Options for the Redevelopment of the Port of Ponce

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Introduction

As we work to identify ways in which the southern region of Puerto Rico can grow economically, and the Port of Ponce once again can become an engine for economic growth and progress, this document offers some possible options for the redevelopment of the Port of Ponce. These options can be bundled to create a multipurpose port facility, or they could be implemented individually. The goal is to integrate the southern region of Puerto Rico into the global economy by giving it the economic tools necessary to play a key role in the Caribbean's regional economy. At the same time these efforts could help decentralize economic activity from the San Juan Metro region.

As a territory of the United States, Puerto Rico benefits from all the free trade agreements the U.S. is a signatory. More specifically, the Port of Ponce is located within a U.S. Census tract designated Opportunity Zone that also happens to be embedded in a designated foreign trade zone. Facilities surrounding the Port of Ponce could become an attractive option for investors looking to benefit from the tax advantages offered by the Opportunity Zones program while operating within the confines of a foreign trade zone. The region could eventually become an attractive destination from which a value-added and logistics operations can be conducted.

The following are some suggestions for possible redevelopment of the Port of Ponce:

1. Training facility from which U.S. and Western Hemisphere port authorities can train their employees on new technologies in port automation and port management systems (workforce development)
2. A regional distribution center for value-added operations for autos entering the southern PR and Caribbean markets
3. Taking advantage of Ponce's foreign trade zone designation, extension of air cargo transfer rights to Merceditas Airport and local warehousing facilities to turn the port/airport facilities into a multimodal distribution center for goods heading into

the eastern Caribbean and light manufacturing operations in Puerto Rico and the Caribbean

4. Truck driving training center for U.S. transportation industry with specialty in training for cement mixer truck drivers and project cargo/oversize cargo (workforce development)
5. Shipyard and boat-repair center for local workboats and mega-yacht industry. Will require a workforce development component such as a maritime pipefitting and welding school. These skills could easily be transferred to the construction industry.

These suggested options are aligned to the courses of actions (COAs) enumerated in Puerto Rico's economic and disaster recovery plan titled **Transformation and Innovation in the Wake of Devastation: An Economic and Disaster Recovery Plan for Puerto Rico**. Of significance are the following COAs:

- TXN 9 Develop and Intelligent Transportation System
- TXN 10 Develop Redundant Seaport Capacity
- TXN 12 Repair Damage to Ports and Ferry Terminals
- TXN13 Reassess the Maritime Transportation System Recovery Plan
- TXN14 Long-Term Planning to Develop Port of Ponce as a Regional Transshipment Port
- TXN22 Increase Port Facility Resilience
- ECN5 Improve Retention of an Educated Workforce Through Policy Change
- ECN8 Define and Develop Economic Development Zones
- ECN10 BLUEtide Initiative

A Port Automation Training Center/Sandbox

A good example of the benefits that automation can bring to port operations is the Port of Qingdao in Northern China. Prior to automation the port moved 24 to 26 containers per hour. After becoming Asia's first fully automated container port in 2017, container throughput went up to 32 to 34 per hour. This represents a 36% increase in loading and unloading of containers. At the same time, labor costs at Qingdao went down by 70% (www.icontainers,com/us)

Port of Qingdao Source: (https://www.china-briefing.com/)

Efficiency is vital to a port's global competitiveness. The more containers a terminal can load and unload from a vessel per hour, the more attractive the port becomes to the ocean cargo industry. A cargo vessel makes money only when it's sailing from one destination to another. While it's docked in a port it is losing money. Thus, port automation is now becoming a key component of a port's growth strategy.

When it comes to port automation Asia and Europe are ahead of the curve. Ports in the United States, the Caribbean and Latin America have fallen behind in automation and must now start automating in order to remain competitive and meet the demands of the shipping industry. According to the Journal of Commerce, there are presently 46 semi-autonomous or completely automated port container terminal in the world. In the United States the following ports are considered semi-automated: Los Angeles and Long Beach, Elizabeth Port- NY/NJ and two terminals in the Port of Virginia. Moody's Investor Services estimates that only 3% of container ports around the world are automated (www.joc.com).

