AAPA Sustainability Resolution

“AAPA embraces the concept of sustainability as a standard business practice for ports and the Association. For ports, sustainability means business strategies and activities that meet the current and future needs of the enterprise and its stakeholders, while protecting and sustaining human and natural resources.

Ports should consider the following principles and implement them as appropriate

1. Communicate the goals of sustainability across the organization and allocate resource requirements for implementation;
2. Integrate sustainability throughout port activities and in both near-term and long-term planning processes;
3. Build upon and share existing sustainability best practices, keys to success, lessons learned and approaches for implementation;
4. Communicate and engage with internal and external stakeholders to encourage open dialogue, accountability and collaboration;
5. To the extent possible, use appropriate data and metrics as part of the process for implementing sustainability;
6. Evaluate the total life cycle costs of projects and decisions;
7. Recognize that sustainability is a dynamic effort requiring flexibility and continuous improvement.
Joint West Coast Port Technical Committee
Joint West Coast Port Technical Committee

By Ports for Ports – non competitive

Want to use best available practices.

Which practices make the best investments?

How do ports know that they have considered all possible options?
Ten Year Strategic Plan

10 Targets in 10 Years

1. Double container volume to 3 million TEU
2. Double dry bulk throughput to 12 million metric tons
3. Increase breakbulk volume by 30% to 200,000 short tons
4. Increase automobile import volume by 20% to 200,000 units
5. Improve the Port’s operating margin by 30%
6. Increase net income by 50%
7. Increase return on assets by 35%
8. Clean up an additional 200 acres of port-owned, contaminated property to industrial standards
9. Reduce diesel pollutants attributed to cargo operations by 85% from 2005 baseline
10. Increase port-related direct jobs by 4,700 and port-related indirect jobs by 2,000
WHAT NOW?

CUSTOMERS’ NEW EAGLE FORD RELATED INVESTMENT

TOTAL INVESTMENT
$18.7 BILLION

- TRAFIGURA STORAGE TANKS $800M
- CASTLETON OIL DOCK & BUILD OUT $260M
- VALERO EXPANSION $200M
- TEXAS LEHIGH SAND DOCK $9M
- FLINT HILLS Expansion $250M
- MAGELLAN SPLITTER $250M
- VOESTALPINE $740M
- NuStar Oil Dock & Pipeline Build Out $203M
- FLINT HILLS NEW WEST OIL DOCK $48M
- CHENIERE $13B
- OXY LPG CRUDE EXPORT FACILITY $1.3B
- TPCO
- TRAFIGURA STORAGE TANKS $800M
- VOESTALPINE $740M
- NuStar Oil Dock & Pipeline Build Out $203M
- TPCO

2012 Rail Master Plan Elements
WHAT NOW?

PORT’S NEW EAGLE FORD RELATED INVESTMENT

- Oil Dock 5: $4M
- Future Oil Dock: $25M
- Oil Dock 14: $8M
- Future Barge Mooring: $6M
- Improvements Oil Docks 3, 4, 7, & 11: $1M
- Future Oil Dock: $9M
- Improvements Oil Dock 1: $2M
- Total Investment: $55M
Achieve Green Port Policy Goals

• Air – Reduce air emissions
• Water – Improve water quality
• Wildlife – Protect, maintain, restore habitat
• Soil/Sediment – Remove, treat, beneficial reuse
• Sustainability – Implement sustainable practices
• Community Engagement – Educate and inform
Programs Stemming from: The Port’s Green Port Policy

- Clean Air Action Plan (CAAP)
  - Clean Trucks Program/Pier Pass (Marine Terminals)
  - Technology Advancement Program (TAP)
- Water Resources Action Plan (WRAP)
- The Green Flag Program
- The Green Ship Incentive Program
- Sustainability Guidelines for Design and Construction
- Multi-Media Environmental Management Programs (Soil, Sediment, Storm Water, Hazardous Materials)
General Checklist Focus Areas

- Air,
- Public outreach,
- Water,
- Natural resources,
- Economic considerations,
- Economic growth,
- Transport,
- Site development,
- Safety & security,
- Waste,
- Energy,
- Materials,
- Maintenance and monitoring/reporting
### Sort by Project Area

#### Strategies Required by Regulation

Ports, please enter sustainability strategies here which are required by Port or local regulations.

