Cash Management - Inventory Management - Process Re-engineering <p>3. Expansion of existing business:</p> <p>3.1 Training</p> <ul style="list-style-type: none"> - Technical/Apprentice - Pilotage/Bridge Simulation - Management/Professional <p>3.2 Professional/General Services</p> <ul style="list-style-type: none"> - Engineering Services - Vehicle Lease - Vehicle Repair | <p>3. Expansion of existing business (cont.):</p> <p>3.3 Industrial Services</p> <ul style="list-style-type: none"> - Dredging - Heavy Lift - Repair/Maintenance <ul style="list-style-type: none"> -- Shipyard/Drydock -- Marine Repair (On Deck) <p>3.4 Maritime Services</p> <ul style="list-style-type: none"> - Marine Salvage - Ship Chandler - Launch - Tug/Towing - Pilotage - Oil Spill/Hazmat Response <p>3.5 Public Works/Services</p> <ul style="list-style-type: none"> - Utilities - Telecommunication - Fire and Emergency | <p>A. Professional/General Services</p> <ul style="list-style-type: none"> - Financial/Banking Services - Inspection/Classification - Warehousing/Storage <p>B. Industrial Services</p> <ul style="list-style-type: none"> - Container Manufacture/Repair - Trans-shipment Facility <p>C. Maritime Services</p> <ul style="list-style-type: none"> - Bunkering - Container Repair <p>D. Recreation</p> <ul style="list-style-type: none"> - Yacht Basin <p>E. Tourism</p> <ul style="list-style-type: none"> - Cruise Ship Terminal - Harbor Place Complex - Ecotourism Infrastructure |

OVER SEVENTY GROWTH OPPORTUNITIES WERE IDENTIFIED DURING PHASE I. FROM THIS TOTAL, THIRTY-SIX OPPORTUNITIES WERE CATEGORIZED AS PRAGMATIC AND CONSIDERED FOR FURTHER ANALYSIS

- The long list of business opportunities was developed through interviews, research and brainstorming, including:
 - Interviews with PCC board members, staff and other stakeholders
 - Brainstorming sessions within the consulting team and during selected interviews
 - Identification of business activities at other large ports and waterways
 - Review of over 20 canal and related studies
- A preliminary assessment was then completed to shorten the long list to a manageable list for further analysis
- Thirty-six growth opportunities were selected for further analysis, segmented by core and new business
 - Core business growth opportunities totaled 25, including:
 - Tolls/tariff management (1)
 - Process improvement (4)
 - Extension of existing business (20)
 - New business growth opportunities totaled 11.

Growth Opportunities...

COLLECTIVELY, IMPLEMENTATION OF THE THIRTY-SIX GROWTH OPPORTUNITIES CONSIDERED IN THE PHASE I WILL YIELD THE FUTURE CANAL ORGANIZATION REVENUES (INCLUDING REVENUE EQUIVALENTS) EQUAL TO \$500 MILLION PER ANNUM

Revenue (and Revenue Equivalents) for Thirty-Six Growth Opportunities by Category / Sub-Category

| Growth Opportunity by Category / Sub-Category | Annual Revenue Potential (\$ Millions) |
|--|---|
| Core Business: | |
| - Process Improvements | \$200* |
| - Tolls/Tariff Management | \$125 |
| - Extension of Current Business | <u>\$75</u> |
| Core Business Sub-Total | \$400 |
| New Business | \$100 |
| Total Growth Opportunity Revenues | \$500 |

** Revenue equivalents assuming 10 percent margin on revenues*

INTERESTINGLY, \$400 MILLION (80 PERCENT) OF ESTIMATED REVENUES ARE RELATED TO CORE BUSINESS OPPORTUNITIES – INDICATING SIGNIFICANT OPPORTUNITIES INTERNAL TO CANAL MANAGEMENT

Primary Evaluation Criteria and Scoring

| Evaluation Criteria | Criteria Scoring | | | Criteria Weighting Factor |
|--------------------------------------|------------------|---------------------|------------------|---------------------------|
| | Low (Score =1) | Medium (Score =2) | High (Score =3) | |
| Annual Revenue & Revenue Equivalents | < \$5 million | \$5 to \$20 million | \$20+ million | 25.0% |
| Estimated Profit | < \$1 million | \$1 to \$5 million | \$5+ million | 25.0% |
| Direct Employment | < 25 persons | 25 to 50 persons | 50+ persons | 7.5% |
| Impact on Core Transit Business | High Impact | Moderate Impact | No to Low Impact | 7.5% |
| Probability of Success | Success Unlikely | Success Possible | Success Likely | 15.0% |
| | | | | 80.0% |

Growth Opportunities...

TO EVALUATE AND COMPARE THE GROWTH OPPORTUNITIES, TEN EVALUATION CRITERIA WERE CONSIDERED IN THE ANALYSIS AND WERE CATEGORIZED AS EITHER PRIMARY OR SECONDARY

Primary Criteria:

- **Annual revenue/sales** potential was estimated for each opportunity. For business process improvements yielding direct bottom line impact, **revenue equivalents** were calculated for comparative purposes assuming a 10% yield on the opportunity (Revenue equivalent = Income/Yield).
- Operating under the assumption that the successor Canal organization will be profit oriented, **profit level** was also estimated for each growth opportunity.
- **Direct employment** estimates considered those PCC or related employees directly employed in the growth opportunity. Employment considered man-day equivalents incremental to those activities directly related to the operation and support of the Canal.
- For each opportunity, the **impact on core transit business** was assessed regarding to what level conflicts may arise between the core business and the growth opportunity.
- For each growth opportunity, a rating for its **probability of success** was determined according to: competitive environment, fit with existing PCC staff capabilities, political viability, etc.

THE FACING PAGE HIGHLIGHTS THE SCORING METRICS FOR EACH OF THE ABOVE PRIMARY EVALUATION CRITERIA

Secondary Evaluation Criteria and Scoring

| Evaluation Criteria | Criteria Scoring | | | Criteria Weighting Factor |
|-----------------------------|------------------|--------------------|----------------------|---------------------------|
| | Low (Score =1) | Medium (Score =2) | High (Score =3) | |
| Investment Required | \$5+ million | \$2 to \$5 million | < \$2 million | 4.0% |
| Competition | Competition | | No Competition | 4.0% |
| Economic Development | Minimal Benefits | Moderate Benefits | Substantial Benefits | 4.0% |
| Ease of Implementation | Complex | Moderate | Simple | 4.0% |
| Administrative Requirements | Substantial | Moderate | Little or None | 4.0% |
| | | | | 20.0% |

Growth Opportunities...

TO EVALUATE AND COMPARE THE GROWTH OPPORTUNITIES, TEN EVALUATION CRITERIA WERE CONSIDERED IN THE ANALYSIS AND WERE CATEGORIZED AS PRIMARY AND SECONDARY (CONTINUED)

Secondary Criteria:

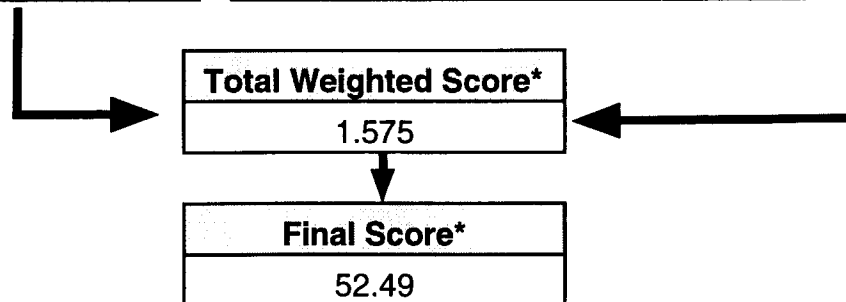
- Where facility or staff expansion was necessary, **investment requirements** were considered for each opportunity including all capital, incremental operating, training, startup and other costs associated with the business opportunity.
- For each opportunity, **competition** from either the GOP or the private sector was identified.
- **Economic development** was addressed for each opportunity incorporating the impact of secondary employment and economic growth in the greater Canal region and Panama – in addition to the development of new or improved private sector businesses.
- **Ease of implementation** was considered for each opportunity focusing on: time of implementation, expense, level of technological change, similarity to existing internal services/functions and maturity of market among other criteria.
- **Administrative requirements** regarding the level of management oversight, in addition to support services, for each opportunity was addressed.