Key reasons for automation include:

- Remain globally competitive via operational efficiency

- Growth of global and regional trade puts more traffic demand on ports
- New larger vessels entering the market can carry double the amount of containers
- Improve use of available land
- Lower labor and insurance costs
- Clients and ocean carriers require more information about their shipments and faster access to containers
- Location of containers and stacking of these containers using GPS and other tracking systems for faster delivery to truck drivers/dispatch and transshipment to other vessels
- Better and more up to date container management information systems allows for improved supply chain security and compliance with international and CBP programs such as the Container Security Initiative

For automation to occur, ports need to invest heavily in port automation equipment. For example, the Port of Los Angeles is investing approximately $400 million in automation equipment (Roosevelt, 2019).

The following is an example of some of the equipment needed for automation of port facilities:

- Automated gates systems – these gates will direct truck drivers to designated locations within the container yard for container pick up or unloading. The cranes will not load or unload the container until the driver is in the gatehouse (safety measures)

Automated Gates & Automated Staking Cranes Source: G. Dombrowski

- Automated Stacking Cranes (ASC) – they are operated by a terminal operating system (TOS) that positions containers on a stacked based storage system. Containers can then be moved at night to be positioned for next morning delivery. **See photos above & below**
- Automated ship to shore cranes (STS) – these cranes usually have an operator working from a building adjacent to the crane picking up and dropping containers on truck chassis or automated trucks. Operator works with via a monitor and joystick

Automated Stacking Cranes (note GPS grids on the container yard) **Source: G. Dombrowski**

Automated Ground Vehicles Source: RBS-EMEA.com

Other automated systems included electronic rubber-tired gantry cranes (E-RTG) and automated ground vehicles (AGV) add to a suite of automated equipment that can be incorporated to a port facility to increase efficiency and productivity. Link to video illustrating Kalmer AGV equipment utilized by the Ports of Los Angeles and Long Beach: https://www.youtube.com/watch?time_continue=147&v=8Tqt8qC6-9U&feature=emb_title

All these systems will be connected to a terminal operating system and container exchange systems that allow the shippers and carriers to track a container's location while determining in what order are the containers moved or located within the port facilities.

Prnewswire.com expects the market for port management equipment to grow to $36 billion by 2025 (prnewswire.com). That is not surprising, since the introduction of container-shipping technology to the maritime cargo industry during the 1950s, this mode of ocean cargo has grown every year, except during the 2009 financial crisis (Globalshiplease.com). Furthermore, in Drewry Maritime Advisors' 2017 forecast of the container shipping industry, it reported that of the 249 new ocean vessels presently being built, 175 are vessels designed to carry 8,000 or more twenty-foot equivalent (TEU) containers onboard (www.drewry.co.uk).

Redeveloping the Port of Ponce into a training/testing center for port automation could be an attractive option for this underutilized facility. The port facilities are compact enough to allow for training with multiple automated equipment within a confined area. However, consideration must be given to the investment that needs to be made in order to have a world class training

center. A possible option could be working with some of these automated port equipment manufacturers to use the Port of Ponce as a testing center and "showroom" facility for port authority clients to train on the equipment being purchased prior to delivery. Since all of this is done on a foreign trade zone that is located inside an Opportunity Zone, tax and price benefits could be offered to buyers and seller of the equipment.