#### Strategies Under Consideration

**Project Managers, please select additional sustainability strategies that you have considered for your project.**

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Strategy</th>
<th>Implemented?</th>
<th>Why Not Implemented?</th>
<th>Supporting Details</th>
<th>Resources for Additional Information</th>
<th>Strategy Weight</th>
<th>Economic</th>
<th>Environmental</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air</strong></td>
<td>Consider using harbor craft with Tier 3 engines or cleaner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Consider reducing the speed of ships and barges delivering construction-related materials (12 knots for oceangoing vessels).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Consider requiring construction-related ships, barges, and marine equipment use low sulfur or ultra low sulfur fuels where appropriate.</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Trucks hauling material such as debris or fill material should be fully covered while operating off Port.</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Minimize idling of construction equipment and on-road trucks used during construction.</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Consider using on-road trucks with a gross vehicle weight rating (GVWR) of at least 19,500 lbs that comply with USEPA 2007 on-road engine standards for PM10 and NOx.</td>
<td><strong>Yes</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>Consider using earth movers and import haulers with a gross vehicle weight rating (GVWR) of at least 19,500 lbs that comply with USEPA 2004 on-road emission standards for PM10 and NOx.</td>
<td><strong>Not Applicable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please choose Yes, No, or Not Applicable from dropdown menu.
Summary Report

<table>
<thead>
<tr>
<th>Project Area</th>
<th>Focus Area</th>
<th>Percent Selected</th>
<th>Total Weighted Score</th>
<th>Economic</th>
<th>Environmental</th>
<th>Social</th>
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</thead>
<tbody>
<tr>
<td>Land Development</td>
<td>Air</td>
<td>17%</td>
<td>19</td>
<td>2</td>
<td>2</td>
<td>1</td>
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<tr>
<td>Land Development</td>
<td>Economy</td>
<td>13%</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Land Development</td>
<td>Energy</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Land Development</td>
<td>Maintenance, Monitoring, Reporting</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Land Development</td>
<td>Materials</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Land Development</td>
<td>Natural Resources</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Land Development</td>
<td>Public Outreach</td>
<td>15%</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Land Development</td>
<td>Safety and Security</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site Development</td>
<td>Site Development</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Sustainability and PANYNJ Objective

• “To reduce adverse environmental impacts of the design, construction, operation and maintenance and occupancy or leasing of new or substantially renovated buildings and facilities, reconstruction projects, and programs.”
Sustainability and PANYNJ Process

- 4 Step Process
  - Step 1: Determine Project Type
  - Step 2: Generating a Project Credit Checklist
  - Step 3: Project Achievement
  - Step 4: Credit Documentation

- Sustainability Infrastructure Guidelines
  - Details PANYNJ’s goals
  - Details credit requirements
  - Download from PA website: http://www.panynj.gov/about/building-transportation-greening.html
Sustainability and PANYNJ
Sustainable Design Credit Categories

- Site
- Water
- Energy
- Material
- Construction
- Maintenance and Operation
- Innovation in Design
Sustainability and PANYNJ Certification Levels

- Each Project-type has a pre-determined number of credits as identified in the credit checklist
- Three Levels of Achievement
  - Certified
    - 45% of total point allocation
  - Gold
    - 60% of total point allocation
  - Platinum
    - 75% of total point allocation
- All Project types are required to achieve a Certified or greater level
# SUSTAINABLE INFRASTRUCTURE GUIDELINES

## PROJECT CREDIT CHECKLIST FORM - Version 1.0

### GENERAL PROJECT INFORMATION

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>Cross Harbor Freight Program - Contract No. 873.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITY</td>
<td>Port Jersey - Greenville Yard</td>
</tr>
<tr>
<td>LEA or RE</td>
<td>Yu S. Wong</td>
</tr>
<tr>
<td>PHONE NUMBER</td>
<td>201-792-4541</td>
</tr>
<tr>
<td>EMAIL ADDRESS</td>
<td><a href="mailto:lara@worleyparsons.com">lara@worleyparsons.com</a></td>
</tr>
<tr>
<td>PID #</td>
<td>Enter PID number here</td>
</tr>
<tr>
<td>CONTRACT #</td>
<td>NYNYRR 844.267</td>
</tr>
<tr>
<td>DATE</td>
<td>9/3/2012</td>
</tr>
<tr>
<td>PROJECT ACHIEVEMENT</td>
<td>Final</td>
</tr>
</tbody>
</table>

### PROJECT TYPE

**Choose a Project Type or Types**

- Airfield New Construction / Reconstruction
- Airfield Pavement Rehabilitation
- Bridge New Construction / Reconstruction
- Bridge and Tunnel Rehabilitation
- Civil - Work Orders
- Intelligent Transportation System
- Marine Structures - Docks, Wharves, Bulksheads, etc.
- Parking Lot New Construction / Reconstruction
- Parking Lot Rehabilitation
- Port Site Work
- Roadway New Construction / Reconstruction
- Roadway Pavement Rehabilitation
- Trackwork
- Utility New Construction
- Utility Rehabilitation

### PROJECT CERTIFICATION SIGNATURES

- LEA (Stage 3) or RE (Stage 4) digital signature
  - [Type digital signature here]
  - Certify that the information contained in this document is correct and accurate.