THE FACING PAGE HIGHLIGHTS THE SCORING METRICS FOR EACH OF THE ABOVE SECONDARY EVALUATION CRITERIA

FOR EACH GROWTH OPPORTUNITY, AN ORDER-OF-MAGNITUDE ANALYSIS WAS COMPLETED USING THE EVALUATION CRITERIA. AT THE CONCLUSION OF EACH ANALYSIS, A FINAL SCORE WAS DEVELOPED TO PROVIDE A BASIS FOR COMPARING EACH OPPORTUNITY

**Illustrative Example of Order-of-Magnitude Analysis
for Topside (Only) Ship Repair Growth Opportunity**

| Primary Criteria Analysis | | | | Secondary Criteria Analysis | | | |
|---------------------------|------------------|-----------------|----------------|-----------------------------|------------------|-----------------|----------------|
| Evaluation Criteria | Criteria Scoring | Weighing Factor | Weighted Score | Evaluation Criteria | Criteria Scoring | Weighing Factor | Weighted Score |
| Revenue/Sales Potential | 1 | 25.0% | .25 | Investment Requirements | 3 | 4.0% | .120 |
| Profit Potential | 1 | 25.0% | .25 | Competition | 1 | 4.0% | .040 |
| Direct Employment | 2 | 7.5% | .15 | Economic Development | 2 | 4.0% | .080 |
| Impact to Core Activities | 3 | 7.5% | .225 | Ease of Implementation | 2 | 4.0% | .080 |
| Probability of Success | 2 | 15.0% | .300 | Administrative Requirements | 2 | 4.0% | .080 |
| Primary Weighed Score | | | 1.175 | Secondary Weighed Score | | | 0.400 |



** Maximum final score is 100 and equal to total weighted score of 3.0*

Top Ten Growth Opportunities In Declining Order of Final Score

| Top 10 Growth Opportunities | Description of Growth Opportunities | Core / New Business | Final Score | Revenue (Millions) |
|---|---|------------------------|----------------|-----------------------|
| Investing Cash Balances (Cash Management) | Improve investing activities to better leverage higher yield opportunities of \$200m cash on the balance sheet | Core | 92.32 | \$130.0* |
| Tolls/Tariffs Management | Adjust toll/tariff system to reflect elasticity of demand plus any risk of cargoes, and include true cost of transiting vessels | Core | 89.66 | \$125.0 |
| Electricity (Utilities) | Sell excess capacity | Core | 85.66 | \$50.0 |
| Inventory Mgmt (Purchasing - One Time Savings) | Review current inventory mgmt. practices to assess cost savings opportunities (e.g.: reducing current inventory levels, sourcing, etc.) | Core | 82.66 | \$25.0* |
| Sourcing Optimization (Purchasing) | Identify/develop relationships with providers (include. local) as a means of cost reduction including incorporating supply chain concepts | Core | 80.33 | \$22.5* |
| Ship Repair-Drydock (Marine Industrial) | Provide extensive ship repair capabilities for regional and global vessels | Core | 79.33 | \$60.0 |
| Port/Trans-Shipments Facility | Apply Manzanillo terminal concept to breakbulk/bulk trades | New | 67.66 | \$20.0 |
| Payroll Processing (Cash Mgmt) | Adjust payroll processing procedures to reflect best practices in cost minimization in U.S. | Core | 65.99 | \$9.0* |
| Heavy Lift Services | Provide waterside heavy lift services to industry | Core | 58.99 | \$1.0 |
| Cruise Terminal (Tourism) | Become a stop over for transiting cruise passengers | New | 58.33 | \$5.0 |
| Top 10 Total Revenues | | | | \$447.5 |

* Indicates revenue equivalent calculated as per page IV-4 in primary evaluation criteria definitions.

Growth Opportunities...

FINALLY, THE TOP TEN GROWTH OPPORTUNITIES – FOCUSING ON PROCESS IMPROVEMENT, TOLLS/TARIFF MANAGEMENT AND NEW BUSINESS – ACCOUNT FOR \$448 MILLION OR NEARLY 90 PERCENT OF TOTAL ESTIMATED REVENUES

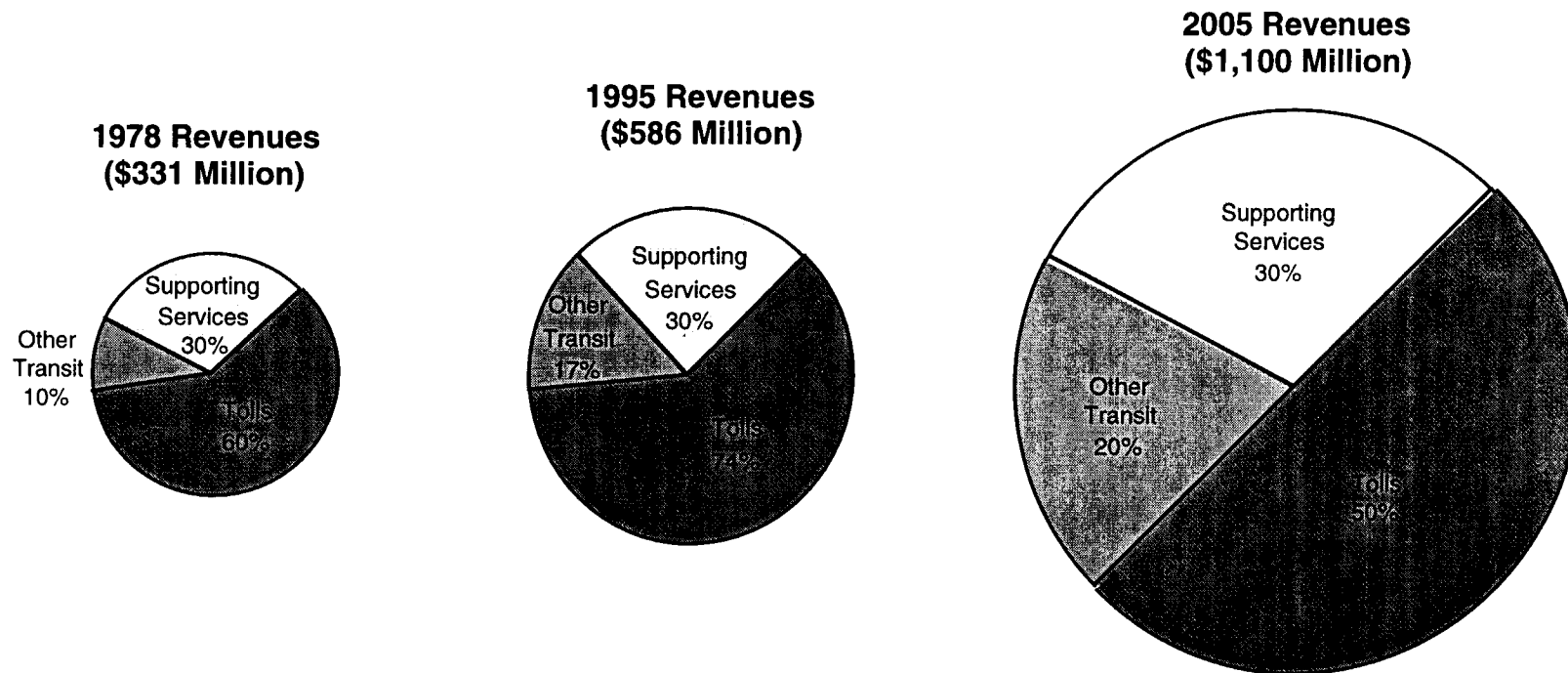
- Eight of the top ten growth opportunities, as identified in our preliminary analysis, are related to the Canal's core service – indicating that significant opportunities exist internal to the Canal organization and its current businesses
- In the near term, process improvements could offer the Canal immediate impact to bottom line profits. For the three sustainable process improvement opportunities considered, a direct net income improvement of \$16.2 million (\$162 million revenue equivalents) is estimated. Incorporating the fourth process improvement, a one-time savings associated with inventory level adjustments, should yield an additional \$2.5 million (\$25 million revenue equivalents)
- Additionally, tolls/tariff management offers significant opportunities to increase both revenues and profits. Restructuring the Canal tolls/tariff system to reflect value of cargo, alternative routing, time sensitivity and actual cargo carried, should yield incremental revenues of \$125 million annually, with a major portion of this flowing directly to bottom line profits
- New business opportunities, including a port trans-shipment facility and cruise ship terminal offer moderate revenue and income generating opportunities – with significant impacts to employment and economic impact

THE PHASE II ANALYSIS SHOULD CONSIDER THESE HIGH IMPACT OPPORTUNITIES AS A PRIORITY IN PHASE II

Growth Opportunities...

AS INDICATED IN THE PHASE I ANALYSIS, SIGNIFICANT OPPORTUNITIES EXIST REGARDING THE GROWTH STRATEGY. THE FUTURE OF THE CANAL ORGANIZATION RESTS WITH THE GUIDANCE FROM, AND THE DECISIONS MADE BY THE BOARD AND STAFF TODAY

Comparison of Revenues by Source: Pre-Treaty, Current and Probable Future



THE APPENDICIES FOLLOWING THIS REPORT DETAIL THE CRITERIA RANKING FOR EACH GROWTH OPPORTUNITY IN ADDITION TO DETAILED ANALYSIS FOR THE TOP TEN GROWTH OPPORTUNITIES