Distribution Center for the Automobile Industry

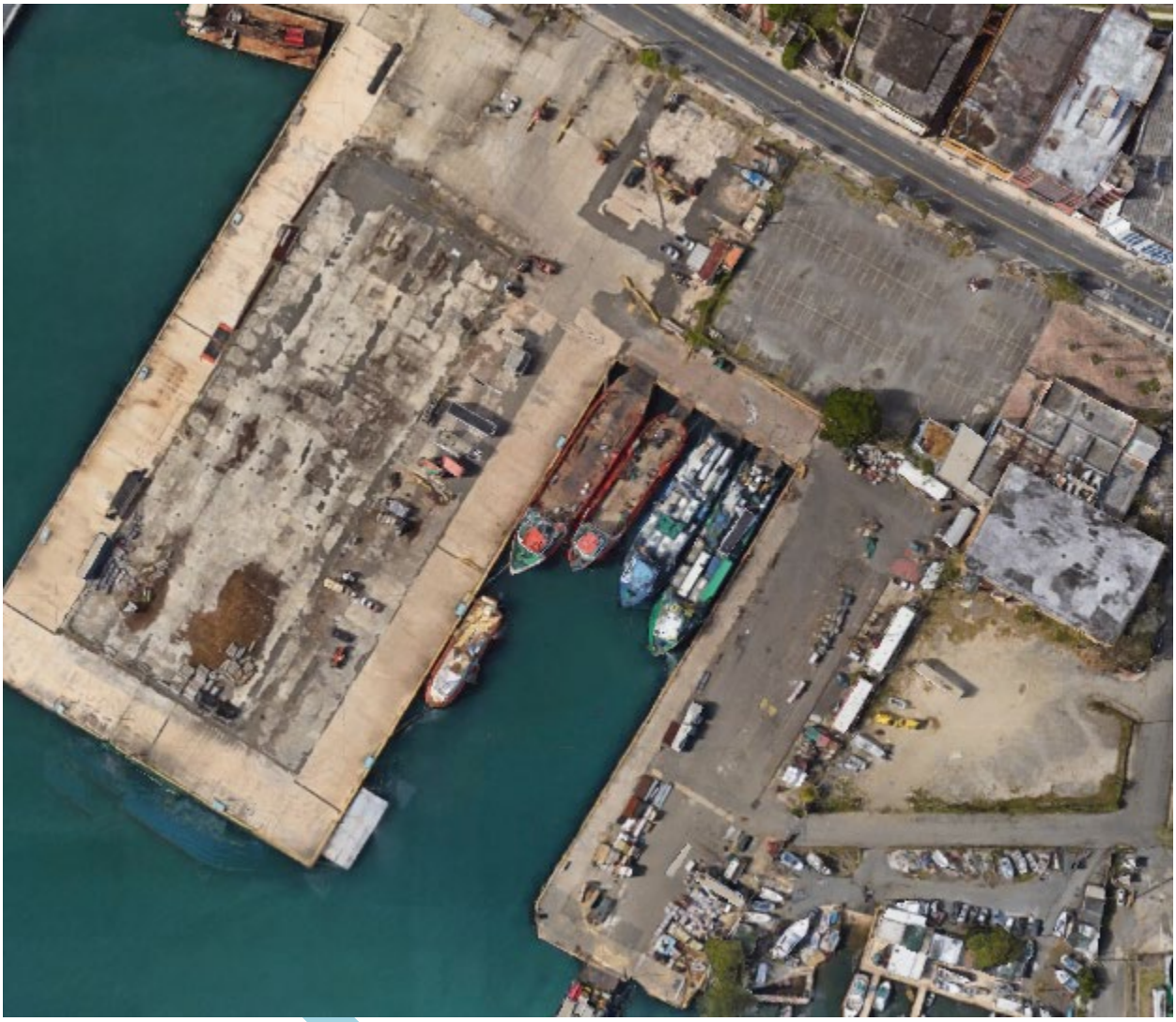
The Port of Ponce and its adjacent real estate, including the warehouse facilities surrounding the port and the Merceditas International Airport, could be converted into a major multimodal distribution center for the auto industry. The surrounding area is located within foreign trade zone (FTZ) 163, also known as CODEZOL. This allows for several benefits to be passed along to the zone operators. The area could be a staging point for local car dealers covering southern PR and automotive companies wanting to establish a foothold in the Caribbean by way of a distribution center with value-added activity. In an activated foreign trade zone auto dealers and manufacturers could see a number of benefits:

- Cashflow savings in the form of payment of local taxes and import taxes could be deferred until the car is sold (if sold locally), or if the car is sold outside of the U.S. import taxes do not have to be paid
- Payment of import tariffs can be avoided or lowered if value-added work is conducted inside the FTZ (privileged foreign status vs. non-privileged foreign status)
- Allows for just-in-time inventory as the delivery of parts and materials for final assembly can be brought in at anytime of the day and would not need to be reported to Customs until the following business day; conversely, shipments can go out at any time (possibility of operating 24/7)
- Reduce the paperwork and fees associated as an FTZ operator can file zone entries on a weekly basis
- Allows for bringing suppliers closer to production and increase number of businesses in the area

Establishing an automotive zone in Ponce could help create well-paying jobs in fields such as logistics & distribution, light manufacturing, transportation and FTZ operations management. Complementary businesses (customs brokers, freight forwarders, accounting, transportation) could establish local offices to support the automotive industry.