- Principal digital signature (Stage 3):
  - [Type digital signature here]
  - Certify that the information contained in this document is correct and accurate.

### CREDIT NUMBER | POINTS ACHIEVABLE | CREDIT NAME | PURSUING CREDIT? | POINTS ACHIEVED | INCLUDE CREDIT
--- | --- | --- | --- | --- | ---
IS-1 | | Utilize Integrated Team Approach | | | |
IS-2 | | Prepare a Site Assessment | | | |
IS-3 | | Maximize Use of Previously Developed Land | | | |
IS-4 | | Maximize Use of Known Contaminated Sites | | | |
IS-5 | | Protect the Ecological Health of Wetlands and Floodplains | | | |
IS-6 | | Protect and Maintain Absorbent Landscapes | | | |
  | | 15% of absorbent landscape protected and maintained (1 point) | | | |
  | | 30% of absorbent landscape protected and maintained (2 points) | | | |
IS-7 | | Utilize Pervious Pavements | | | |
<p>| | 25% of total pavement area utilizes pervious pavement (1 point) | | | |
| | 50% of total pavement area utilizes pervious pavement (2 points) | | | |
| | 75% of total pavement area utilizes pervious pavement (3 points) | | | |</p>
<table>
<thead>
<tr>
<th>Site Section</th>
<th>Credit Number</th>
<th>Credit Title</th>
<th>Documentation Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS-1</td>
<td></td>
<td>UTILIZE AN INTEGRATED TEAM APPROACH</td>
<td>1, 2, &amp; 3</td>
</tr>
<tr>
<td>IS-2</td>
<td></td>
<td>PREPARE A SITE ASSESSMENT</td>
<td>1, 2, &amp; 3</td>
</tr>
<tr>
<td>IS-3</td>
<td></td>
<td>MAXIMIZE USE OF PREVIOUSLY DEVELOPED SITES</td>
<td>3</td>
</tr>
<tr>
<td>IS-4</td>
<td></td>
<td>MAXIMIZE USE OF KNOWN CONTAMINATED SITES</td>
<td>3, 4</td>
</tr>
<tr>
<td>IS-5</td>
<td></td>
<td>PROTECT ECOLOGICAL HEALTH OF WETLAND, FLOODPLAINS &amp; RIPARIAN BUFFERS</td>
<td>3</td>
</tr>
<tr>
<td>IS-6</td>
<td></td>
<td>PROTECT AND MAINTAIN ABSORBENT LANDSCAPES</td>
<td>3</td>
</tr>
<tr>
<td>IS-7</td>
<td></td>
<td>UTILIZE PERVIOUS PAVEMENT</td>
<td>3</td>
</tr>
<tr>
<td>IS-8</td>
<td></td>
<td>UTILIZE APPROPRIATE VEGETATION</td>
<td>3, 4</td>
</tr>
<tr>
<td>IS-9</td>
<td></td>
<td>USE TURFGRASS APPROPRIATELY</td>
<td>3, 4</td>
</tr>
<tr>
<td>IS-10</td>
<td></td>
<td>AMEND AND REUSE EXISTING SOILS</td>
<td>3, 4</td>
</tr>
<tr>
<td>IS-11</td>
<td></td>
<td>BALANCE EARTHWORK</td>
<td>3</td>
</tr>
<tr>
<td>IS-12</td>
<td></td>
<td>COORDINATE UTILITY WORK</td>
<td>3</td>
</tr>
<tr>
<td>IS-13</td>
<td></td>
<td>UTILIZE TRENCHLESS TECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>IS-14</td>
<td></td>
<td>MITIGATE HEAT ISLAND EFFECT</td>
<td>3</td>
</tr>
<tr>
<td>IS-15</td>
<td></td>
<td>MINIMIZE LIGHT POLLUTION</td>
<td>3</td>
</tr>
</tbody>
</table>
Middle Harbor Under Construction
Project Overview

• Nine-year, $1.2 billion program combining two aging terminals into one modern and fully automated terminal

• 1st POLB project to encompass the full complement of Environmental Mitigation Measures, Commitments and Standards resulting from the Port’s Green Port Policy and Final EIR

• Enhancement of sustainable practices for Design and Construction by continual refinement of the Port’s standard Specifications for construction contracts
Key Program Elements

• Design Elements
  • LEED buildings
  • Energy efficient lighting (LED High Masts)
  • Electrification/Automation of cargo handling equipment
  • Shore to Ship Power (Cold Ironing/AMP)
  • On-Dock Rail
  • Automated gate entry
  • Alternative fuel drayage vehicles
  • Solar power

• Construction Elements
  • Recycling of AC/Concrete
  • Waste diversion from landfills
  • Use of recycled content materials
  • Electric powered dredging equipment
  • Tier 3 off-road equipment and Tier 2 marine equipment
  • Water quality monitoring during dredging
  • Strict soil quality standards for import/reuse
The “Nuts and Bolts” of Environmental Compliance During Construction