V. NEXT STEPS

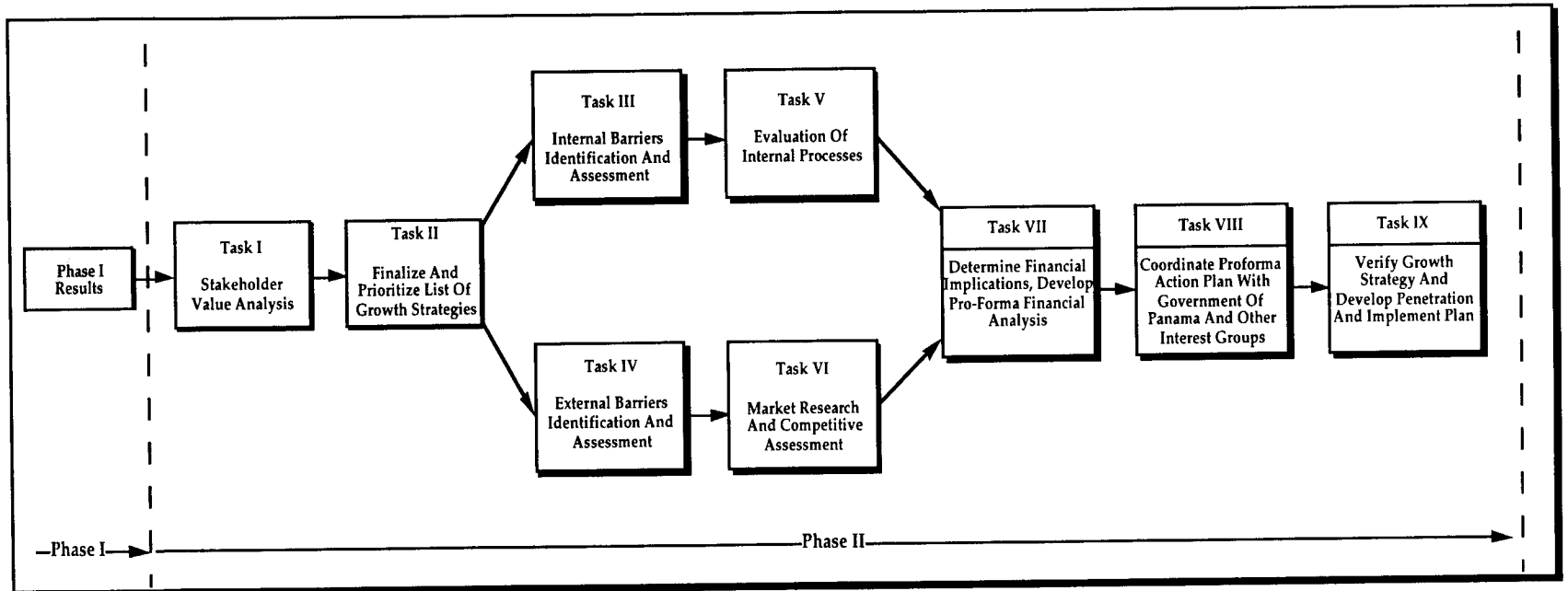
Next Steps ...

PROPOSED SCOPE OF WORK FOR PHASE II

- The purpose of Phase I was to develop an initial list of growth strategies, and design a preliminary evaluation scheme. This has been accomplished and documented in the previous four chapters and in Appendices A and B
- Phase I also had a second purpose – to develop a well defined scope of work for Phase II. This, in part, is based on the quality and degree of completeness of the Phase I work
- Booz-Allen's approach to Phase I and the results documented herein, suggest a clear work plan for Phase II

THE BALANCE OF THIS CHAPTER OUTLINES THE WORKPLAN FOR PHASE II

Phase II Flow Diagram



BOOZ·ALLEN & HAMILTON ASSUMES THE PURPOSE OF PHASE II IS TO DEVELOP A WORKPLAN THAT WILL PRODUCE IMPLEMENTABLE RESULTS AND ULTIMATELY GROWTH IN ACTIVITY LEVELS AND STAKEHOLDER VALUE . . .

- Phase II is organized into nine work steps and is expected to require up to 12 months to complete (see facing page)
- The PCC should consider a joint staff and contractor team under the supervision of the Board Secretary or board sub-committee

. . . EACH TASK IS ELABORATED UPON IN THE BALANCE OF THIS CHAPTER

TASK I: IDENTIFY STAKEHOLDERS AND DETERMINE EXPECTATION LEVELS AND VALUES...

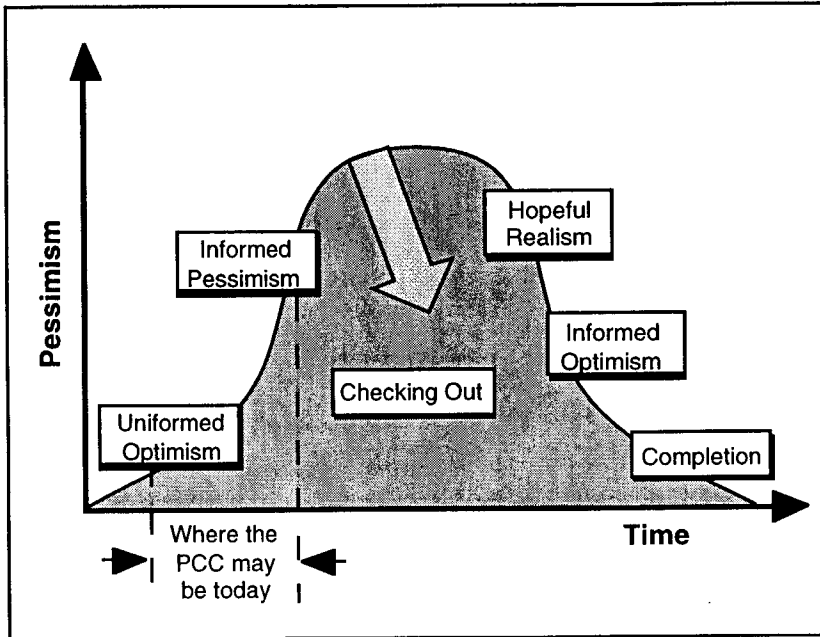
- The Phase I work resulted in different mission priorities from different stakeholder groups
- It is impractical to assume homogeneity of objectives and results from various interest groups inside and outside of Panama
- The purpose of this task is to identify all key stakeholder groups and group composition
 - For planning purposes, there may be up to ten disparate groups that will differ in terms of goals and objectives relative to the transition process and the future
 - Some groups like customers and employees can have 8,000 participants, others like the government of Panama, may have between 1 to 5 participants or view points.
- Importantly, and through a mailed or telephone survey, the objective of this task is to determine each group's core values with respect to transition issues and growth strategies. Alternative approaches may include focus groups or strategic simulation analysis

TASK II: FINALIZE AND PRIORITIZE GROWTH STRATEGY SHORT LIST. . .

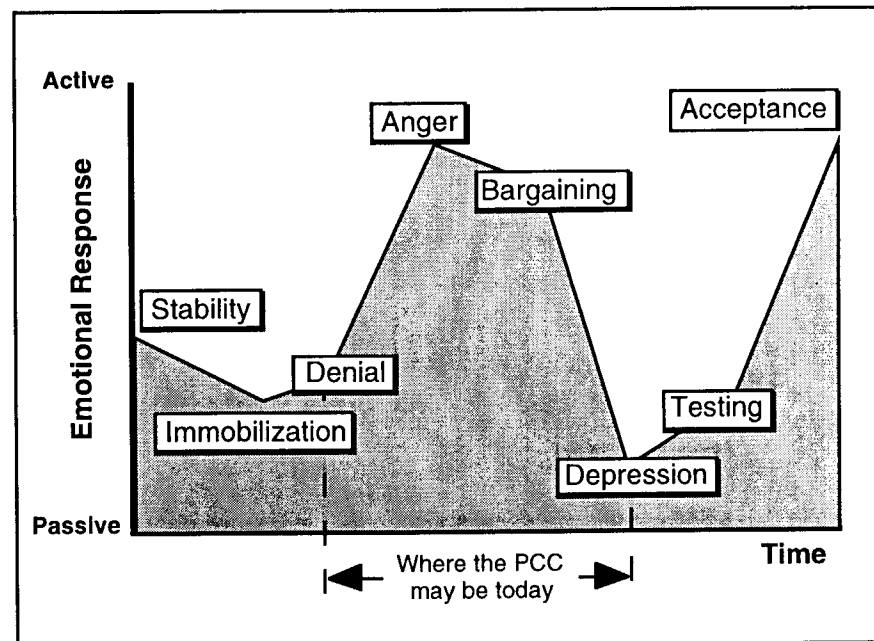
- Phase I should result in a preliminary list of prioritized growth strategies but consultants may have used different approaches and produced different results
- The objective of this task is to develop a prioritized list of up to ten growth strategies that have the potential to achieve stakeholder values
- The evaluation methodology should be more formalized and rigorous than that used by consultants in Phase I - but hopefully not in conflict
- As a starting point, Booz-Allen's Phase I effort reduced an original list of more than 70 growth strategy ideas down to a final list of ten. Other consultants, doubtless, developed somewhat different lists
- However, Phase I did not enable any of the three consultants to adequately address internal and external barriers to entry. That is the subject of the next two tasks:
 - Task III treats internal barriers
 - Task IV treats external barriers.

