# APPENDIX F:
# PORT RELOCATION STUDY

**TEC**

## 1.0 Introduction

Over the past decade, a number of studies and discussions have focused on moving the Cleveland-Cuyahoga County Port Authority (CCCPA) facilities and activities, currently located immediately east of the Cuyahoga River, to a new location. The idea was to free up current port property for waterfront development while simultaneously creating dredge disposal capacity and a larger port area. In the past year, CCCPA has given further consideration to the viability, cost effectiveness and implications associated with relocation.

The purpose of this report is to consolidate information regarding the evolution of the port relocation initiative and assess its viability today based on a realistic market assessment and a detailed cost-benefit analysis. A project of this magnitude has implications for the Port Authority, Cleveland, Cuyahoga County, and local taxpayers. For these entities to move forward with planning efforts that make sense under current economic and market conditions, a clear decision regarding port relocation needs to be made and conveyed to all stakeholders.

This report finds no economic or market justification to relocate the port at this time. The current Capacity Analysis demonstrates that a new, larger site is not needed for future port operations, nor is relocation financially feasible because CCCPA cannot recoup the capital cost of relocation from port cargo revenues, thus requiring large public subsidies.

If mixed-use waterfront redevelopment is pursued on Docks 30 and 32, and port operations are consolidated on remaining port property, the two uses can co-exist and even benefit each other.

## 2.0 Background Information

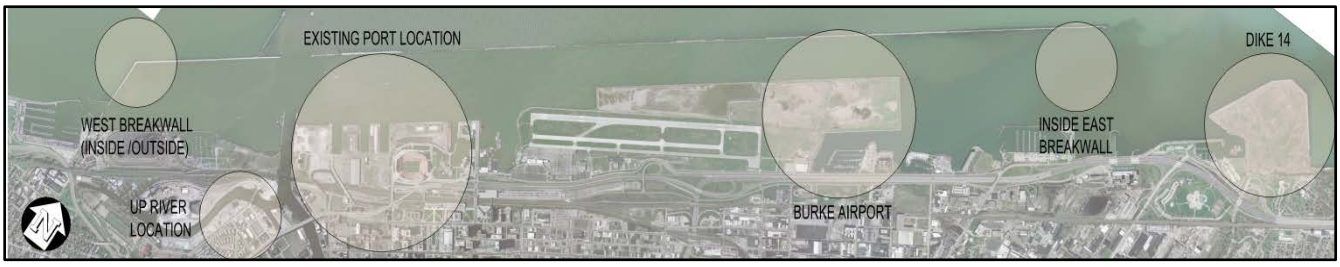
The City of Cleveland's 2004 Connecting Cleveland's Waterfront District Plan introduced the concept of relocating the port as a way to free up lakefront land in downtown Cleveland for a mixed-use redevelopment that would promote the evolution of the city into a regional economic hub. The Plan also coupled relocation with a new Confined Disposal Facility (CDF) for dredge material from the Cuyahoga River. To move forward with port relocation, three key issues needed to be assessed: Property requirements for a new port, CDF requirements, and City revitalization plans. Below is an overview of the circumstances and conditions that applied to each of these matters:

### Port Property Requirements

In 2006, URS was selected to conduct a Port Relocation Study. In September and October of 2006, planning meetings were held to determine the area required for a new port. The conclusion, based on discussions with Port Authority personnel, City and County personnel, and various private stakeholders was that approximately 100 acres would be required. This included 45 acres for break bulk and 55 acres for bulk cargo. In October 2007, the Port Authority Board-approved a Long-Term Strategic Plan. It called for expansion of the Port Authority's maritime business, which would in turn promote development in the region. The Port Relocation study was therefore refocused and new estimates indicated that the port required 200 acres, in addition to the existing 46-acre Cleveland Bulk Terminal property. This increase was based on the CBT terminal operator's cargo projections for a greater flue gas desulphurization (FGD) stone market than originally projected, and the potential demand for significant volumes of Great Lakes container cargo operations.

While requirements for the new port facilities were being determined**,** the Port also started identifying possible locations for the new CDF and port complex. Eight alternatives were initially reviewed: The existing port location, 3 potential sites adjacent to the West Breakwall, and new sites at Dike 14, the East Breakwall, Burke Airport, and one up-river location.

**Figure 1. Port Relocation Alternatives**




Source: *Advance Report Summary Port Relocation Study* – URS May 2008

At the outset, five criteria were developed for evaluating the sites: Operational Efficiency; Implementability; Land Use and Development Impacts; Environmental and Community Impacts; and, Cost. Four of the eight sites were determined to have a "fatal flaw" associated with at least one of the criteria and didn't make it through the first round of evaluations. The alternatives that remained were: the three West Breakwall locations and the Burke Airport Location.

When the Port approved the Long-Term Strategic Plan in October 2007, additional site-evaluation criteria were established to: Support the Port Authority's goal for maritime expansion, and emphasize the importance of good port-highway-rail connections, as well as the need for ample space near the new port to provide access to core and support facilities.

The initial relocation review mainly focused on sites west of the river, but Port Board adoption of the Long-Term Strategic Plan coupled with the new criteria that ruled out some sites led to a refocus on locations east of the river. The Burke Airport site was the only one of the original sites that remained under consideration. With renewed interest in the areas east of the river, a ninth location was identified. This site was north of the Shoreway at East 55th Street, where additional land could be created from dredge material in the lake.

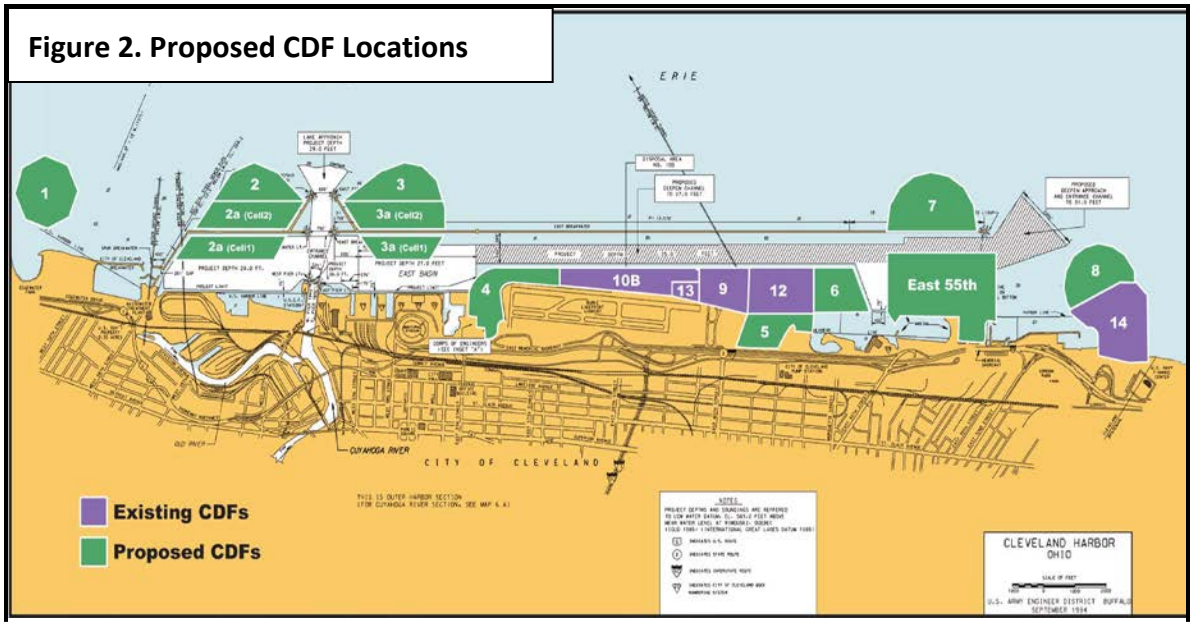
In January 2008, the Burke Airport Master Plan was complete and included a proposed outboard runway, which effectively eliminated the Burke site as a viable option for the port. That left only the East 55th Street location as a site that could meet the 200-acre requirement for a new port complex, with close proximity to highway, rail, and additional land for support facilities, such as in the St. Clair/ Superior District.