A Distribution Center for the Eastern Caribbean Markets

As with the automotive industry, the existing facilities in the Port of Ponce are ample enough to attract ocean carriers serving the islands of the Eastern Caribbean. This service is presently being offered through the Port of San Juan in piers 10 and 11. See photo below:



Piers 10 & 11 Port of San Juan Source: Google Earth

Piers 10 and 11 in the Port of San Juan play a key role in the movement of cargo from distributors and resellers located in San Juan's metro area to the islands of the Eastern Caribbean. In its heyday exports from Puerto Rico to the islands of the Eastern Caribbean amounted to $511 million (www.comercioyexportacion.com, 12) A very efficient logistics operation that afforded local suppliers the ability to ship goods out of San Juan every evening and have those goods ready for purchase at store shelves through-out the Eastern Caribbean by the next morning were key to Puerto Rico's preeminent role as the "shopping center of the Caribbean". Unfortunately, during a recent meeting with the Puerto Rico Ports Authority, the Economic Recovery Support

Function team was informed that cargo operations out of Piers 10 and 11 have not only decreased in volume, but these operations will be moved out to make space for the cruise ship industry. The uncertainty regarding the relocation of shipping facilities added to other impediments affecting the ease of doing business such as high sales taxes are affecting the Island's competitive advantage vis a vis other jurisdictions such as Miami and the Dominican Republic.

Ironically, if the ocean cargo operators are not offered a facility within the Port of San Juan, this could turn into an opportune time to reconsider relocation of these operators to Ponce. However, relocation to the Port of Ponce would require that a number of steps be taken to recreate the same business environment presently available in San Juan:

- Access to goods and services available in San Juan would need to have a presence in the southern region (incentivize anchor retailers to establish in Ponce)
- Increase the variety of shops and megastores (Costco, Sam's Club and other retailers)
- Increase regional airline services from the eastern Caribbean to Ponce's airport (on a trial basis via a marketing campaign targeting buyers from the eastern Caribbean)
- Dedicate a space in the port's roll-on roll-off area for the island hopper cargo services (ground transport can drop shipments for easy and safe loading into the cargo ships)
- Ease the paperwork and burden of proof imposed by PR's Department of Treasury ruling that exempts exporters from having to pay the 11.5% sales tax (Circular Letter No.13-10) so that buyers arriving from the islands can show a state issued identification/document or proof of export documentation to have their purchases exempted from local sales taxes (www.hacienda.gobierno.pr)
- Train local businesses so that they have the capability to prepare shipments for export with the proper attached documentation

Another recent development is the U.S. Department of Transportation's announcement of its extension of the air-cargo and passenger transfer rights to the international airports in Puerto Rico. Ponce's Merceditas International Airport could play a more active role in bringing international passengers and cargo through Ponce and serve as a component of a multi-modal cargo operation that adds the airport's assets to facilitate the movement of cargo in the southern Caribbean region. This could attract investment to Ponce and increase the utilization of the port facilities.

These efforts would require a regional strategy that includes participation by the following entities to delineate a promotional campaign that targets the Eastern Caribbean: Puerto Rico Trade, PR Tourism Company, PR Destination Marketing Organization, PR Treasury Department, the local U.S. Commercial Service Office, regional organizations including the Port of Ponce Ports Authority and the Southern Chamber of Commerce, southern municipalities and trade associations.

Ship Repairs and Maintenance Shipyard with a Maritime Workforce Development Training Center

According to the Organization for Economic Cooperation and Development (OECD) East Asia holds 85% of the shipbuilding market share. The industry is expected to grow at a 5.7% CAGR from 2018 to 2025 (OECD, 4). A **Future Markets Insights** study on global ship repairs and maintenance services industry projects this industry to grow from $20 billion in 2018 to over $40 billion by 2028 (www.futuremarketinsights.com). Growth in the shipbuilding industry could result in the need for new ship repair facilities to be established near some of the most navigated trade lanes including routes exiting the Panama Canal on the Caribbean Sea.

The Port of Ponce's strategic location next to two of the most transited shipping lanes in the world, could be ideal for several maritime support services. Consider the following:

- Shipyards in the Caribbean have been very busy in recent years due to increased maritime traffic
- Growth in ship repair and maintenance services is steering China's "Belt & Road" global strategic expansion initiative to invest in building a drydock and shipyard maintenance facility in Trinidad & Tobago
- Grand Bahama Shipyard Ltd., the largest shipyard in the Caribbean is seeing increased number of bookings for cruise ship maintenance and repairs. Cruise ship on average go for maintenance every 3 to 5 years (this affects space availability for repair and maintenance of other vessels. This could benefit other regional shipyards) (Blenkey)
- The mega yacht maintenance and repairs business in the Caribbean represents a $200 million market. Ponce is strategically located next to the islands of the eastern Caribbean offering more resupplying options and leisure activities for the crew of these mega yachts than would other smaller islands in the Caribbean
- The Shipbuilders Council of America estimates that 250,000 skilled professionals will be needed to replace the retiring workforce in the U.S. shipbuilding industry (www.NCCER.org)
- An aging workforce and fewer younger workers being attracted to the shipbuilding and repair industry opens an opportunity for developing a regional maritime industry training center to address the labor shortages and industry needs
- 2018 National Defense Authorization Act calls for the creation of a 355-ship Navy fleet. Current shipyard facilities will need substantial investment in order to meet the expected increase in maintenance and shipbuilding production (Eckstein)
- The Navy recently announced a $21 billion shipyard modernization plan for the renovation and modernization of existing and new facilities (shipyards & drydocks) to

meet the maintenance needs of the Navy. Presently all major Navy/public shipyard and drydock facilities have a poor or failing condition rating (Eckstein)

- U.S. Naval patrol and interdiction operations in the waters of the southern Caribbean Sea (Venezuela / Colombia) could benefit from having a refueling and resupplying facility in the immediate region. During our last visit to the Port of Ponce we saw a U.S. Navy littoral combat vessel docked for refueling and resupplying. We were informed by the executive director of the Port of Ponce that naval vessels make regular stops.

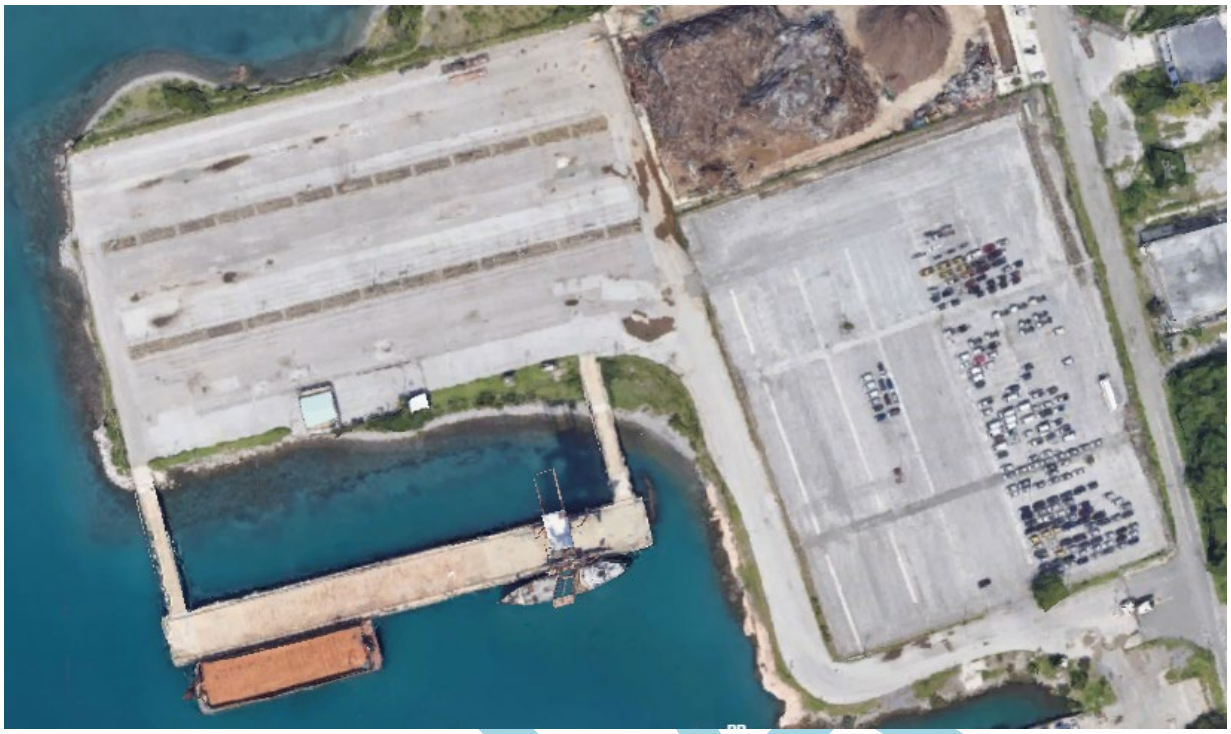
The following is a list of shipyards in the Caribbean:

1. Grand Bahamas Shipyard Limited - largest in the Caribbean
2. Damen Ship Repair Curacao
3. Astivik Shipyard in Cartagena, Col.
4. Diques & Astilleros Nacionales de Venezuela
5. Ciramax Shipyard in the Dominican Republic
6. COTECMAR in Cartagena Col. (also builds small vessels for Colombian Navy)- have a technical collaboration agreement with Damen Shipyard Group
7. DAMEX Shipbuilding & Engineering of Cuba

An additional facility presently being built is the La Brea shipyard and drydock facility in Trinidad & Tobago. As previously mentioned, the facilities will be built by China Harbour Engineering Company, and their objective is to target traffic through the Panama Canal and the expected increase in LNG tanker vessels transiting the region as a result of the U.S. becoming a major exporter of liquified natural gas (www.caribbeanshipping.org).

The Port could play multiple roles as a regional maintenance, repairs and resupplying facility serving several clients and industry sectors. Additionally, the Port of Ponce could partner with entities such as the National Center for Construction and Educational Research (NCCER), the National Maritime Educational Council (NMEC) and the Shipbuilders Council of America (CSA) to develop maritime shipbuilding, repairs and maintenance workforce development programs to help develop the future shipbuilder and maritime workers the U.S. and other countries may need. The proximity to the Caribbean and Latin America, plus the ability to offer a maritime industry curriculum in Spanish and English with the participation of local universities and colleges could give Ponce a competitive advantage.

The facilities in the Port of Ponce can serve as a training school and shipyard services marina. As the photos below show, the port has ample space and what appears at first sight as an ideal location to offer both services and meet the demands of the maritime maintenance industry:



Original Port of Ponce facilities Source: Google Earth

P.R. Planning Board Port facilities layout

Truck Driving School to Meet Puerto Rico Reconstruction and National Transportation Needs

In the Rand Corporation report titled **Puerto Rico Recovery Plan Follow-on Implementation Analyses**, the authors estimated that for every $10 billion additionally spent on the Island's recovery and reconstruction, an additional 2,300 truck drivers will be needed to meet the transportation demands. Drivers will be needed for the reconstruction of the island, building of infrastructure, the expected increase in port cargo volume and day to day operations (Cook, 10). A shortage of truck drivers was evidence during the response phase of hurricane Maria. To make matters worse, events such as hurricane Maria, the recent series of earthquakes hitting Puerto Rico's southern coast and the salary disparity between what a truck driver earns in PR versus the Continental U.S. is creating an exodus of available and qualified truck drivers.

During a recent meeting with a major cement company based in Ponce, we were informed that the shortage of truck drivers is having serious consequences on their day to day operations. First, production is at under capacity as they don't have enough drivers to deliver products; second, the company's bottom line is being impacted by the high demurrage fees they pay to ocean carriers as they lack sufficient drivers to pick-up raw materials and cargo at the ports.

One possible solution to this transportation crisis could be the development of a truck-drivers school at the facilities in the Port of Ponce. CEMEX, a multinational cement manufacturer with operations in Puerto Rico mentioned that they would welcome the idea of developing a training program at their facilities inside the Port of Ponce. This facility would address their global need for new truck drivers in Puerto Rico, Central America and the Continental U.S. The facilities could be developed into a bilingual training program in coordination with local or national workforce development programs. The program could help alleviate the truck driver shortage facing the U.S. and Latin American markets (www.bloomberg.com)

Conclusion

All the above-mentioned recommendations are meant to identify possible opportunities to repurpose the facilities at the Port of Ponce and bring much needed economic growth to the southern region. The region needs an economic revival; using the port as a stimulus to attract economic activity will probably have a spillover effect not only in southern Puerto Rico, but also the rest of the island. This will require a willingness by the government of Puerto Rico to classify the port as a critical infrastructure project, identify resources and sources of funds to develop this facility as a major economic development project.

A second port in the island offers added resiliency in the event of a future natural disaster. A project of this nature may require government intervention as a catalyst to attract private investments and interest to the port. It may also require federal involvement to identify whether the previously identified options could also serve the Nation's economic and regional and national security needs.

One thing is clear, a second functional multipurpose port in Puerto Rico could change the Port of Ponce's role in the region.

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