Organizational Responses to Proposed Change

Managing Positive Responses to Change



Managing Negative Responses to Change



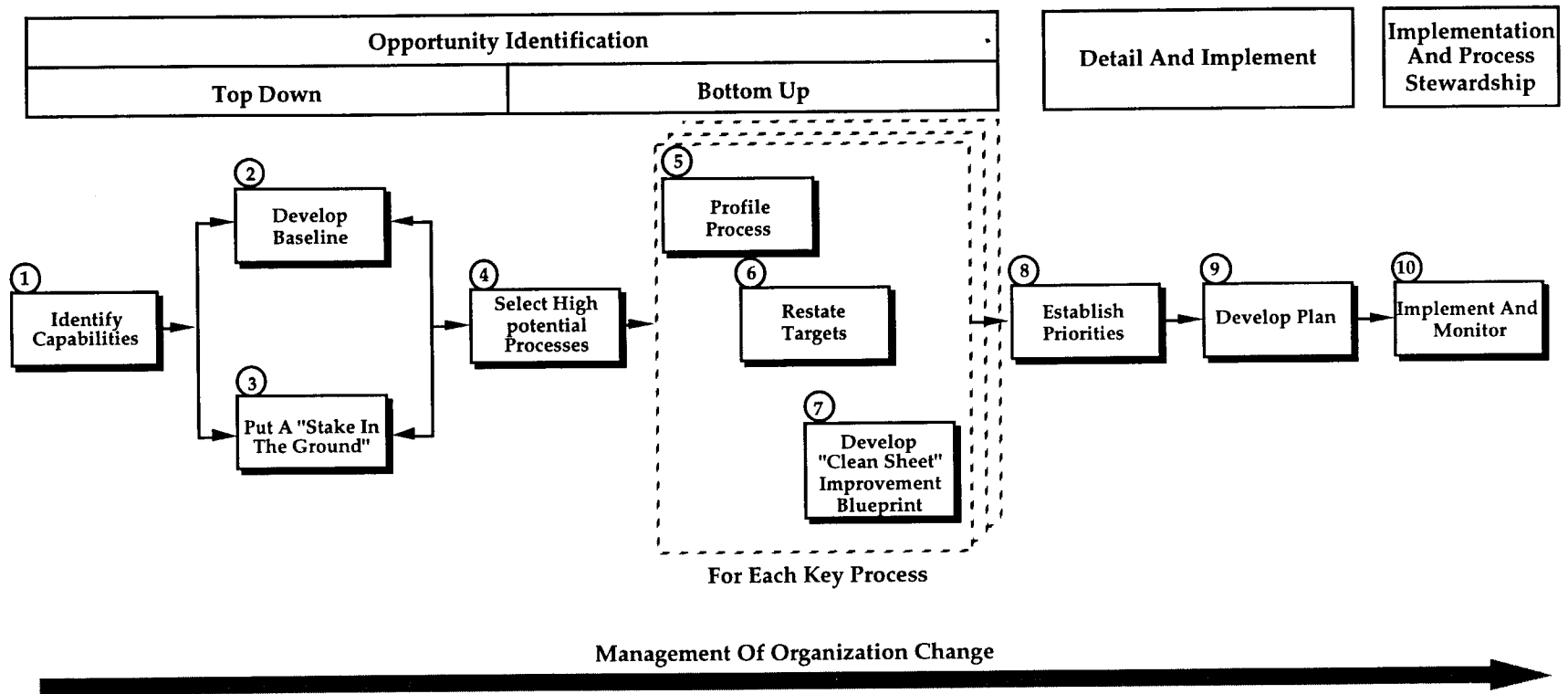
TASK III: IDENTIFY INTERNAL BARRIERS TO EFFECTIVE IMPLEMENTATION OF GROWTH STRATEGIES. . .

- Phase I resulted in the identification of numerous internal barriers to effective implementation of a growth strategy including:
 - Organization and culture may fail to embrace/endorse strategy
 - Current policy and legal structure may present obstacles
 - Management processes may be too cumbersome to support profit driven or entrepreneurial initiatives
 - Business systems may be too burdensome and archaic
- Substantial effort will be required on the organizational issue. There has been both positive and negative response to proposed change with the Canal. The facing page shows the range of positive and negative responses as a function of time. Unfortunately, negative responses have been more prevalent and is probably somewhere between the denial and depression phase. Positive responses are probably somewhere between uninformed optimism and informal pessimism stages
- The consultant's approach to the organization and culture issue should be survey intensive but may also include focus groups or strategic simulation analysis
- In this task, the consultant should initially identify "high-leverage" management processes or business systems that are detrimental to growth strategy implementation.

TASK IV: IDENTIFY EXTERNAL BARRIERS TO EFFECTIVE IMPLEMENTATION OF GROWTH STRATEGIES . . .

- In Phase I, growth opportunities were identified and, to a certain extent, calibrated
- Insufficient analysis was made of the size of the market and particularly for new products or services
- This task will treat external factors (outside of Panama) and particularly the characteristics of the market for growth strategies will be identified for further analysis in Task VI
- Sensitivity to toll changes will also be identified
- This task will also identify competitors, both direct as well as alternative products, for subsequent analysis.

Evaluation Methodology of Internal Business and Management Processes



TASK V: EVALUATION OF INTERNAL BUSINESS AND MANAGEMENT PROCESS. . .

- Our approach begins with “top down” work steps to identify high priority barriers or improvement requirements, followed by “bottom up” detailed design work steps, to build an actionable implementation plan (see facing page)
 - **Identify capabilities** ...that enable the enterprise to drive the market
 - **Develop baseline**...to identify the major pockets of potential improvement
 - **Put a stake in the ground**...to drive major (50%+) improvements in cost, time and value
 - **Select high potential processes**...based on need and business impact
 - **Profile processes**...to understand flows and performance levels for key processes
 - **Restate targets**...to drive improvements for each key process
 - **Develop “clean sheet” improvement blueprint**... a “clean sheet” perspective that drives improvements through elimination, simplification, combination, automation and organization (use benchmarking as references)
 - **Establish priorities**...as to what changes to implement first
 - **Develop the plan**...to detail changes and implement
 - **Implement and monitor**...plan to ensure achievement of results.

TASK VI: PERFORM MARKET RESEARCH AND COMPETITIVE ASSESSMENT FOR NEW PRODUCT OR GROWTH STRATEGIES. . .

- This task is applied to all high priority growth strategies that dealt with an external market. Examples include:
 - Change in toll structure for core business
 - Converting Mount Hope to a third-party ship repair facility
 - Developing a refrigerated product transshipment facility

Each of these (including toll structure change) constitutes a new product or service that requires some level of market research, customer identification, yield analysis and competitive assessment

- For each of the high priority external opportunities, the consultant shall perform an executive level assessment that will provide estimates of:
 - Market size
 - Price alternative
 - Entry strategy
 - Competition scan
 - Risk reduction measures.
- The level of effort for price elasticity of toll changes will be dependent upon the results of an on-going PCC project

TASK VII: DETERMINE FINANCIAL IMPLICATIONS AND DEVELOP PROFORMA FINANCIAL ANALYSIS. . .

- During Phase I, only preliminary financial analysis was used to develop figures of merit or to prioritize growth strategy alternatives
- For Phase II, a select list of growth options has been developed
- Each option should be subjected to a level of financial analysis such that pro-forma financial analysis may be conducted and the results presented to the PCC Board. The pro-forma financial analysis should, at a minimum, include:
 - Revenue estimates
 - Investment requirements
 - Funding sources (if any)
 - Operating margins and returns.

. . . THE OBJECTIVE OF THIS TASK IS TO HAVE SUITABLE FINANCIAL PROFILES OF EXTERNAL GROWTH OPPORTUNITIES SO THEY MAY BE COMPARED (IN FINANCIAL TERMS) WITH INTERNAL (RE-ENGINEERED) OPPORTUNITIES.

TASK VIII: COORDINATE GROWTH STRATEGY PLAN WITH GOVERNMENT OF PANAMA AND OTHER STAKEHOLDERS. . .

- Phase I focused internally and was primary limited to PCC Board and staff members. Nevertheless, the implications (and implementability) of a growth strategy is heavily dependent upon the support and perhaps approval of the Government of Panama and others.
- The purpose of this task is to develop a coordination and communication plan for the growth strategy
- The consultant will be assisted by the PCC's Office Of Public Affairs and a communications specialist in Panama.

TASK IX: AFFIRM GROWTH STRATEGIES AND DEVELOP PENETRATION AND IMPLEMENTATION PLAN. . .

- The purpose of this task is to finalize the strategy and develop an implementation plan
- From a schedule perspective, the implementation plan will include three distinct phases
 - Immediate items that can be implemented during 1997
 - Pre-transition – Items that cannot be implemented immediately but may be put in place before December 31, 1999
 - Longer Term – Items that will be implemented between 2000 and 2008.
- The implementation plan will include provisions for follow-up and mechanisms to alter the schedule as appropriate.

**APPENDIX A: RANKINGS OF GROWTH
OPPORTUNITIES**

Appendix A: Rankings of Growth Opportunities...

APPENDIX A SHOWS THE OUTCOME OF THE METHODOLOGY EMPLOYED BY BOOZ·ALLEN IN ITS INITIAL RANKING OF POTENTIAL GROWTH OPPORTUNITIES

- Appendix A consists of two parts:
 - Table A-I which alphabetically lists and briefly describes the growth opportunities and displays the criteria scoring; and
 - Table A-II which ranks growth opportunities by their weighted score.
- Included in these tables are estimates of revenue for each business. In the case of processes, anticipated impact to profits is grossed up to show a revenue equivalent (a 10% margin is assumed). Also, a listing of the appropriate mission statement under which each opportunity would fit is provided.
- The total weighted score is the product of the score for each criteria and the categories weighted factor (found on tables). Each score is presented on a scale of 1 to 100.