**Confined Disposal Facility Requirements**

Each year about 330,000 cubic yards of sediment are dredged from the Cuyahoga River and account for nearly all the dredged material disposed of in the Cleveland area. Currently, there are 3 active CDFs along the shorelines of Cleveland used for the disposal of sediment from the Federal Navigation Channel. The CDFs are approaching their design capacity, and it is estimated that they will be at capacity as early as the end of 2014. A new CDF or substitute capacity (i.e. beneficial reuse) will therefore need to be available in the immediate future.

As part of the planning for a new CDF, the U.S. Army Corps of Engineers (USACE) prepared a *Draft Dredge Material Management Plan (DMMP)* and an *Environmental Impact Statement (EIS)* in August 2009. The plan identified 9 sites for consideration as a new location (see Figure 2). Two of the key criteria were to locate a site that had at least 20 years of capacity for dredge material disposal and that could serve as the foundation for property development (e.g. Port Relocation) opportunities after it had reached capacity.

**Figure 2. Proposed CDF Locations**




Source: US Army Corps of Engineers *Draft Cleveland Harbor Dredged Material Management Plan & Environmental Management Plan*

During several iterations of the site selection process many landside alternatives were eliminated because they were too small to meet the 20-year capacity requirement, and the water-based locations were eliminated because they lacked development potential. The East 55th Street site met the requirements for capacity, maritime use, development potential, and connections to the other modes of transportation. Therefore, the 2009 Draft DMMP identified East 55th Street site as the preferred alternative.

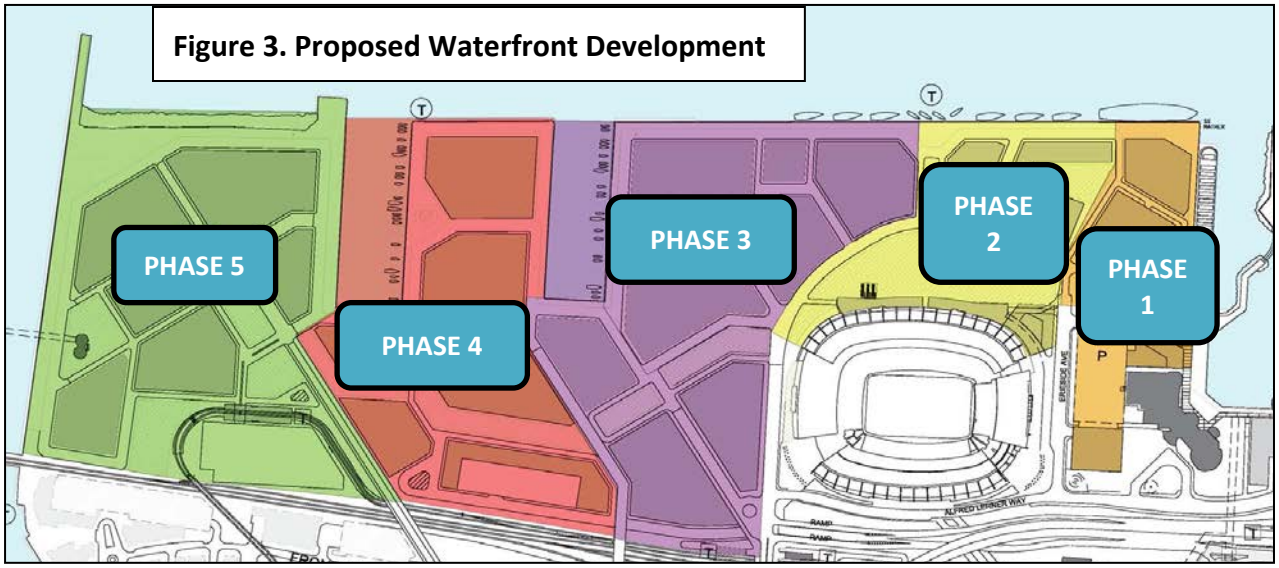
A 55th Street CDF would have capacity of 6,850,000 cubic yards, which is should provide approximately 20 years of capacity. With total costs estimated at $303 million, the East 55th Street site was the most expensive site evaluated. The least expensive option with sufficient capacity was estimated to cost $210 million.

The DMMP still identifies E. 55th Street as the preferred location, but because of several issues, including total costs, a final decision on proceeding with this plan has been on hold while stakeholders reassess the feasibility of combining port relocation with CDF construction.

**City Revitalization**

In October 2009, PA Consulting Group prepared the *Cleveland Waterfront Market Demand and Development Options*, which proposed 5 phases of waterfront development (see Figure 3). This study provides an analysis of international trends and best practices in the fields of waterfront development and catalytic real estate investment.

**Figure 3. Proposed Waterfront Development**




Source: *Cleveland Waterfront Market Demand and Development Options* prepared by PA Consulting Group, October, 2009

As the plans for port relocation progressed, so did the plans for waterfront development of the property currently used for port activities. A Phase 1 development was proposed for 2010, because the Port Authority no longer leases Dock 32 from the City (portion illustrated in orange). The remainder of the port property redevelopment was scheduled to follow in phases as port operations relocated over time in 2014, 2023, 2029 and 2036. Table 1 shows cost breakdowns for waterfront redevelopment projects estimated at nearly $1 billion in total.

