

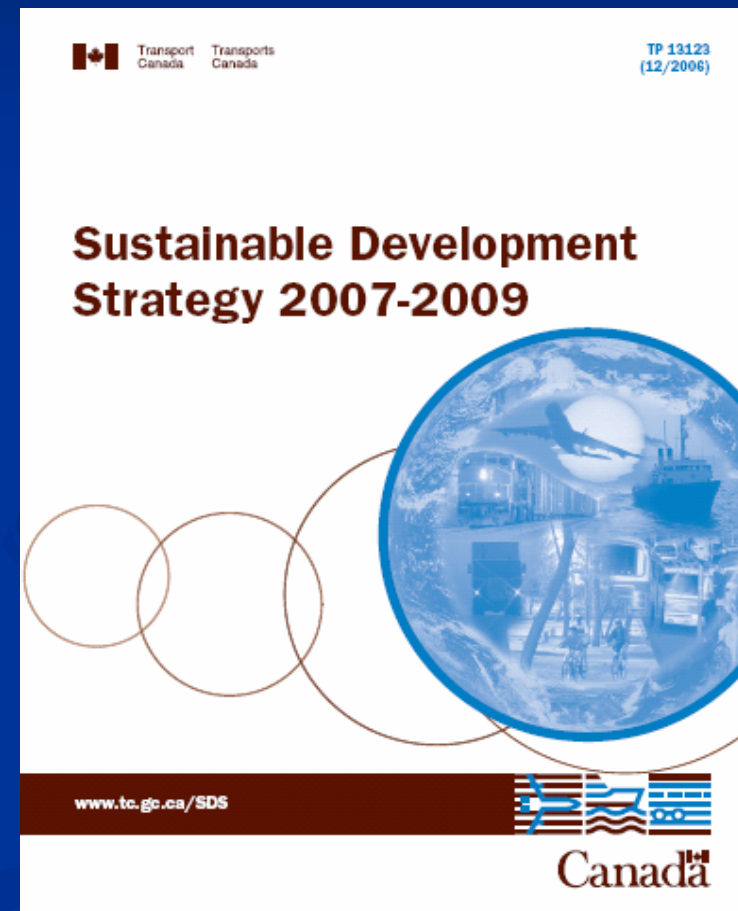
Port Sustainability: Balancing Competing Priorities

Sebastian Degens, Chair, Harbors
Navigation & Environment Committee



Sustainability of Transportation Sector is growing concern

- Transportation is major source of greenhouse gases
- As an industry, almost entirely dependent on petroleum
- Major source of air pollution
- Congestion and infrastructure deficiencies leading to failure to provide convenient, affordable, reliable, access to goods, services, and jobs



Goals of the presentation

- **Build on APPA Sustainability Task Force Progress**
- **Present working definition and concept of Sustainability as a standard business practice**
- **Describe attributes & characteristics**
- **Methodologies/tools**
- **Examples**

How can we define Sustainability?

Business strategies and activities that meet the current and future needs of the port and its stakeholders, while protecting and sustaining human & natural resources

AAPA Sustainability Task Force, March 2007



Sustainable Development

- Facilitating improvement without jeopardizing what already exists

Brandon & Lombardi, 2005



Characteristics of Sustainable Development

- Long term-perspective
- Focus both on what you do and how you're doing it
- Strategic thinking, investments and decisions
- Gains derived from both incremental steps and bold departures
- Business case based on three classes of benefits:
 - Return on investment (capital cost, pay back, maintenance reductions, etc)
 - Environmental, social, community benefits
 - Implementation issues, schedule impact, risk reduction, capacity building
- Flexible management strategy
- Thoughtful restructuring, based on continuous learning and improvement
- Balancing priorities through stakeholder engagement

Questions that might help with time

- Will this improvement last a long time or longer than previous developments?
- Will it be easily adaptable to change in the future to avoid using up non-renewable resources either in taking it down or re-use?
- Will it use less energy in construction, maintenance, operation, and finally demolition than similar improvements?
- Will it create quality?



Case Study: Port of Hamburg: Integration of Traffic & Environment on Tidal Elbe River

Port of Hamburg, 100 miles inland, is dependant on Elbe River for access into its harbor.