THE MOST PROMISING GROWTH OPPORTUNITIES ARE DESCRIBED IN FURTHER DETAIL IN APPENDIX B.

**TABLE A-I: ALPHABETICAL LISTING OF
GROWTH OPPORTUNITIES**

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score |
|---|---|-------------------|----------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|
| | | | | Annual Rev./Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | |
| Growth Opportunities - Products/Services | | | | | | | | | | | | | | |
| Bunkering | Develop alternative bunker port for transiting vessels | 2 | \$5.0 | 1 | 1 | 1 | 2 | 2 | 1 | 3 | 2 | 1 | 2 | 46.16 |
| Canal Tolls/Tariffs | Adjust toll/tariff system to reflect elasticity of demand plus any risk of cargoes, and include true costs of vessels | 1 | \$125.0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 2 | 89.66 |
| Cargo Inspection | Expand use of surveyors to include cargo inspection for claims | 2 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 48.66 |
| Chilled Water (Utilities) | Sell excess capacity within existing system | 3 | \$1.5 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 42.33 |
| Classification Society | Build on registry, recent safety conventions, access to vessels, and surveying capabilities to grow Panamanian classification society | 2 | \$10.0 | 2 | 1 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 50.49 |
| Container Manufacturing (Marine Industrial) | Manufacture containers for new services which call Panama | 3 | \$5.0 | 2 | 1 | 1 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 50.66 |
| Container Repair (Marine Industrial) | Provide container repair for new services which call Panama | 2 | <\$1mm | 1 | 1 | 2 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 52.49 |
| Cruise Terminal (Tourism) | Become a destination for transiting cruise passengers | 3 | \$5.0 | 2 | 1 | 2 | 2 | 2 | 1 | 3 | 3 | 1 | 2 | 58.33 |
| Dredging Services | Provide dredging and related services. Services may include vegetation control, drill & blasting, maintenance dredging, etc. | 2 | \$1.1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 3 | 2 | 47.50 |
| Ecotourism Infrastructure (Tourism) | Leverage access to Panama's unspoiled interior | 3 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 2 | 3 | 2 | 1 | 2 | 50.00 |
| Electricity (Utilities) | Sell excess capacity as demands from US military decrease | 3 | \$50.0 | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 2 | 2 | 2 | 85.66 |
| Fire and Emergency Services | Provide emergency services to surrounding community and projects | 3 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 50.00 |
| Heavy Lift Services | Provide waterside heavy lift services to industry | 2 | <\$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 58.99 |
| Launch Services | Provide launch services to canal transits and anchored vessels | 2 | \$1.8 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 2 | 2 | 2 | 45.00 |
| Management/Professional (Training) | Provide professional and support staff training | 3 | <\$1mm | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 2 | 2 | 2 | 45.00 |
| Marine Salvage | Provide light salvage services to region and maritime communities | 2 | <\$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 57.66 |
| Meteorological/Hydro. Surveys/ Info. | Provide meteorologic and hydro survey and information services | 2 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 53.99 |
| Oil Spill/Haz. Chem. Emerg. Response | Leverage spill emergency response capabilities and provide services to surrounding industry | 2 | <\$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 57.66 |
| Pilotage | Provide pilotage services outside of Canal Zone | 2 | \$4.4 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 3 | 43.66 |
| Pilotage/Bridge Simulation (Training) | Provide pilot training and apprentice services | 2 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 52.66 |
| Port/Transshipment facility | Apply Manzanillo terminal concept to breakbulk/bulk trades | 2 | \$20.0 | 2 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 1 | 1 | 67.66 |
| Ship chandlery | Provide stores for transiting vessels | 2 | \$1.0 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 2 | 2 | 43.66 |
| Shiprepair-Drydock (Marine Industrial) | Provide extensive ship repair capabilities for transiting vessels and regional traders | 2 | \$60.0 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 79.33 |
| Shiprepair-Topside (Marine Industrial) | Provide light and emergency ship repair services | 2 | \$3.5 | 1 | 1 | 2 | 3 | 2 | 3 | 1 | 2 | 2 | 2 | 52.49 |
| Shopping Promenade (Tourism) | Build current visitor centers or other prime locals into shopping/eating/entertainment centers | 3 | \$2.0 | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 3 | 1 | 2 | 52.66 |
| Technical & Apprentice (Training) | Provide technical training and apprentice services | 3 | <\$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 57.66 |
| Telecom (Utilities) | Sell excess capacity on owned line | 3 | <\$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 48.66 |

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score |
|---|--|-------------------|-------------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|
| | | | | Annual Rev./Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | |
| Trade Info. and Research Services | Collect and provide trade statistics to maritime and consultant industries. In addition, may provide research services as well | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 53.99 |
| Tug/Towing Services | Hire out excess tug capacity when available for use in non-canal areas | 2 | \$2.0 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 42.16 |
| Vehicle Leasing | Provide short term leasing of vehicles to general public of excess auto and truck fleet | 3 | \$1.0 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 2 | 42.33 |
| Vehicle Repair Services | Provide repair services to other agency fleets and maintenance training | 3 | < \$1mm | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 2 | 2 | 43.66 |
| Warehousing Services | Develop and lease waterside and landbased warehouse space, etc . | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 2 | 1 | 2 | 1 | 3 | 48.66 |
| Water (Utilities) | Sell excess capacity | 3 | \$1.8 | 1 | 1 | 1 | 3 | 3 | 1 | 1 | 1 | 3 | 2 | 52.33 |
| Yacht Basin | Develop and/or lease near/within canal areas for yacht basins | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 1 | 3 | 48.66 |
| Growth Opportunities - Process Improvement | | | Revenue Equiv. * | | | | | | | | | | | |
| Banking (Cash Mgmt) | Through opening own bank, or soliciting concession payments from or charging processing fees to banks which deal with canal, take advantage of high transaction volume, and cash float | 1 | \$3.4 | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 2 | 3 | 52.66 |
| Inventory Mgmt (Purchasing) - One Time Event | Review current inventory mgmt. practices to assess cost savings opportunities. (e.g.: reducing current inventory levels, sourcing, etc.) | 1 | \$25.0 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 82.66 |
| Investing Cash Balances (Cash Mgmt) | Improve investing activities to better leverage higher yield opportunities of \$200M cash on the balance sheet | 1 | \$130.0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 92.32 |
| Payroll Processing (Cash Mgmt) | Adjust payroll processing procedures to reflect best practices in cost minimization in US | 1 | \$9.0 | 2 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 65.99 |
| Sourcing Optimization (Purchasing) | Identify/develop relationships with providers (incl. local) as means of cost reduction including incorporating supply chain concepts | 1 | \$22.5 | 3 | 2 | 1 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 80.33 |
| Weighting | Weighting Factor (Primary & Secondary) | | | 25.0% | 25.0% | 7.5% | 7.5% | 15.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 1.00 |
| Note(*): For comparative purposes, process growth opportunities which reflect direct net income impacts have been grossed up to reflect business opportunities yielding 10% annual profit margins | | | | | | | | | | | | | | |

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score |
|--|--|-------------------|----------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|
| | | | | Annual Rev/Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | |
| Growth Opportunities - Others To Evaluate | | | | | | | | | | | | | | |
| Cargo Clearinghouse | Act as information broker matching ships transiting the Canal with excess capacity/ shippers looking for transportation | | | | | | | | | | | | | 0.00 |
| Computer Services - Lease system space | Lease unused system space during off-peak hours to Gov/private sector | | | | | | | | | | | | | 0.00 |
| Crew Services | Provide more expansive services to ships crew including recreational, medical, etc. | | | | | | | | | | | | | 0.00 |
| Electric Utilities | Expand presence by making a significant investment in generation/distribution capacity. | | | | | | | | | | | | | 0.00 |
| Forestry Program | Sell/lease land for harvesting of forest | | | | | | | | | | | | | 0.00 |
| Fumigation | Provide fumigation services as part of a warehousing/cargo handling | | | | | | | | | | | | | 0.00 |
| Grain Silo | Build silo to supply Panamanian mills | | | | | | | | | | | | | 0.00 |
| Hull & Machinery Survey | Provide hull and machinery surveys | | | | | | | | | | | | | 0.00 |
| Hull Cleaning | Provide hull cleaning services to small | | | | | | | | | | | | | 0.00 |
| Landscaping/Grounds Keeping | Provide landscaping and grounds keeping services | | | | | | | | | | | | | 0.00 |
| Maritime Education | Provide training for officers, crew, and/or shipping professionals | | | | | | | | | | | | | 0.00 |
| Operation/Mgmt. of Land Fills | Provide landfill capacity and mgmt. to local communities and GOP | | | | | | | | | | | | | 0.00 |
| Printing Services | Provide printing services to GOP and private sector | | | | | | | | | | | | | 0.00 |
| Promotion/Video Production | Provide media production service to GOP/private sector | | | | | | | | | | | | | 0.00 |
| Properties and Land Leasing/Dev. | Similar to ARI, develop or promote the development of existing properties and undeveloped land for commercial and maritime activities | | | | | | | | | | | | | 0.00 |
| Purchasing Agent | Provide procurement, warehousing and logistics support to GOP sector (similar to GSA in US) | | | | | | | | | | | | | 0.00 |
| Recreation / Fitness Facilities | Operate recreation/fitness facilities for profit | | | | | | | | | | | | | 0.00 |
| Safety Mgmt. Training | Conduct safety management training to industry | | | | | | | | | | | | | 0.00 |
| Sanitation Services | Provide sanitation services for surrounding communities to Canal Zone and reverted properties | | | | | | | | | | | | | 0.00 |
| Security Services | Provide security services to surrounding community and business | | | | | | | | | | | | | 0.00 |
| Tank Cleaning | Provide tank cleaning services for transiting tankers | | | | | | | | | | | | | 0.00 |
| Tolls Discounts to Promote Target Enterprises | Integrate tolls/tax discounting and/or waivers for those shipping companies opening Panamanian local offices or using Panamanian ship registry | | | | | | | | | | | | | 0.00 |
| Wholesaler Business (Purchasing) | Leverage volume purchase discounts for imported produces and become local wholesale provider of inventory items for local distributors | | | | | | | | | | | | | 0.00 |