**Table 1. Waterfront Development Costs**

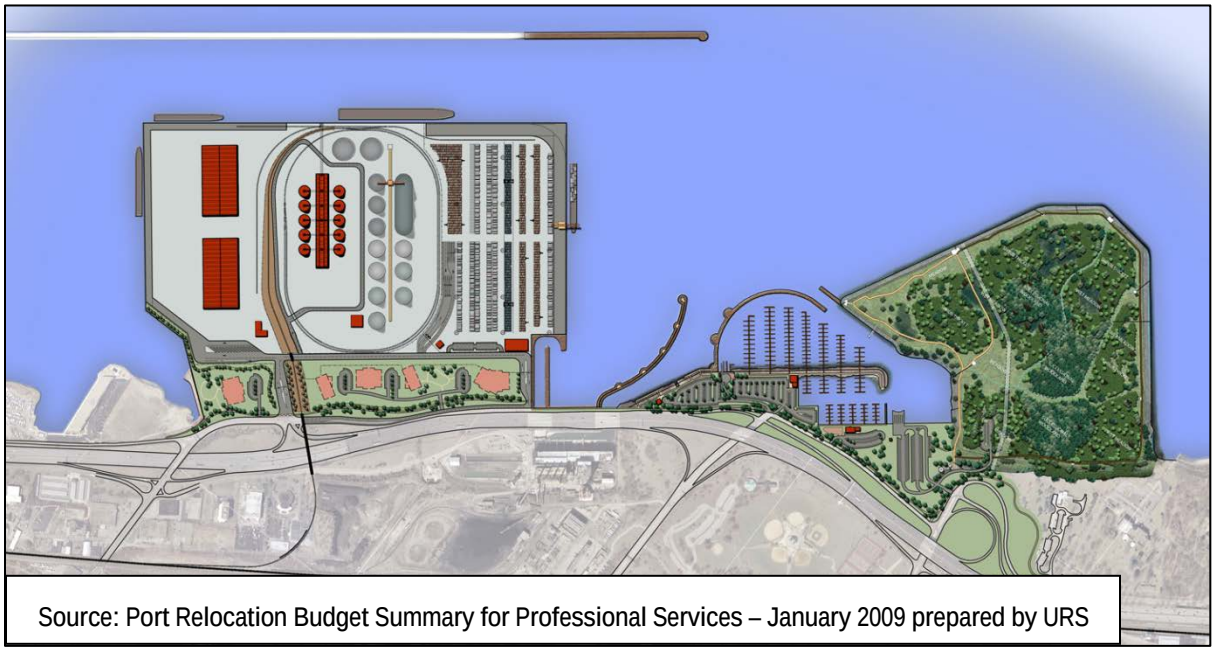
| ***ITEM*** | ***PHASE*** | | | | | |
|---|---|---|---|---|---|---|
| | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** | ***Project Area by Construction Type (ft²)*** |
| ***Project Schedule (year)*** | 2010-2014 | 2019-2021 | 2024-2026 | 2027 + | | |
| ***Development Type*** | | | | | | ***Area Totals*** |
| Residential Area (ft²) | - | 206,906 | 570,938 | 348,908 | 645,159 | 1,771,911 |
| Commercial Area (ft²) | 102,052 | 103,453 | 570,938 | 610,590 | 460,828 | 1,847,861 |
| Retail Area (ft²) | 170,087 | 103,453 | 525,263 | 436,136 | 368,662 | 1,603,601 |
| Hotel Area (ft²) | 213,824 | - | 365,400 | - | 368,662 | 947,886 |
| Special Purpose Area (ft²) | - | - | 251,213 | 348,908 | - | 600,121 |
| ***Project Details*** | | | | | | ***Project Totals*** |
| ***Project Area by Phase (ft²)*** | 485,963 | 413,812 | 2,283,752 | 1,744,542 | 1,843,311 | 6,771,380 |
| ***Total Construction Cost by Phase*** | $64,900,365 | $47,071,115 | $280,787,300 | $209,781,180 | $225,344,765 | $827,884,725 |
| ***Infrastructure Cost by Phase*** | $12,800,000 | $13,700,000 | $30,300,000 | $33,600,000 | $38,600,000 | $129,000,000 |
| ***Total Project Cost*** | $77,700,365 | $60,771,115 | $311,087,300 | $243,381,180 | $263,944,765 | $956,884,725 |

Source: *Cleveland Waterfront Market Demand and Development Options* prepared by PA Consulting Group, October, 2009

## 3.0 Current East 55th Street Relocation Plan

In January 2009, URS prepared a presentation entitled *Port Relocation Budget Summary for Professional Services*. It highlighted the plans for development of the East 55th Street Terminal, including site engineering, schedule, logistics requirements, and an associated cost estimate. The configuration for the proposed 55th Street site is illustrated in Figure 4, followed by a brief discussion on each of these issues and how they relate to port relocation.

**Figure 4. Proposed Development of East 55th Street Terminal**



Source: Port Relocation Budget Summary for Professional Services – January 2009 prepared by URS

### Site Engineering

Construction of a terminal at the proposed location required that the engineering design plan address not only the immediate site, but other landside and waterside facility improvements as well. Below is a discussion of the major engineering issues that would need to be included in the final design.

#### *CDF Construction*

The 55th Street site is not an existing land mass. It is a proposed CDF site with 20 years of capacity. Before port construction could even begin the bulkhead perimeter would have to be built, and subsequently the dredged material placed and compacted to the site. To begin to relocate the port prior to the completion of the CDF, the site will need to be created in phases. Even so, there is still a delay of at least 12 years before the first part of the CDF can be filled, compacted and prepared for port use. As seen in Figure 5 in the Schedule discussion, this phased approach requires the construction of some temporary facilities for interim port use and creates a disjointed operations area that is more costly and less efficient. The costs associated with creating interim operations will not be recouped as the phased implementation proceeds, because the temporary structures will be demolished for final port construction.

***Site Development***

The engineering issues associated with the site development are typical of a new site and include abatement and demolition of existing facilities, installation of utilities to, from and on the site, various types of pavement corresponding to the different cargo handling needs, wharves, fenders and bollards, warehouses, and other structures necessary for operations, maintenance, security, etc., plus the necessary cargo handling equipment for various bulk and break-bulk cargoes. As discussed above, items such as aprons, fenders, and bollards will need to be installed during the initial phase, but as the construction proceeds, these items will need to be removed or demolished, which is not a cost effective approach.

***Road and Rail Access***

As discussed previously, linkages to the highways and railways are considered extremely important to the success of the port. To make this location work, road extensions will be required at East 55$^{th}$ Street and at North Marginal to East 72$^{nd}$ Street and rail access to the site will require additional track, as well as the construction of a new bridge. The rail access is proposed across private property. The acquisition of the right-of-ways for such a project is an issue and has the potential to delay or even stop the project. It also has the potential to increase acquisition costs.

***Breakwater Extension***

The existing breakwater does not extend far enough to protect the proposed site from potential wave action. To provide adequate protection, the existing breakwater will need to be extended by 2,000 feet.

***Marina Relocation***

The existing East 55$^{th}$ Street Marina conflicts with the proposed terminal location and would have to move. As seen in Figure 4, a new marina site has been identified east of the current location beyond the protected area of the breakwater. The new marina will also require the construction of two new breakwalls.

Construction of these new facilities will likely have an impact on the existing public fishing areas, which run along the eastern edge of the marina and along the shoreline of the state park immediately east of the marina. Therefore, the relocation of this marina and all of the activities proposed in the vicinity will be subject to the approval of the Ohio Department of Natural Resources and to public review. Objections will likely result in a delay and increased project costs associated with mitigating concerns.

***Relocation of Intake and Discharge Facilities***

Four of the Northeast Ohio Regional Sewer District (NEORSD) combined sewer overflows (CSOs) discharge to the Cleveland Harbor in the vicinity of the East 55$^{th}$ Street site. The intake and discharge of the First Energy Lakeshore plant cooling water are also located nearby. A new terminal must not impede the circulation of the cooling water flow and as a result the channels will need to be relocated before construction of a new terminal and the CSOs extended beyond the proposed terminal site.

**Cost**

The construction of the new terminal at East 55$^{th}$ Street was estimated by URS in March 2009 at approximately $603 Million. Table 2 shows a breakdown of costs. It should be noted that the construction estimate for the CDF portion was higher than the estimates for other comparably sized

CDFs. Therefore, without the plan to combine the CDF with the port relocation, this site would not be the most cost-effective CDF site.