- Tides have been rising for last 50 years
- Less water exchange & greater siltation in harbor
- More contaminated sediments
- Lower water levels and more vessel draft constraints
- Increased flooding



Case Study: Port of Hamburg: Integration of Traffic & Environment on Tidal Elbe River

Key Goals:

1. Dissipate the incoming tidal energy through hydraulic engineering constructions
2. Establish areas that can be flooded
3. Optimize sediment management



Case Study: Port of Hamburg: Integration of Traffic & Environment on Tidal Elbe River

Key Components

- Involvement of key stakeholders (Fisheries, Agriculture, Navigation, Nature Conservancy)
- Long term view (100 year framework)
- Optimizing strategies and objectives and building them into diverse management plans
- Outreach & continuous improvement



Common assessment methods and tools

- **Cost-benefit analysis**
- **Economic Impact Assessment**
- **Ecological Footprint**
- **Environmental Impact Analysis**
- **Leadership in Energy and Environmental Design (LEEDS)**
- **Life Cycle Analysis**
- **Project Impact Assessment**
- **Risk Assessment**
- **Strategic Environmental Assessment**

Case Study: TLS Facility, Portland



Project Vision

- The successful completion of the Toyota facility is a cornerstone of the eventual redevelopment of the entire Terminal 4 complex.
- The completed project will be a signature facility for Toyota.
- The Port will improve its financial position as a result of a new lease agreement.
- The Port will demonstrate to the community and the regulatory agencies, that it is able to engineer and construct a facility with progressive and innovative environmental solutions.
- The Port will send a market message to competing ports that Portland is and will continue to be the premier automobile port in the United States.

Site & Operations Assessment

- Storm water runoff from existing facility
- Bank condition of 3000 feet of riverbank, 944' of dock
- Noise from construction, operations
- Neighborhood traffic impacts of construction
- Air emissions
- In-water construction
- Aesthetics
- Floodplain impacts
- Site contamination issues
- Energy and lighting
- Cultural Resources
- Materials re-use and resource recovery

Process for analysis:

1. EMS Aspects & Impacts
2. Blue-sky review of Opportunities
3. Eco-Charrette
4. Life Cycle Costs Development
5. LEEDS

Evaluating Concepts - The Criteria

- **Implementation**
- **Reduced Capital Cost**
- **Reduced O&M Cost**
- **Lower Permit Impacts**
- **Meets Toyota's Global Commitment**
- **Funding Availability**
- **Addresses Multiple Objectives**
- **Flexibility & Continuous Improvement**
- **Meets Port's Environmental Goals**

Environmental Issues

- Shoreline habitat restoration
- Biological storm water treatment
- Air emission reduction
- Green building design
- Water use reduction
- Community recycling
- Material use reduction
- Vegetative site security



Energy

- Energy efficiency measures
- Efficient interior lighting
- Efficient exterior lighting
- Onsite energy production
- Building heating and cooling



Special Features

- Indoor air quality
- Sustainable design
- Employee amenities
- Future compliance issues
- Community relations
- Columbia Water Taxi
- Expedited construction
- Permit & tax relief
- Mass transit commuting incentives