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score |
|--|---|-------------------|----------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|
| | | | | Annual Rev/Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | |
| Growth Opportunities - Others To Evaluate - Process | | | | | | | | | | | | | | |
| Benefits/Fringes (Cash Mgmt) | Review fringes and benefits of employee base to assess alternative services at less costs | | | | | | | | | | | | | 0.00 |
| Optimize Scheduling | Review scheduling procedures to see if more tonnage can be accommodated with the same number of lockages - e.g. give incentives for barges or other small vessels for double lockings | | | | | | | | | | | | | 0.00 |
| Pension Funding/Investment (Cash Mgmt) | Review pension funding and investment practices to best leverage return and required deposits | | | | | | | | | | | | | 0.00 |
| Personnel Management | Improve process where people with the appropriate skills are working within the right departments at PCC. New PCC may require retraining and allocation of personnel between departments. | | | | | | | | | | | | | 0.00 |

**TABLE A-II: GROWTH OPPORTUNITIES BY
TOTAL WEIGHTED SCORE**

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score | |
|---|---|-------------------|----------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|-------|
| | | | | Annual Rev./Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | | |
| Growth Opportunities - Products/Services | | | | | | | | | | | | | | | |
| Canal Tolls/Tariffs | Adjust toll/tariff system to reflect elasticity of demand plus any risk of cargoes, and include true costs of vessels | 1 | \$125.0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 1 | 2 | 2 | 89.66 |
| Electricity (Utilities) | Sell excess capacity as demands from US military decrease | 3 | \$50.0 | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 2 | 2 | 2 | 2 | 85.66 |
| Shiprepair-Drydock (Marine Industrial) | Provide extensive ship repair capabilities for transiting vessels and regional traders | 2 | \$60.0 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 79.33 |
| Port/Transshipment facility | Apply Manzanillo terminal concept to breakbulk/bulk trades | 2 | \$20.0 | 2 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 1 | 1 | 1 | 67.66 |
| Heavy Lift Services | Provide waterside heavy lift services to industry | 2 | < \$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 58.99 |
| Cruise Terminal (Tourism) | Become a destination for transiting cruise passengers | 3 | \$5.0 | 2 | 1 | 2 | 2 | 2 | 1 | 3 | 3 | 1 | 2 | 2 | 58.33 |
| Marine Salvage | Provide light salvage services to region and maritime communities | 2 | < \$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 57.66 |
| Oil Spill/Haz. Chem. Emerg. Response | Leverage spill emergency response capabilities and provide services to surrounding industry | 2 | < \$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 57.66 |
| Technical & Apprentice (Training) | Provide technical training and apprentice services | 3 | < \$1mm | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 57.66 |
| Meteorological/Hydro. Surveys/ Info. | Provide meteorologic and hydro survey and information services | 2 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 3 | 53.99 |
| Trade Info. and Research Services | Collect and provide trade statistics to maritime and consultant industries. In addition, may provide research services as well | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 3 | 53.99 |
| Pilotage/Bridge Simulation (Training) | Provide pilot training and apprentice services | 2 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 52.66 |
| Shopping Promenade (Tourism) | Build current visitor centers or other prime locals into shopping/eating/entertainment centers | 3 | \$2.0 | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 3 | 1 | 2 | 2 | 52.66 |
| Container Repair (Marine Industrial) | Provide container repair for new services which call Panama | 2 | < \$1mm | 1 | 1 | 2 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | 52.49 |
| Shiprepair-Topside (Marine Industrial) | Provide light and emergency ship repair services | 2 | \$3.5 | 1 | 1 | 2 | 3 | 2 | 3 | 1 | 2 | 2 | 2 | 2 | 52.49 |
| Water (Utilities) | Sell excess capacity | 3 | \$1.8 | 1 | 1 | 1 | 3 | 3 | 1 | 1 | 1 | 3 | 2 | 2 | 52.33 |
| Container Manufacturing (Marine Industrial) | Manufacture containers for new services which call Panama | 3 | \$5.0 | 2 | 1 | 1 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 50.66 |
| Classification Society | Build on registry, recent safety conventions, access to vessels, and surveying capabilities to grow Panamanian classification society | 2 | \$10.0 | 2 | 1 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 50.49 |
| Ecotourism Infrastructure (Tourism) | Leverage access to Panama's unspoiled interior | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 2 | 3 | 2 | 1 | 2 | 2 | 50.00 |
| Fire and Emergency Services | Provide emergency services to surrounding community and projects requiring special expertise of PCC. May also provide training. | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | 50.00 |
| Cargo Inspection | Expand use of surveyors to include cargo inspection for claims | 2 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 48.66 |
| Telecom (Utilities) | Sell excess capacity on owned line | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 2 | 2 | 2 | 48.66 |
| Warehousing Services | Develop and lease waterside and landbased warehouse space, etc. | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 2 | 1 | 2 | 1 | 3 | 3 | 48.66 |
| Yacht Basin | Develop and/or lease near/within canal areas for yacht basins | 3 | < \$1mm | 1 | 1 | 1 | 3 | 2 | 3 | 1 | 1 | 1 | 3 | 3 | 48.66 |
| Dredging Services | Provide dredging and related services. Services may include vegetation control, drill & blasting, maintenance dredging, etc. | 2 | \$1.1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 3 | 2 | 2 | 47.50 |

| Growth Opportunities | Description of Growth Opportunity | Mission Statement | Rev/Sales (Millions) | Primary Evaluation Criteria | | | | | Secondary Evaluation Criteria | | | | | Total Weighted Score |
|---|--|-------------------|-------------------------|-----------------------------|------------------|--------------|------------------------|------------------|-------------------------------|-------------|----------------------|------------------------|--------------------------|----------------------|
| | | | | Annual Rev./Sales | Estimated Profit | Direct Empl. | Impact on Transit Act. | Prob. of Success | Investment Requirement | Competition | Economic Development | Ease of Implementation | Administrative Resources | |
| Bunkering | Develop alternative bunker port for transiting vessels | 2 | \$5.0 | 1 | 1 | 1 | 2 | 2 | 1 | 3 | 2 | 1 | 2 | 46.16 |
| Launch Services | Provide launch services to canal transits and anchored vessels | 2 | \$1.8 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 2 | 2 | 2 | 45.00 |
| Management/Professional (Training) | Provide professional and support staff training | 3 | < \$1mm | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 2 | 2 | 2 | 45.00 |
| Pilotage | Provide pilotage services outside of Canal Zone | 2 | \$4.4 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 3 | 43.66 |
| Ship chandlery | Provide stores for transiting vessels | 2 | \$1.0 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 2 | 2 | 43.66 |
| Vehicle Repair Services | Provide repair services to other agency fleets and maintenance training | 3 | < \$1mm | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 2 | 2 | 43.66 |
| Chilled Water (Utilities) | Sell excess capacity within existing system | 3 | \$1.5 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 42.33 |
| Vehicle Leasing | Provide short term leasing of vehicles to general public of excess auto and truck fleet | 3 | \$1.0 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 2 | 42.33 |
| Tug/Towing Services | Hire out excess tug capacity when available for use in non-canal areas | 2 | \$2.0 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 42.16 |
| Growth Opportunities - Process Improvement | | | Revenue Equiv. * | | | | | | | | | | | |
| Investing Cash Balances (Cash Mgmt) | Improve investing activities to better leverage higher yield opportunities of \$200M cash on the balance sheet | 1 | \$130.0 | 3 | 3 | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 92.32 |
| Inventory Mgmt (Purchasing) - One Time Event | Review current inventory mgmt. practices to assess cost savings opportunities. (e.g.: reducing current inventory levels, sourcing, etc.) | 1 | \$25.0 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 82.66 |
| Sourcing Optimization (Purchasing) | Identify/develop relationships with providers (incl. local) as means of cost reduction including incorporating supply chain concepts | 1 | \$22.5 | 3 | 2 | 1 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 80.33 |
| Payroll Processing (Cash Mgmt) | Adjust payroll processing procedures to reflect best practices in cost minimization in US | 1 | \$9.0 | 2 | 1 | 1 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 65.99 |
| Banking (Cash Mgmt) | Through opening own bank, or soliciting concession payments from or charging processing fees to banks which deal with canal, take advantage of high transaction volume, and cash float | 1 | \$3.4 | 1 | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 2 | 3 | 52.66 |
| Weighting | Weighting Factor (Primary & Secondary) | | | 25.0% | 25.0% | 7.5% | 7.5% | 15.0% | 4.0% | 4.0% | 4.0% | 4.0% | 4.0% | 1.00 |
| Note(*): For comparative purposes, process growth opportunities which reflect direct net income impacts have been grossed up to reflect business opportunities yielding 10% annual profit margins | | | | | | | | | | | | | | |

