Shipping Container Transport System Solutions
Introduction

- The critical aspects of local transportation problem in the Chicago area continue to be addressed.
- Moving freight represents a substantial and growing part of the challenge.
- The first two years of this IPRO project focused on novel capital-intensive solutions for the movement of containers through Chicago.
- Fall 2005: MiJack Products sponsored the team to review the “ThroughPort” concept.
What is there to know?

- Background information
- Intermodal facility design
  - Physically, what does the site look like
  - What happens at the facility
- Zoning and land ownership
  - Can we build here?
  - Who owns the land?
- Environmental issues
  - Pollution
  - Public works
- Communication/Technology
Background

- Chicago land area
  - 3rd largest intermodal shipping container hub in the world
  - 6 major railroad companies that contribute to intermodal traffic in the area

- CSX Bedford Park
  - 2nd largest intermodal facility in the U.S.
  - Largest Intermodal facility in the Chicago area.
  - Capacity: 1,000,000 lifts per year

- Research and statistics show that intermodal traffic is expected to double in the U.S. within the next 10 years.
Area Intermodal Density
IPRO Time Line

- Field visit to CSX Bedford Park, IL 1/25/07
- Charrette formations and class goal plan 1/30/07
- Presentation to Chuck Allen, Norfolk Southern 3/27/07
- Presentation to Gary Chamber of Commerce 4/17/07
  - Len Pryweller, Adrian Muhammed
- IPRO Day 4/27/07
The Intermodal Facility: CSX Bedford Park

- What happens there?
  - Trains drop off, pick up, or switch containers
  - Cranes maneuver containers
  - Trucks pick up containers

- What makes up the site?
  - Tracks and trackside operations
  - Holding and storage areas
  - Gates and administration
The Intermodal Facility: CSX Bedford Park (cont’d)

- Equipment
  - Cranes
  - Side-loaders
  - Trucks

- How do they operate?
  - Radio frequency
  - Containers are tracked in real time
  - Truckers check in by gate

- What kind of fuel is used, and how much?
  - Diesel
  - (Amount)
The Goal

- Select a site and plan the physical layout of an Intermodal yard which maximizes efficiency and minimizes any negative effects on the surrounding areas.
- Make recommendations concerning the appropriate number, size, and type of cranes capable of handling the predicted capacity.
- Develop a demonstration of software capable of tracking containers and trucks both within the yard and regionally.
Team Functions

- **Meetings**
  - The Meeting Leader would designate a Secretary, who will take notes, and then becomes the next Meeting Leader

- Charrette: a collaborative session which the group divides into sub-groups then presents its work to the full group
  - Civil Design
  - Mechanical/Environment
  - Zoning
  - GIS
  - Demo Program
Charrette Teams

Design
- Yousef Zaatar
- Jon Kohler
- Mary Sisay
- Nate Roth

Environmental
- Ben Russo

Team Advisors
- Laurence Rohter
- Peter Mirabella, Mi-Jack Products Representative
- Doug Daun, CSX Intermodal Manager
- Chuck Allen, NS

Zoning
- Maria Aguirre
- Joanna Ruiz

Mechanical
- Axita Patel
- Josie Truong
- Mike Grilley

GIS/CAD
- Joanna Ruiz
- Cesar Sotelo

Information Technology
- Zack Borschuk
Process

- Meetings
  - Recap Previous Meetings
  - Discuss New Developments
  - Improve Current Completed Tasks
  - Made Decisions on Team Issues
  - Assign New Tasks
- Ethics
- Project Management
## Project Plan

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
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<tr>
<td>Initialize</td>
<td>18 days</td>
<td>Tue 1/16/07</td>
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<td>Define the problem</td>
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<td>Wed 1/24/07</td>
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<td>Structure Groups</td>
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<td>Define Demo Program</td>
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Site Problems

- Zoning
- Existing Layout
- Surrounding Environment
Trackside
Container on Chassis
Chassis Yard
Empty container Yard
New Parking Lot
Gates, Repairs, & Administration
New EJ&E Rail Yard
New NS Elevated Main Line
CSX Main Line
New EJ&E Rail Line
New Intermodal Tracks
Engineering Cost Estimate

- Materials: $146,123,723
- Construction Equipment: $706,680
- Labor: $2,423,783
- Total Construction Cost: $149,254,186
Environmental Impact

- Creating a net positive environmental impact
  - Research into environmental regulations
  - Minimize or eliminate negative impacts
  - Facilitate positive environmental improvements
  - Act as a buffer for current industrial uses and airport expansion
### Lake County, Indiana Attainment/Nonattainment Information

<table>
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<tr>
<th>Pollutant</th>
<th>Area Name</th>
<th>Nonattainment in Year</th>
<th>Classification</th>
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Negative Impacts

- Some Wetlands Overwhelmed
  - Approximately 20 unprotected acres within boundaries
  - Evidence of previous disruption
- Increased Pollution Locally
  - Introduction of diesel trucks, heavy-duty cranes, etc.
  - Pollution can be minimized
    - Alternative Fuels
    - GWAN
Accommodates Positive Environmental Impacts

- Wetland Preservation and Expansion
  - Clark and Pine & Pine Station Preserves
- Gary Greenlinks Plan
  - New bicycle trails
  - Scenic viewing areas
- Encourages Lake Access
  - Clark Road Bridge
- Decreased pollution regionally
Gary Wide Area Network (GWAN)
Sponsor Deliverables

- A new intermodal yard that has a net positive environmental impact
- A pedestrian/motor vehicle bridge along Clark Ave
- GWAN Information Technology (I.T.) solutions
- Cost Estimate
Question/Answer