**Table 2. Preliminary Cost Estimate - Port Relocation – East 55th St. Site**

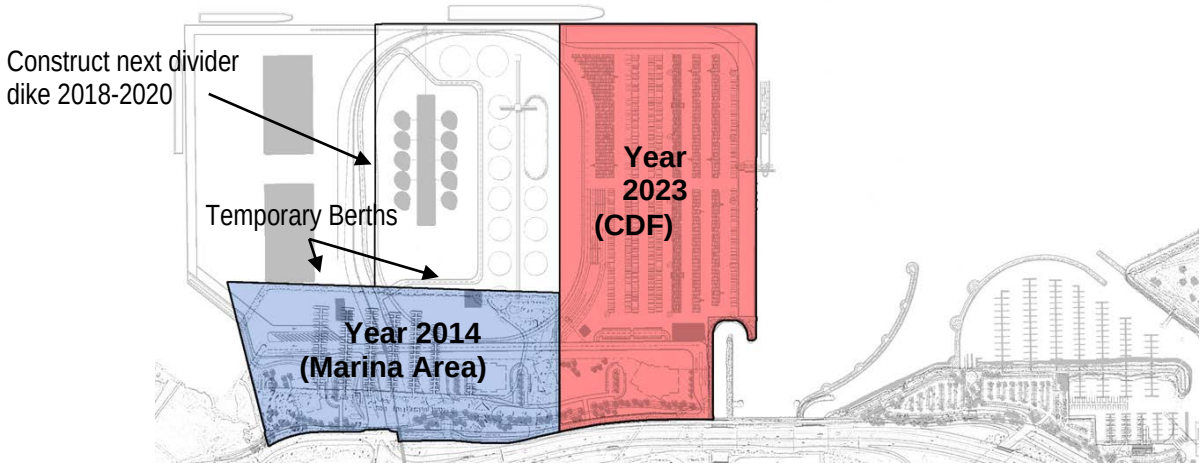
| ***DESCRIPTION*** | ***COST ESTIMATE*** |
|---|---|
| *CDF Construction* | $ 302,670,800 |
| *10% USACE Payment* | $ 23,792,900 |
| *CDF Wall Enhancements* | $ 59,000,115 |
| *On-site development* | $ 101,428,380 |
| *Off-site infrastructure and mitigation* | $ 116,425,045 |
| **Total** | **$ 603,317,240** |

Source: URS Relocation Cost Summary – Provided by CCCPA

**Logistics and Schedule**

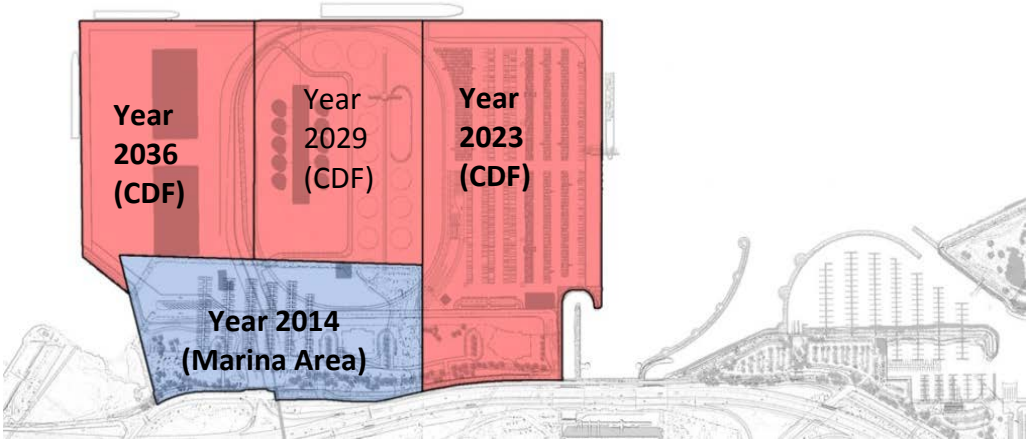
The logistics of coordinating the simultaneous construction and filling of the 55th Street CDF and subsequent construction of the new port complex, while continuing port operations and consolidating the existing port to allow for initial waterfront redevelopment requires careful planning and will require all aspects of the relocation process to strictly adhere to a firm timeline. In the January 2009 *Port Relocation Budget Summary For Professional Services*, URS proposed a schedule of phases for port relocation, based on a fast-track schedule of occupying the first 40-acre phase within 5 years and completing the build out in 27 years. This schedule required the replacement marina to be in place by 2012 with its prior location used for the initial 40-acre terminal with two temporary berths. At that time, the first CDF cell would begin construction, with the first portion developed into the terminal by 2023. The remaining two sections were scheduled for completion in 2029 and 2036, as seen in Figure 5 and 6.

**Figure 5. Temporary Terminal Construction**




Source: *Port Relocation Budget Summary for Professional Services* – January 2009 prepared by URS

**Figure 6. Final Terminal Construction**




Source: *Port Relocation Budget Summary for Professional Services* – January 2009 prepared by URS

**Difficulty of Implementation**

As previously discussed, each component of the relocation has complexities tied to implementation that could create costly delays or halt the project altogether. Without the acquisition of right-of-ways for rail access and without an acceptable marina relocation plan, plans for this site would no longer be feasible. If these issues are resolved, and the port relocation proceeds to design, there would still be complications associated with the "phased approach" of gradually moving port operations to E. 55$^{th}$ Street prior to completion of a 20-year CDF. A phased implementation would create inefficiencies and new costs by requiring construction of disjointed interim facilities that would later need to be demolished to proceed with subsequent phases. Overall, the phased approach would require dual operation of the existing and new ports for approximately 20 years, as well as the management of simultaneous efforts to move the port and develop the waterfront along the reclaimed area. Inevitable delays in large projects such as these will likely have unforeseen impacts on the schedule and costs of both projects.

## 4.0 Burke Airport Port Relocation Option

### Background

The 2008 Burke Airport Master Plan, which included plans for an outboard runway, effectively eliminated the option to relocate the port to an airport site. Prior to the plans for a new runway, there was ample area available for unrestricted operation of the 120-foot port cranes along the entire north face of the proposed port. However, with the proposed runway expansion, the proposed port configuration would conflict with FAA restrictions on airspace. As a result, the location was eliminated from further consideration.

There was renewed interest in the location in 2010 based on the assumptions that the Master Plan's proposed runway would not be constructed and the port would require less than 100 acres. By this time, it was clear that the 200 acre requirement previously identified was excessive and that relocation sites could occupy a smaller footprint.

The revised Burke Airport port relocation site is proposed on approximately 30 acres of Dike 12 and includes an extension of Dike 12 as a small CDF site, covering about 55 acres. The revised layout for the site is illustrated in Figure 7.