SHIP REPAIR - DRYDOCK

Comparison of Ship Repair Facilities/Capabilities

| | Mount Hope | Balboa | Out of Area |
|---|-------------------------------|--|-------------|
| Facilities | | | |
| Graving Dock | 360' x 60' | 1044' x 100' 440' x 84' 235' x 49' | Various |
| Outfitting Piers | | 3 | |
| Synchrolift | 106 x 72 1,600 LT Capacity | | |
| Typical Voyage Repairs Performed | | | |
| Rewind Generators | √ | √ | √ |
| Repair Hull Leaks & Structural Damage | | | |
| In Water | √ | √ | √ |
| Out of Water | | √ | √ |
| Propeller | √ | | √ |
| Motor Repairs | | √ | √ |
| Turbo Generator Repairs | | | √ |
| Repair Radar & Navigation Instruments | | | √ |
| Typical Scheduled Shipyard Repairs | | | |
| Hull Blasting & Coating | | √ | √ |
| Cathode Replacement | | √ | √ |
| Classification Surveys & Inspections | | √ | √ |

Appendix B: Growth Opportunities...Ship Repair...

THE PANAMA CANAL'S MOUNT HOPE FACILITY HAS A SKILLED WORKFORCE WHICH ENCOMPASSES THE KEY TRADES FOUND IN LARGE SHIP REPAIR FACILITIES, BUT DOES NOT HAVE THE REQUISITE FACILITIES FOR SIGNIFICANT COMMERCIAL ACTIVITIES

Mount Hope Labor Profile of Skilled and Unskilled Labor

| | Electricians | Mechanics | Machinists | Tool Makers | Metal Workers | Ship Fitters | Painters | Pipe Fitters | Riggers | Shipwrights | Total |
|-------------------------|--------------|-----------|------------|-------------|---------------|--------------|----------|--------------|---------|-------------|-------|
| Skilled | 20 | 21 | 61 | 9 | 45 | 26 | 11 | 14 | 15 | 12 | 234 |
| Unskilled | 8 | 7 | 16 | 0 | 15 | 7 | 16 | 2 | 7 | 3 | 81 |
| Total | 28 | 28 | 77 | 9 | 60 | 33 | 27 | 16 | 22 | 15 | 315 |
| Skilled as a % of Total | 71 | 75 | 79 | 100 | 75 | 79 | 41 | 88 | 68 | 80 | 74 |

Appendix B: Growth Opportunities...Ship Repair...

THE ADDITION OF A LARGER DRYDOCK AND STAFF TO LEVERAGE THE BASE OF TRANSITING VESSELS AND THE CARIBBEAN'S EXPANDING TRADE COULD TURN MOUNT HOPE INTO A SUBSTANTIAL SHIP REPAIR CENTER – WITH POTENTIAL ANNUAL REVENUES ON THE ORDER OF \$60 MILLION

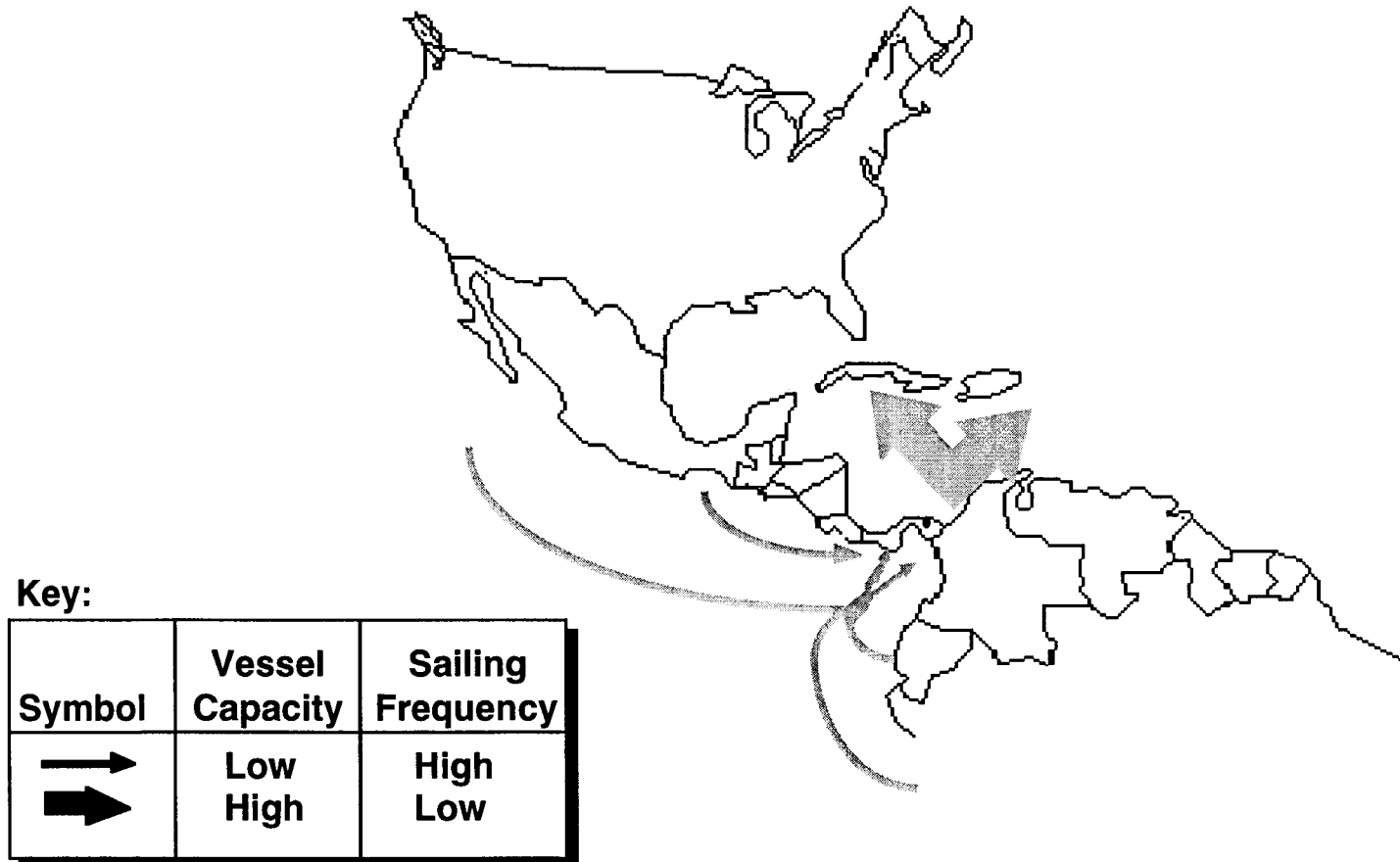
Comparitive Shipyard Facilities

| Shipyard | Employees | FY95 Revenues* | Drydocks (feet) |
|--------------------------------------|------------------|-----------------------|------------------------|
| Southwest Marine (San Diego) | 1,000 | \$100 | 656 x 102 500 x 63 |
| Continental Marine (San Diego) | 400 | \$75 | None |
| International Ship Repair (Tampa) | 200 | \$20 | 550 x 90 450 x 105 |
| Gulf Marine Repair (Tampa) | 192 | \$16 | 348 x 101 190 x 66 |

* Includes estimates

PORT/TRANS-SHIPMENT CENTER

Reefer Trans-shipment Center Cargo Flow Diagram



THE COLON FREE ZONE AND THE MIT CONTAINER TERMINAL HAVE DEMONSTRATED PANAMA'S ATTRACTION AS A TRANSSHIPMENT CENTER. THE CANAL MAY BE ABLE TO BUILD ON THIS STRENGTH BY CONSTRUCTING A SIMILAR FACILITY FOCUSED ON BREAKBULK - SPECIFICALLY REEFER CARGO - OR BULK

- While large banana and fruit companies have distribution chains in place, smaller players, particularly on the west coast of Central and South America, have to rely on smaller vessels and have difficulty getting their goods to market at a competitive delivered price
- A consolidation and export facility in Panama would allow for larger vessels in the delivery to destination markets, providing the smaller growers better economies of scale in transport
- Such a facility is very much in line with a proposal being advanced by the International Association of Refrigerated Warehouses that a "Cold Chain" be established to help foster the distribution and marketing of refrigerated goods
- Bulk commodities, such as coal and grain, should be investigated to determine the feasibility of a transshipment/lightering facility
- Revenues of \$20 million are believed possible for such a facility based on earnings of existing ports with similar characteristics

HEAVY LIFT SERVICES

THE HEAVY LIFT BUSINESS OFFERS THE FUTURE CANAL ORGANIZATION AN EXCELLENT OPPORTUNITY TO GENERATE MODERATE REVENUES AND INCREASE UTILIZATION OF TYPICALLY IDLE ASSETS

- To support canal maintenance requirements, the PCC maintains a heavy lift capability as part of the Engineering and Construction Bureau's Dredging Division. Supporting this capability are two floating cranes: Hercules and Goliath with lifting capacity of 250 and 100 long-tons respectively
- Typically used for the lifting and positioning of the lock gates, the PCC heavy lift capability is frequently in standby status. Deployment of the cranes into revenue generating opportunities offers an excellent opportunity to increase asset utilization
- Within Panama, no other heavy lift capability currently exist – positioning the future canal organization in a business environment of no competition and high profit potential
- Additionally, demand for waterside heavy lift services can be expected to be high over the next decade – spurred by the development and commercialization of Canal properties reverted to Panamanian stewardship.
- Given the above – ready capability, no competition, high revenue/profit potential and increasing demand – the heavy lift business is guaranteed to succeed. Revenue's estimated from this growth opportunity are conservatively estimated at approximately \$1 million per annum, based on pre-treaty heavy lift experience.