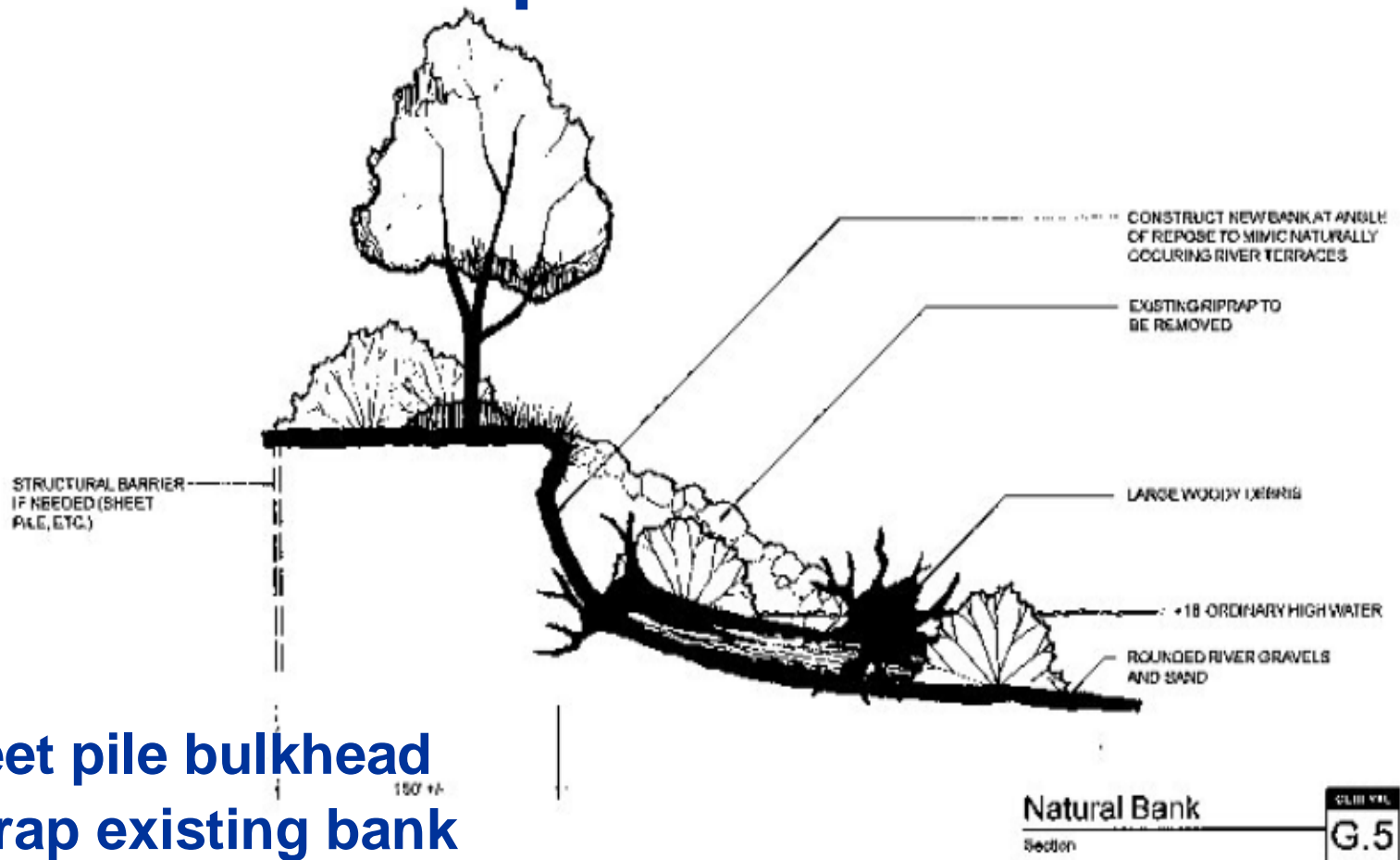


LEEDS Sustainable Sites

- Erosion control
- Appropriate site selection
- Urban redevelopment
- Brownfield redevelopment
- Light pollution reduction
- Storm water management
- Conserve & restore damaged areas
- Incentives for alternative transportation
- Reduce potable water for irrigation



Riverbank Options Considered



- Sheet pile bulkhead
- Riprap existing bank
- Re-graded setbacks of various depths
- Re-vegetated setbacks of various depths