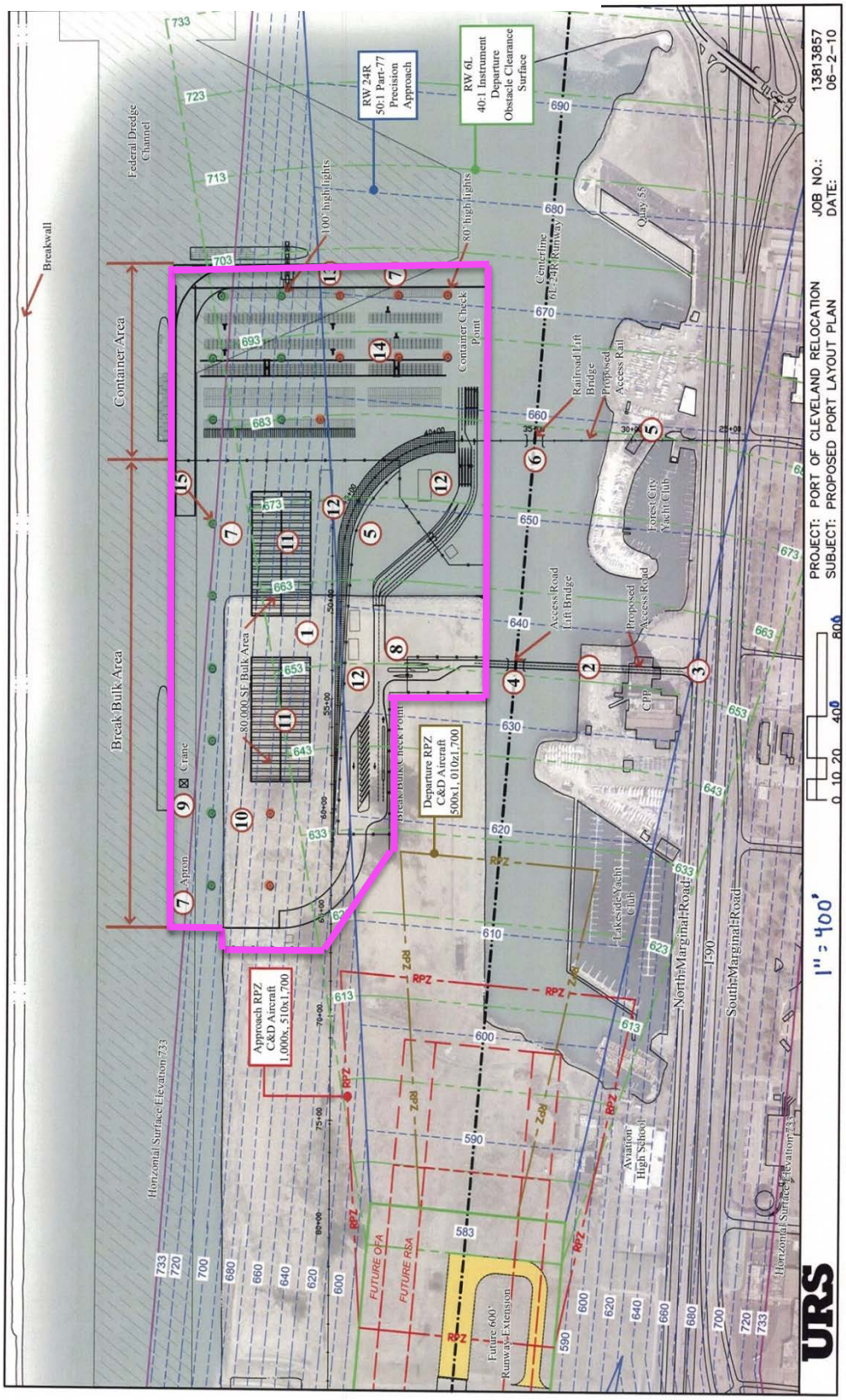
### Construction Requirements

In order to relocate the terminal to the Burke Airport site, there are a number of issues that need to be addressed prior to design. Below is a discussion of these issues and some of the complexities associated with each one:

#### *Bulkhead Construction*

Before port construction can begin, a perimeter bulkhead with compacted fill material behind it will be required. If this site is constructed as a CDF, it will have 6 years-worth of capacity for dredge material. This does not meet the USACE criteria for a CDF to provide at least 20 years of capacity, and although the existing DMMP/EIS could be modified to include the site for consideration, it is unlikely that it would be recommended as the "best" location. While it would work as an interim CDF, it would still require an additional assessment of the environmental effects (water quality, aquatic resources, air quality, noise, etc.), as well as economic, social, and other impacts associated with the site. The selection of this site as an interim CDF would delay the approval of a final CDF solution by several years, which would then be followed by bulkhead construction. This cannot occur for a minimum of twelve years, providing this is an MS approved CDF.

**Figure 7. Revised Burke Airport Port Relocation Site**




| LEGEND | |
|---|---|
| Feature | Description |
| 1 | Nominal grade elevation set at 580.0 ft |
| 2 | Access road |
| 3 | Port access point |
| 4 | Moveable bridge section |
| 5 | Rail access |
| 6 | Moveable bridge section |
| 7 | Port site area is approximately 100.0 Acres |

| | |
|---|---|
| 8 | Security operation |
| 9 | Cargo apron operations - crane to load and unload |
| 10 | Temporary cargo storage |
| 11 | Two 180,000 ft² warehouses |
| 12 | Various office and maintenance buildings |
| 13 | Rail mounted gantry crane |
| 14 | Equipment to move and stack containers |
| 15 | High mast light poles |

The process could be expedited by bringing in select fill material (non-dredge material fill such as limestone) to create the additional land mass. However, this would be a costly endeavor and the potential CDF capacity would be negated, requiring construction of a new CDF elsewhere, with the full 20-year capacity. This would also increase the costs of the combined port relocation and CDF construction strategy.

***Airport Restrictions***

The Federal Aviation Administration (FAA) has a number of restrictions associated with activity in the vicinity of airports, with specific delineation for the following areas:

- Runway Protection Zone (RPZ) – take-off and landing
- Obstacle Free Area
- Runway Safety Area
- Instrument Departure Obstacle Clearance Surface

As seen in Figure 7, the restricted height contours associated with these surfaces are superimposed on the proposed site. Without the proposed new runway, the 120 ft. port cranes and high-mast light poles are proposed beyond the restricted areas and appear to comply with these FAA regulations.

One of the site selection criteria listed in the Draft DMMP/EIS is avoidance of properties adjacent to airport facilities. Although this relocation alternative has been modified to ensure all components of the port are in compliance with FAA regulations, they will still be in very close proximity to the restricted areas. If this alternative is added back into the DMMP/EIS evaluations, the proximity to the FAA restrictive surfaces will likely be a critical consideration, especially when considering the implementation of this alternative would prevent the addition of the proposed runway expansion as presented in the Burke Airport Master Plan.

***Combined Sewer Outfall (CSO) Discharge***

Two of the Northeast Ohio Regional Sewer District (NEORSD) combined sewer overflows (CSOs) discharge to the Cleveland Harbor in the vicinity of Dike 12. Since design of the new port must not impede CSO discharge, the existing CSOs will need to be extended. According to NEORSD, the CSOs in this vicinity are planned for elimination, as additional treatment facilities are constructed. Therefore, due to the delay in port construction, this issue may eventually be eliminated as a concern.

***Site Development***

The engineering issues associated with site development are typical of a new site and include: abatement and demolition; installation of utilities to, from and on the site; various types of pavement corresponding to the cargo handling needs, aprons, fenders and bollards, warehouses, and other structures necessary for operations, maintenance, security, etc.; and, the necessary bulk material handling system.

***Road/Rail***

Using Dike 12 and the proposed landfill extension for port relocation will require the construction of bridges for the road and rail extensions. These extensions are estimated to cost nearly $50 million and as shown in Figure 7 would provide access through the Cleveland Public Power (CPP) facility and the Forest City Yacht Club property. The road extension would require the demolition of one of the CPP

buildings, which is currently used for storage. In a memo entitled *Port of Cleveland Relocation Burke Lakefront Airport Option Revision 1 – June 3, 2010*, URS states that this property has been labeled as expendable, indicating acquisition and demolition would not be an obstacle. Much of the rail extension is proposed on elevated structures and would be constructed over the Forest City Yacht Club. Both access bridges require movable bridge sections for access to and from the Lakeside Yacht Club and the Forest City Yacht Club. But efforts to acquire right-of-ways through these properties could face public discontent, which in turn has the potential to cause lengthy and/or costly delays or even stop construction of the off-site access structures.

***Costs***

In March 2009, URS estimated the construction costs of the new terminal at the Burke Airport site at approximately $293 Million. This assumes the reclaimed area is approved as a CDF and that dredge material is used for filling that area. The costs associated with the site engineering issues discussed previously are listed in Table 3.

**Table 3. Preliminary Cost Estimate**
**Port Relocation – Burke Airport Site**

| ***DESCRIPTION*** | ***COST ESTIMATE*** |
|---|---|
| *CDF Construction* | $116,522,000 |
| *CSO Extension* | $3,000,000 |
| *Road Access* | $18,000,000 |
| *Rail Access* | $20,500,000 |
| *Site Development* | $108,144,152 |
| **Subtotal** | **$266,166,152** |
| Contingencies (10%) | $26,616,615 |
| **Total** | **$292,782,767** |

Source: CCCPA Summary of estimated Costs

Unlike the East 55th St. site, this option does not meet the need to provide a 20-year CDF along with relocated port facilities. In addition to the costs above, a separate CDF location will need to be constructed with approximately 15 years of capacity and would be at a substantial cost on top of the $292.8 million estimate to create a port at the east end of Burke Airport.