Develop a Comprehensive Program as *a framework* from which to *Monitor, Track, Verify, and Report* Environmental Program Compliance
Environmental Compliance Matrix

• Lists of compliance elements in specific categories, e.g. Air Quality, Water Quality, Noise Mitigation…
  – Specific requirements or permit condition
  – Responsible Party
  – Actions required for compliance
  – Implementation and inspection/verification schedule
  – Compliance reporting - documentation

• Ongoing Integration – Program Betterments

“backbone for verification and documentation”
Compliance Verification and Inspection

- Provide **real-time** compliance status for each component of the Program – Critical for Success
- Identify future project work tasks and required environmental compliance elements
- CM Team inspection required to ensure compliance
- Provide structured variance procedures for exceptions
## Example – Landside Equipment Verification

<table>
<thead>
<tr>
<th>Name</th>
<th>Make</th>
<th>Model</th>
<th>Engine Serial Number</th>
<th>Engine Family Name</th>
<th>HP</th>
<th>Model Year</th>
<th>Tier</th>
<th>Date Verified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loader</td>
<td>CAT</td>
<td>973/C9</td>
<td>B04350</td>
<td>ACPXL08.8</td>
<td>480</td>
<td>2010</td>
<td>IV</td>
<td>11/15/2011</td>
</tr>
</tbody>
</table>

![Image of equipment and engine invoice with highlighted areas demonstrating the engine family and power.]
Constructability Review Process

- Data-Gap Analysis - Comparing compliance elements with construction Specifications
- Translation for implementation
- Evaluate data-gaps and incorporate missing compliance elements into Specifications
- On-going review of Specifications to ensure requirements can be properly implemented by contractor – Reality Check
Strategic Plan initiative:

- Goal 5: Advance Environmental Stewardship
  - Strategy: Partner and find innovative solutions to our customers' environmental challenges
  - Objective: Identify and develop maritime industrial stormwater best management practices
  - Task: WPPA/DOE/Ports AKART study to support POT and tenant marine cargo facilities ISGP
Partnering – Communication - Outreach

• Incorporate Sustainability throughout the Design, Construction, and Operation Life-Cycle
• Maintain Regulatory Agency and Community Confidence and Creditability
• Enhance Perception/Reality of the Community and Stakeholders
• Build a project in full Environmental Compliance with Mitigation Measures, Environmental Controls and Commitments, and Applicable Regulations
• Verify Program Compliance
Continuous Program Betterments

- Refined Contract Specifications as Program Progressed
- Modified Biological Monitoring Program to reduce delays
- Implemented Umbrella SWPPP Program to streamline Agency reporting and staff review time
- Developed Oil Sediment Dredging BMPs/Treatment to reduce delays and eliminate upland disposal
Real Life Sustainability
Next Steps

• Review checklists with Leads, get buy in
• Prepare write ups to include in DDR
• Review credits with Port Authority
• Schedule workshop with team members
• Develop Register for tracking progress
How to Incorporate Entire Project Team

- Detailed sustainability write up in each design development report (DDR)
- Workshops on checklists and summary guidance document for each contract
- Register tracking progress
- Review by Sustainability Consultant at various stages of project development
BALANCING EXPLOSIVE GROWTH WITH CLEAN AIR AND CLEAN WATER
The Port of Tacoma is committed to doing business in a way that engages our community, protects the environment and demonstrates social and economic responsibility.

Our priorities include:
- Jobs outreach program
- Skilled trades development
- Small and emerging business program
- Sustainability practices
- Student exposure to the maritime industry
- Employee engagement with the community

**Sustainability practices**

We focus on reducing the impacts of Port operations by integrating sustainable practices that balance natural resource efficiencies with economic benefits.

Sustainable practices involve the design, construction, operation and remediation actions that significantly reduce resource consumption and environmental impacts through: site planning, reuse/recycling, energy efficiency, water conservation, waste reduction, pollution prevention and “green” materials purchasing.

**Program components**
The program will consist of:
- Developing a total cost of ownership (TCO) approach with short- and long-term analysis.
- Performing comprehensive internal sustainability audits of department operations.
- Identifying energy and water efficiency opportunities.
- Developing strategies and key performance indicators (KPIs) for targeted projects.
- Analyzing costs, savings and their associated returns on investment for projects/initiatives.
- Developing a port-wide framework for annual performance reporting.
- Establishing formal evaluation and feedback mechanisms.

**Objectives**
- Increase staff knowledge and behavior
- Decrease greenhouse gases by 10% from 2005 baseline

**Contact**
Jason Jordan, Environmental Programs Director
253-830-5321
jordan@portoftacoma.com