SINCE 1990, THE CANAL HAS EXPERIENCED AN AVERAGE GROWTH RATE OF 20 PERCENT PER ANNUM IN TRANSITING PASSENGERS, BUT STILL CAPTURES ONLY A SMALL PORTION OF THE CRUISE MARKET

- Transiting passenger traffic grew on average 20 percent per annum from 82,000 passengers in 1990 to nearly 207,000 in 1995. This is far in excess of the 6 percent growth in US cruise passengers - the world's largest market
- Tolls revenues have likewise grown significantly, increasing an average 22 percent per annum to over \$15 million in 1995.
- The Canal has benefited from the large additions to cruise capacity which are forcing cruise lines to seek new and different itineraries.
- Despite the growth, the number of passengers is still only a fraction - 4 percent - of the US cruise passenger market of 4.8 million.

WHILE THIS BASE OF BUSINESS IS LIKELY TO GROW, INVESTMENT IN DESTINATION FACILITIES AND ATTRACTIONS COULD BRING SUBSTANTIAL NUMBERS OF NEW PASSENGERS AND REVERSE THE CURRENT SITUATION OF PASSENGERS REMAINING ON THE VESSELS

- With no new initiatives, the Canal can expect passenger growth of 3 to 6 percent per annum due to the attraction of the Canal and the increasingly congested markets of the Caribbean.
 - “Demand for cruises in the Caribbean is growing by about 3-5%. Our Panama cruise is very popular. An increasing number of customers are expressing interest.” (Holland America)
 - “The Panama Canal transit cruise is popular, but we don’t see the number of total transits growing much over the next few years. We satisfy demand with the two cruises we offer but I’m sure other cruise lines will start to include Panama in their itineraries.” (Celebrity Cruises)
- At present, less than 1 percent of transiting passengers step foot in Panama. Apart from tolls, therefore, Panama benefits very little from these tourists

TOURISM/CRUISE INFRASTRUCTURE

Panama Canal Cruise Passengers and Revenues

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|--|---------|---------|---------|----------|----------|----------|
| Passengers Transiting the Canal (000s) | 82.0 | 104.8 | 94.2 | 154.3 | 195.7 | 206.9 |
| Total U.S. Cruise Passengers (000s) | 3,600 | 4,000 | 4,100 | 4,500 | 4,600 | 4,800 |
| % of U.S. Market | 2.3% | 2.6% | 2.3% | 3.4% | 4.3% | 4.3% |
| Toll Revenue (000s of \$) | \$5,610 | \$7,734 | \$6,123 | \$10,775 | \$12,934 | \$15,215 |

Source: CLIA, PCC

WHILE THIS BASE OF BUSINESS IS LIKELY TO GROW, INVESTMENT IN DESTINATION FACILITIES AND ATTRACTIONS COULD BRING SUBSTANTIAL NUMBERS OF NEW PASSENGERS AND REVERSE THE CURRENT SITUATION OF PASSENGERS REMAINING ON THE VESSELS (CONTINUED)

- Cruise lines, however, are expressing further interest in Panama and the Canal and looking for development which could lead to far more substantial increases in passengers. Moreover, these new cruises will market Panama as a destination which can result in a substantial benefits to the economy.
 - “We have no intention at present of either increasing or withdrawing the number of our Panama cruises. However, if new options were available (e.g. the opportunity to travel part-way by rail) we would certainly review our operations.” (Royal Caribbean Cruise Line)
 - “We would like to dock at Cristobal and allow passengers to visit Colon, travel along the coast to visit, e.g. Fort San Lorenzo or travel by road to see Gatun Locks from land but Cristobal is currently a disaster. There are ... all kinds of problems and no good docking facilities. If they clean up the place we would probably route another cruise ship to visit Panama, which would mean at least 13 additional partial transits each year “ (Major cruise line)
 - “Our customers are interested in seeing the Panama canal and we are always looking for good ideas. The problem is that Panama is geographically distant from other Caribbean destinations. Therefore, to include Panama in our tours means that the itinerary has to be good. I believe there is great potential to develop Cristobal as a hub for numerous attractions, including both the canal and places along the coast, e.g. Fort San Lorenzo, Las Minas Bay” (Major cruise line)

Economic Benefits of Cruise/Tourism

| City/Country | Number of Visitors (000s) | Economic Benefit* (Millions) | Benefit Per Visitor |
|-------------------|---------------------------|------------------------------|---------------------|
| Costa Rica | 790 | \$623 | \$790 |
| Port Everglades** | 2,380 | \$752 | \$320 |
| San Diego | 13,700 | \$3,800 | \$280 |

* Business revenue

** Cruise Passengers Only

THE CANAL CAN HELP DRIVE THIS GROWTH BY PROVIDING CRUISE AND TOURISM INFRASTRUCTURE. SUCH NEW FACILITIES COULD LEAD TO ADDITIONAL REVENUES ON THE ORDER OF \$8 MILLION PER YEAR FOR THE CANAL WITH ANNUAL POTENTIAL BENEFITS IN EXCESS OF \$300 MILLION FOR PANAMA

- There are three distinct areas within cruise/tourism where the Canal can provide infrastructure.
 - A Cruise Terminal for larger vessels would allow safe docking for larger vessels and provide passengers access to Panamanian attractions. Such a terminal could also coordinate with the airport to serve as a point of final disembarkation or embarkation for longer cruises
 - Ecotourism Infrastructure on Gatun Lake or up the rivers would facilitate the exploration of Panama's unspoiled interior by smaller vessels
 - A Shopping Promenade, centered around the existing tourist stations or other sites would encourage visitors to see the Canal and provide an attractive shopping/eating/entertainment center.
- While the Canal would not derive significant new revenues from these activities, it could expect about \$8 million annually, principally from tolls from new vessels and the leasing of space in a tourist center. The economic impacts of getting the passengers off the boats and into Panama could be far greater. Recent studies of different cruise centers suggest benefits ranging from \$300 to \$800 per passenger.
- As part of the process for encouraging tourism, the Canal should coordinate with the GOP for other infrastructure necessities such as improved road and rail.

PROCESS IMPROVEMENTS

**Potential Profits from Process Optimization
(Millions of Dollars)**

| Process | Profit/Revenue Estimate Methodology/Rationale | Estimated Annual Profit | Equivalent Revenues* |
|------------------------------------|--|--------------------------------|-----------------------------|
| Investing Cash Balances | Existing cash balances were matched against short, medium, and long-term needs and appropriate investment returns were applied against each category. | \$13.0 | \$130 |
| Inventory Management (One-time) | A conservative 10% savings figure was applied against current inventory level to determine savings. Previous BAH studies of commercial clients have yielded savings from 5 to 70%. | \$2.5** | \$25 |
| Sourcing Optimization | Same as above. | \$2.3 | \$23 |
| Payroll Processing | By increasing pay cycles and decreasing the number of paychecks, the PCC would save on processing costs and increase cash flow. | \$0.9 | \$9 |
| | | \$18.7 | \$187 |

* For purposes of comparison with new business opportunities, profits from process improvements were grossed up using a 10% profit margin assumption to determine equivalent revenues.

** One time occurrence

THE OPERATIONS OF THE PCC HAVE BEEN SHAPED BY U.S. GOVERNMENT PRACTICES AND REGULATIONS. BY EXAMINING ITS PROCESSES AND SHIFTING TO A MORE COMMERCIALY FOCUSED PARADIGM, THE PCC COULD EXPECT TO GROW IT PROFITS BY NEARLY \$19 MILLION, GENERATING A REVENUE EQUIVALENT OF APPROXIMATELY \$190 MILLION

- **Investing Cash Balances** - At the end of FY95, the PCC had over \$200 million in cash which it is not able to invest, due to US Government regulations. Only a small portion of these funds are needed to fund short-term liabilities. Once freed from investing restrictions, the Canal Organization should have a strategy to earn a return on its cash
- **Inventory Management** - At present, a substantial portion of the PCC's inventory has been written off as obsolete. By reviewing the proper levels of supplies and purchasing patterns needed to sustain Canal operation, the Canal can expect one time savings through reduction of inventory levels and corresponding carrying costs
- **Sourcing Optimization** - Purchasing for the PCC currently includes a New Orleans office. By reviewing supply arrangements, seeking volume discounts, and using local suppliers and just-in-time inventory practices where feasible, the Canal can extract annual savings from its purchasing and inventory costs
- **Payroll Processing** - With its large staff, optimizing the Canal payroll process can result in savings through both reduced transaction costs and greater cash balances