**Implementability**

As discussed in this section, there are a series of complexities tied to relocating the port to the Burke Airport site, and each has the potential to delay or even halt the project. Combining port relocation with the need for a new CDF has been a priority in the site selection process. As seen in the current Draft DMMP/EIS, two of the major CDF site selection criteria stated that sites will not impact airport operations or airspace. Either one of these factors could eliminate the site from further consideration as the optimal CDF location. If not selected as the CDF site, the port relocation at the airport would result in the need to use expensive "select fill" for the port site, while requiring construction of a CDF-only site elsewhere. The extension of road and rail access to the site is equally likely to impact the project due to the right-of-ways acquisition requirements, and the likely opposition from the public because of the impacts to the two yacht clubs and the adjacent shoreline.

## 5.0 Current and Future Port Requirements

Market and Capacity Analyses were performed by Martin Associates and TEC Inc. to determine current and future port needs for handling cargo volumes, as well as to identify potential new cargo markets and their space requirements. Cargo volumes in 2010 were significantly higher than in 2009, but were still down significantly from prior years, due mostly to the current economic conditions but also reflective of long term trends in the Great Lawrence Seaway. The Market Analysis estimated likely growth of cargo volumes and identified potential new cargoes and activities that could be brought to Cleveland, including steel slab, wind energy, a ferry service, and container service. Table 4 identifies the existing and potential cargo markets, the projected volumes, and the estimated area requirements.

**Table 4. Cargo Forecasts and Acreage Requirements**

| | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| **BASE CARGO FORECASTS** | | | | | |
| GENERAL CARGO BASE HIGH (tons) | 290,000 | 512,500 | 579,847 | 656,043 | 742,253 |
| Storage Requirements (acres) | 2.0 | 4.0 | 4.0 | 5.0 | 6.0 |
| GENERAL CARGO NEW SLAB HIGH (tons) | | 1,000,000 | 1,250,000 | 1,250,000 | 1,250,000 |
| Storage Requirements (acres) | | 7.0 | 9.0 | 9.0 | 9.0 |
| **TOTAL (tons)** | 290,000 | 1,512,500 | 1,829,847 | 1,906,043 | 1,992,253 |
| TOTAL Acreage Required | 2.0 | 11.0 | 13.0 | 14.0 | 15.0 |
| CEMENT BASE HIGH (tons) | 120,000 | 129,240 | 139,191 | 149,909 | 161,452 |
| Silos required | 1 | 2 | 2 | 2 | 2 |
| Acreage occupied by Essroc | 7 | 7 | 7 | 7 | 7 |
| CEMENT NEW (BAGGED) (tons) | | 30,000 | 30,000 | 30,000 | 30,000 |
| Enclosed requirement (sq. ft.) | | 30,000 | 30,000 | 30,000 | 30,000 |
| STONE/AGGREGATE HIGH (tons) | 25,000 | 339,488 | 365,725 | 393,990 | 424,439 |
| Open Storage (acres) | 1 | 4 | 4 | 4 | 5 |
| **NEW** | | | | | |
| FERRY SERVICE | | | | | |
| Acreage required | | 11 | 11 | 11 | 11 |
| CONTAINER SERVICE (# imp. / # exp. per week) | | 200 / 200 | 200 / 200 | 200 / 200 | 200 / 200 |
| Acreage required | | 7 | 7 | 7 | 7 |
| WIND ENERGY | | | | | |
| Acreage required | | 25 | 25 | 25 | 25 |
| **TOTAL STORAGE REQUIRED** | | | | | |
| **TOTAL (Acres)** | 10 | 65 | 67 | 68 | 70 |

Based on projections for these new markets and continued growth of the existing cargo to 2030, the port area requirements to handle the cargo are estimated at 70 acres.

These projections indicate that the existing port has more than enough space to meet its current activity needs, with space to meet future needs for the next 20 years. A Conceptual Port Plan was generated by TEC Inc. in the accompanying Master Plan report. This plan indicates that the port can convert Dock 30 to waterfront development while still retaining 84 land acres on Docks 20 – 28 for port use.

The Port Plan assumes a general cargo terminal operator will continue to operate with its activities consolidated on Docks 24 and 26 and at Warehouse A. As indicated in Table 4, the 2030 projections estimate general cargo space requirements at 15 acres. Warehouse A and Docks 24 and 26 provide more than 21 acres for operation, with an additional 12 acres adjacent to Warehouse A, which could include a buffer storage area in addition to an expanded gate complex. The Plan assumes that Essroc, which has a long-term lease with CCCPA, will remain at its location at Dock 20 South, but will reduce its current property requirements. The Plan also assumes that Kenmore, which leases on a year-to-year basis, will vacate Dock 20 North in the near term.

Currently, the Port has a single entry and a single exit lane, which creates a bottleneck during busy hours. Therefore, the Port Plan includes the construction of a new gate to provide 3 entry lanes and two exit lanes. Site development activities for the Port Plan include the construction of the new gate, pavement upgrades to support a container yard, and some general site maintenance upgrades.

This layout, as shown in Figure 8, allows for all of the existing cargo and their projected volume increases for the next 20 years, as well as the addition of steel slab, a ferry service, and container service. It also includes approximately 24 contiguous acres for wind energy. There are many unknowns associated with actual cargo growth and new cargo handling opportunities. Modifications to the projected cargo volumes and types can be accommodated in the proposed Port Layout, as there is little infrastructure required that will limit site use opportunities. As new cargo opportunities are confirmed, adjustments to the proposed layout can be made. Currently, there is so much unused property at the port that there will be ample flexibility for configuration adjustments, which will allow the port to grow to meet cargo handling requirements.

2010 Construction costs for the Concept Layout are estimated at $13.8 Million. A breakdown of these estimates is listed in Table 5.