Former River Bank Condition



Digging the Swales



Regrading and Erosion Control



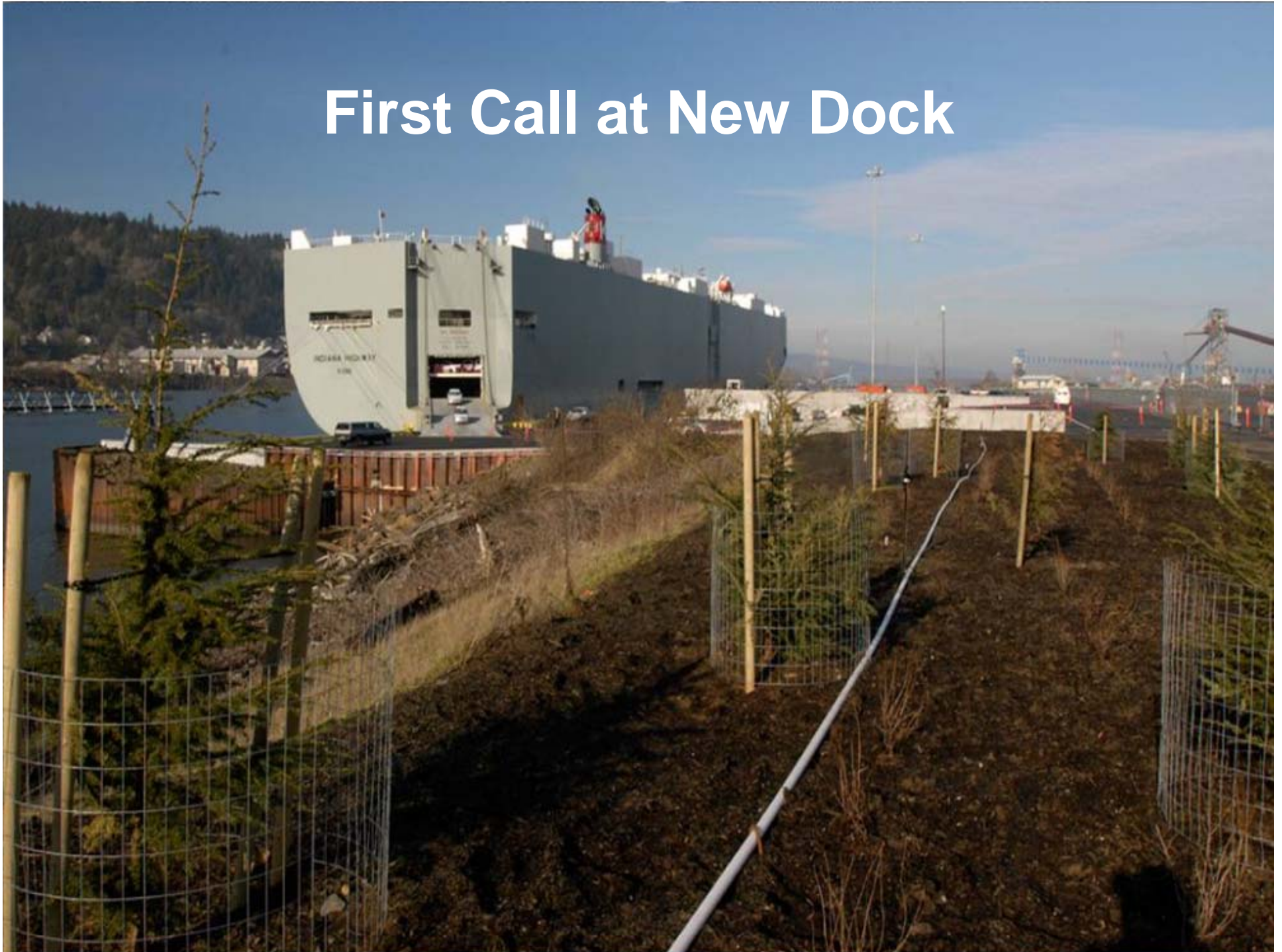
A photograph of a shoreline. In the foreground, there is a sandy beach with several long, moss-covered logs lying parallel to the water. To the right, there is a rocky area with more logs and debris. In the background, the water is calm, and a few wooden stakes or posts are visible in the water. The text "Logs and Willow Stakes" is overlaid in white at the bottom center.

Logs and Willow Stakes

Planted Swales & Temp Irrigation



First Call at New Dock



TLS Waterfront Last Fall



Case Study: TLS Facility, Portland

Some Lessons:

- Site and sub-site specific design required
- Not everywhere, with everyone, or always
- Needs a tenant to make redevelopment happen
- Payback is long-term
- Integrating permitting strategy with design helped
- Incentives help too
- Keep learning
- Seriously underestimated future land needs
- Did not consider impacts to neighbors sufficiently



Ports' Role in sustainable development

- **As a business:**
 - Strike a balance in meeting customer, community, employee, and stakeholder needs
 - Improve internal efficiencies
 - Create new technologies and innovative services
- **As public authorities-**
 - Set goals
 - Create incentives
 - Provide stewardship of common resources and capital
 - Leadership
- There are good reasons to protect the earth- it is the safest and surest way to long term profitability.

*Paul Allaire,
CEO & Chairman Xerox*

Adequate land is one of our industry's key sustainability issues

- Loss of land to mitigation
- Incomplete remediation that constrains future re-use
- Gentrification and redevelopment out of port uses





THE WORKING WATERFRONT ON SAN DIEGO BAY

About Us

Community

Environment

National
Defense

Economy

Employment

The working waterfront is a thriving hub of industry and commerce that contributes significantly to our region's economy, job base and national security. Working waterfront businesses are good neighbors to the local community and environmental stewards of San Diego Bay.

Members

We Need Your Help

Contact Us

Administered by the Port Tenants Association in cooperation with the Port of San Diego and AFL/CIO

Balancing the priorities

- Build the future into today's choices
- Bring accountability closer to home
- Inform the choices well
- Confront the biggest challenges to one's long-term sustainability