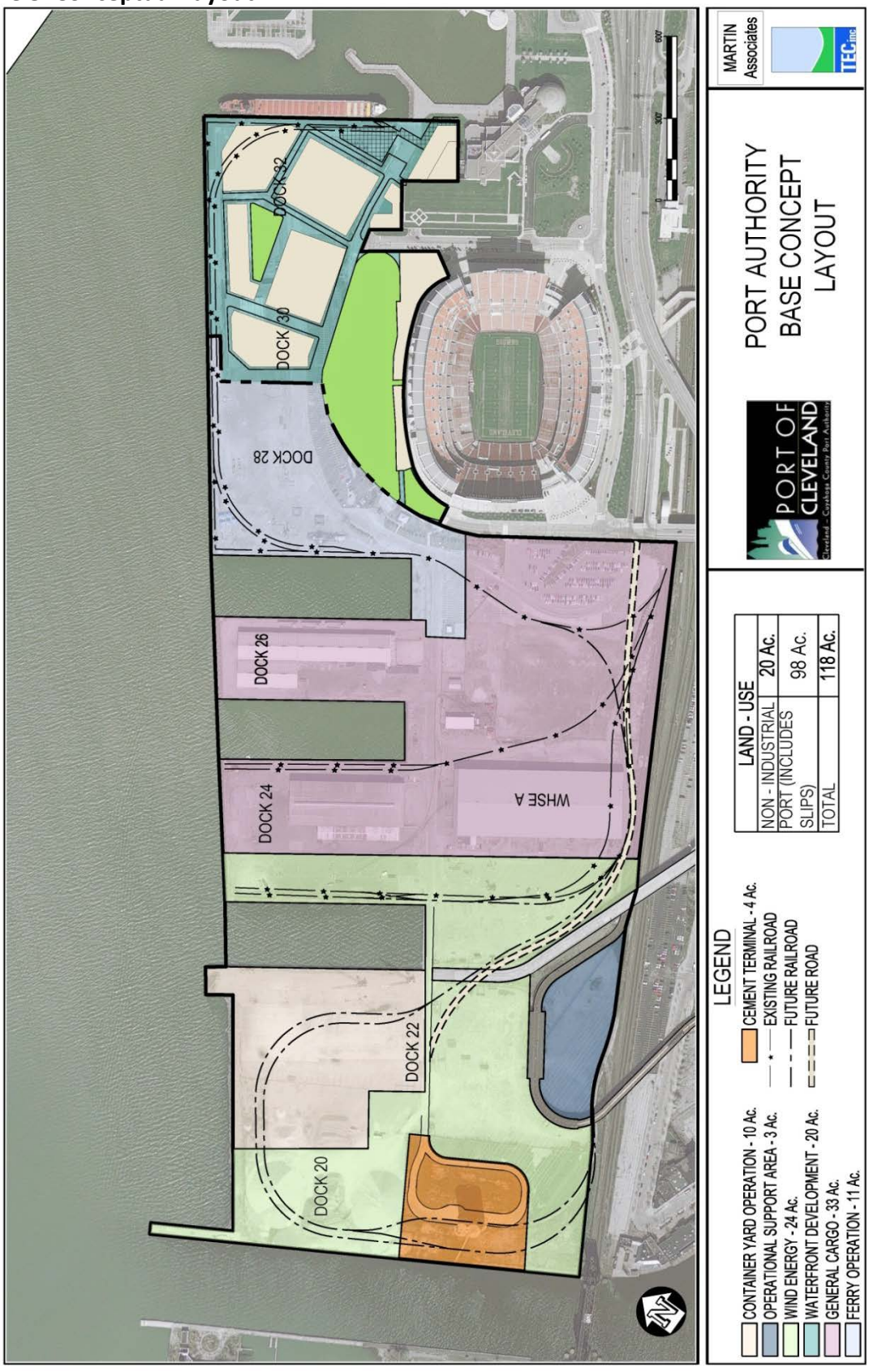
**Table 5. Port Consolidation – Cost Estimate**

| Docks 20 - 28 Upgrades - Cost Estimate | | | | |
|---|---|---|---|---|
| ***DESCRIPTION*** | ****UOM*** | **Unit Costs** | **BASE CONCEPT LAYOUT** | |
| | | | ***QUANTITY*** | ***COST ESTIMATE*** |
| ***Demolition*** | | | | |
| Pavement (container yard) | sy | $5 | 48,400 | $242,000 |
| ***Site Work*** | | | | |
| Fenders and Bollards (repair) | lf | $1,000 | 250 | $250,000 |
| Entrance Gate/Lane | ea | $250,000 | 5 | $1,250,000 |
| Container Yard Improvements | ac | $750,000 | 10.0 | $7,500,000 |
| Signage & Striping | ls | $50,000 | 1 | $50,000 |
| Lighting (container yard) | ls | $136,810 | 1 | $136,810 |
| Fence (container yard) | lf | $50 | 1,200 | $60,000 |
| | | | **Subtotal** | **$9,488,810** |
| **Mobilization & Demobilization** | | | **5%** | **$474,441** |
| | | | **Subtotal** | **$9,963,251** |
| **Contingencies** | | | **25%** | **$2,490,813** |
| | | | **Subtotal** | **$12,454,063** |
| **Design** | | | **6%** | **$747,244** |
| **Construction Management/Inspection** | | | **5%** | **$622,703** |
| | | | **Total** | **$13,824,010** |

***Assumptions:***

- 2 rows of 7 light poles for illuminating the container yard.
- Fencing around 50% of container yard perimeter.
- Existing fenders and bollards are suitable for proposed class of use. 25% of existing berth length in vicinity of improvements requires repair to fenders, bollards, and cap beam.

**Figure 8. Conceptual Layout**



## 6.0 CDF-Only Viability

Since the CDF site-selection process has been closely tied to the concept of port relocation through much of the evaluation process, below is a summary of both of the port relocation sites being considered and their viability as a CDF-only site, should the concept of port relocation be withdrawn.

East 55th Street

Although the East 55th Street site was the location recommended in the 2009 draft DMMP, there are a number of factors that would likely negatively impact the assessment of the property as a stand-alone CDF site. Economically, this site was the most costly CDF identified, which indicates that there are more cost-effective options for providing 20 years of disposal capacity. Additionally, the site creates an obstruction to the adjacent marina and access to the public fishing areas.

Burke Airport

Without the combined need to create a new port facility, the Burke Airport site would likely not make it through the first round of site evaluations as a stand-alone CDF site. One major flaw is the limited capacity. The DMMP requires 20 years of capacity and this site only provides 6 years at a significant cost. Although this site could be considered as an interim alternative, it does not address the long-term disposal plans. Additionally, with its proximity to the airport and the lack of access to the site, it would likely be eliminated from any further consideration as a stand-alone CDF.

## 7.0 Financial Analysis

The purpose of this financial analysis is to analyze the feasibility of relocating the CCCPA port operations.

As part of this financial analysis, Martin Associates assessed alternative development schemes to accommodate market demand for waterfront development of marine cargo facilities. Alternative facility layouts, designed by TEC, Inc. are based on the demand of the high scenario cargo projections detailed in the cargo market assessment of this report.

Two potential scenarios were analyzed:

**Scenario 1: Consolidate CCCPA cargo operations at existing site** – The results of **a** high market forecast and facilities capacity analysis suggest that future cargo throughput can be handled on the footprint of the CCCPA's current site. More specifically, the cargo can be accommodated from Dock 20 through 28, resulting in a consolidation of CCCPA operations and the reuse of Dock 30 for mixed-uses.

**Scenario 2: Relocate CCCPA cargo operations to East 55th Street or Burke Airport site** – In an effort to free up port occupied land for downtown revitalization efforts, the possibility of relocating the port was introduced. Built into that concept was a key assumption about the need for additional space for potential terminal operations. After numerous sites were identified and ultimately eliminated, the East 55$^{th}$ Street and Burke Airport locations were the only sites remaining as a viable alternative.

**Methodology/Assumptions:**

Leasehold revenue streams were developed under both scenarios. For CCCPA cargo operations, the high forecast scenario over a twenty-year horizon was estimated. Annual throughput revenues were identified for each base and potential line of business, including: general cargo, iron ore, limestone, cement, aggregate steel slab, containers, cross-lake ferry operations, and wind-energy components. These include ground-lease payments as well as tariff and throughput charges paid to the CCCPA by the tenant/terminal operator.

Key assumptions used in the CCCPA marine cargo operations revenue stream include:

- High cargo projections;
- Base cargo – current tariff/agreement in place will remain over the 20-year period;
- Potential cargoes include:
- Steel Slab – 1 million tons/year increasing to 1.25 million tons/year in 2020 at $.75 per ton and $.05 per ton estimated dockage;
- Containers – 400 TEUS per call (on and off), weekly service for 40 sailing weeks annually, 16,000 TEU per year converted to actual moves, assessed at $15 per move and no ground lease;
- Wind Energy Components – Ground lease at $17,000/ac for 18 acres increasing to 23 acres in 2020;
- Cross-Lake Ferry – 100 truckloads at $5 per load and 50 passenger vehicles at $5 per vehicle operating 260 days per year dockage assessed at $.09 GRT of vessel;
- Consolidation of Port operations assumes Dock 30 is converted to non-port uses.

Next, the capital cost associated with each scenario was developed. The cost of CCCPA consolidation at the current site was estimated by TEC, Inc. while the cost**s** of relocating to East 55$^{th}$ Street or Burke

Airport were provided by the CCCPA (based on a March 3, 2009 cost estimate developed by URS Corp). These estimates include only the capital cost associated with relocating port infrastructure, not the cost associated with development of a CDF at either location.

Table 6 shows both CCCPA's estimated costs and cargo-operation revenues at the consolidated current site compared to those at East 55th Street or Burke Airport. Under the consolidation scenario, the 20-year Net Present Value (NPV) cargo revenue to the Port is $54.3 million. Given the capital cost of consolidation detailed in the Conceptual Layout ($13.8 million), the net revenue of Scenario 1 to the CCCPA is estimated at $40.5 million.

Conversely, under the port relocation scenario, the CCCPA will still generate $54.3 million in cargo related revenue. The capital cost of relocating CCCPA infrastructure to East 55th Street is estimated at $276.9 million, resulting in a net deficit of -$222.6 million. By comparison, the capital cost to relocate port operations to the Burke Airport site is $176.3, resulting in a net deficit of -$121.9 million. These figures factor in the capital costs of the port relocation, not the cost of CDF construction. It must be emphasized that since the future cargo throughput estimated in the high scenario can be accommodated at the consolidated footprint, the revenue stream is the same under both scenarios. That is, no additional revenue is generated by relocating CCCPA operations to either site. But enormous costs would be generated with a move – without sufficient revenues to pay for them. This analysis demonstrates that relocating Port operations is not financially feasible.

**Table 6. Comparison of Net Revenues of Port Consolidation and Port Relocation**

| | |
|---|---|
| **CCCPA CONSOLIDATION SCENARIO** | |
| REVENUE TO CCCPA CARGO NPV | $54,312,695 |
| | |
| CAPITAL COSTS OF CCCPA CONSOLIDATION - CONCEPTUAL LAYOUT | $13,825,000 |
| NET REVENUE | $40,487,695 |
| | |
| **CCCPA RELOCATION SCENARIO - EAST 55TH STREET** | |
| REVENUE TO CCCPA CARGO NPV | $54,312,695 |
| | |
| CAPITAL COSTS ASSOCIATED WITH RELOCATION OF PORT TO 55TH ST | $276,900,000 |
| NET REVENUE | ($222,587,305) |
| | |
| **CCCPA RELOCATION SCENARIO - BURKE AIRPORT** | |
| REVENUE TO CCCPA CARGO NPV | $54,312,695 |
| | |
| CAPITAL COSTS ASSOCIATED WITH RELOCATION OF PORT TO BURKE AIRPORT | $176,260,000 |
| NET REVENUE | ($121,947,305) |

Martin Associates estimated the economic impact of both scenarios. The economic impact sensitivity model demonstrates the future impact associated with cargo volumes in the year 2030. This model is based on the same methodology detailed and used in the economic impact section of this report.

Table 7 shows that future cargo activity generates an additional 2,485 direct, induced and indirect jobs. Personal income is expected to increase by $192.6 million, while business services revenue will increase by nearly $166 million over the period. Also, an additional $20 million of state and local tax revenue will be generated in 2030.

**Table 7. Economic Impact of CCCPA Cargo Operations - High Forecasted Tonnage 2030**

| CATEGORY | 2008 CARGO | 2030 CARGO | CHANGE |
|---|---|---|---|
| JOBS | | | |
| DIRECT | 2,042 | 2,985 | 943 |
| INDUCED | 2,445 | 3,568 | 1,124 |
| INDIRECT | 2,872 | 3,291 | 419 |
| TOTAL JOBS | 7,359 | 9,844 | 2,485 |
| | | | |
| PERSONAL INCOME (1,000) | | | |
| DIRECT | $86,878 | $126,775 | $39,896 |
| CONSUMPTION AND RESPENDING | $293,153 | $427,776 | $134,623 |
| INDIRECT | $123,796 | $141,858 | $18,062 |
| TOTAL PERSONAL INCOME | $503,827 | $696,408 | $192,581 |
| | | | |
| BUSINESS SERVICES REVENUE (1,000) | $1,136,498 | $1,302,314 | $165,816 |
| | | | |
| LOCAL PURCHASES (1,000) | $229,164 | $262,599 | $33,435 |
| | | | |
| STATE & LOCAL TAXES (1,000) | $52,398 | $72,426 | $20,028 |

**Findings**

- Future CCCPA cargo operations can be accommodated at both the consolidated site as well as the East 55th Street or Burke Airport site;
- The locations in the consolidation scenario and relocation scenario analyzed will have no impact on future cargo throughput of the port, and as a result:
- CCCPA gross revenue potential is the same at each site; and
    - Economic Impact of cargo operations is the same at each site;
    - The estimated capital cost of consolidation as detailed in Conceptual Layout is $13.8 million; while the capital cost of relocation to East 55th Street is $283.4million and relocation to the Burke Airport site is estimated at $164.6 million;
    - Under the consolidation scenario, a positive net revenue of $40.5 million is shown;
    - Under the port relocation scenario, the capital cost of moving port operations to East 55th Street is estimated at $276.9 million, resulting in a net deficit of -$222.6 million, the capital cost to relocate to the Burke Airport site is $176.3 million, resulting in a net deficit of -$121.9 million;
    - As demonstrated by these revenue streams, relocating Port operations is financially not feasible unless a large public subsidy is provided as the CCCPA future cargo revenues would likely not recoup the capital costs of relocation to either site.

## 8.0 Conclusions

With the implications that port relocation has had on the planning for a new CDF, it is imperative that a decision be made as soon as possible about whether to move the port. As shown in the current Capacity Analysis, relocation to a new, larger site is not needed for future port operations. With an investment of $13.8 million, the existing site can be consolidated and improved to handle all current and future cargo identified in the Market Analysis.

The costs for the port relocation to the East 55th Street and Burke Airport locations were estimated at $603 million and $293 million, respectively. Those numbers include the cost of CDF construction. If the

CDF is removed from the estimates, port relocation alone would cost $276.9 million and $176.3 million, respectively. The net deficit on the move to East 55th Street is -$222.6 million, and to Burke Airport it is at least -$176.3 million (depending on fill option). That compares to a cost of $13.8 million to consolidate at the existing site. These revenue streams demonstrate that relocating Port operations is not financially feasible because CCCPA future cargo revenues are unlikely to cover the capital costs of relocation to either site.

If the port does not need to move, then the logic behind combining a new CDF with the relocated complex no longer applies. That said, a new CDF is critical because the existing CDFs are approaching capacity. Under the current circumstances, some of the site selection criteria used to develop the draft DMMP/EIS are no longer valid and neither the East 55th Street nor the Burke Airport sites would likely result in a preferred CDF location today. Regardless, it is imperative that CCCPA identify the most logical option for dredge material management. Building a new USACE-funded CDF in the timeframe necessary to meet Cleveland's dredging needs is no longer realistic. That means urgent decisions regarding the viability of CCCPA designing and constructing a CDF need to be made and the process must be started as soon as possible.

In summary, if Docks 30 and 32 are available for waterfront redevelopment, and port operations are consolidated on remaining port property, the two uses can co-exist and even complement each other on the existing properties used by the Port of Cleveland. This eliminates the costly and unnecessary option of relocating port operations to a larger site and allows the community, in partnership with the Port, to proceed with some waterfront developments and realize public and economic benefits associated with commercial development. Without a market demand to justify the expense of relocating to a different site, the concept of port relocation is not economically justified at this time.