IPRO 307: Environmentally positive impact solutions for intermodal yards
Intermodal container traffic over the past two decades

\[ y = 0.3456x - 684.88 \]

18 Million Containers Worldwide
Problem

- Find environmentally positive solutions to lessen the impacts caused by necessities of intermodal yards
- Due to increase in intermodal travel we want to reduce the community impacts of intermodal yards and stay in front of the problem by anticipating complaints
Objective

- To design solutions for general and site specific settings
- Provide a means of distributing our solutions to the public as the sponsor requested
Project Management

- A project plan was updated and used to track objectives to be completed throughout the semester
- Assignments were divided among individuals who had knowledge in the area or showed interest in learning about the area
- Meeting minutes were used to help guide action items for the following meetings
- Our project had no monetary budget
Project Management

- Time sheets were not used because status reports were given twice a week by students during meetings
- Individual progress was also followed through the use of iGroups where work would be uploaded on a regular basis for others to review and critique
- Group meetings were handled by rotating leadership and secretarial responsibilities
- The group unanimously preferred this set of procedures and found it very effective
Project Plan

IPRO 307

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<tr>
<th>TASK</th>
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<td>Midterm Presentations</td>
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Time Frame:
- January (J)
- February (F)
- March (M)
- April (A)
Ethics

- Entire project was based on ethical thinking
- Took into consideration not just the clients needs but also community and environmental needs
- Referenced different studies and used real world and local data as a basis for all of our designs
Ethics

- Recognized the limits of our designs
- Designs were thorough but not complete, they are not ready to be implemented as none of the project team is certified in the correct areas
- Reallocated work as needed due to a missing group member
Results and Solutions

Our solutions to the problem came in 4 main areas:

- Build-out solution for a typical intermodal yard
- Zero excavation warehouse design
- Air, water and energy solutions
- Context sensitive bridge design

These are presented in two methods:

- Website
- Posters
- Recommended environmentally friendly intermodal design
- Uses grid structure with quantifiable layout
- Zero excavation-no dirt is moved offsite due to possible contaminations
- Energy reducing features including wind power, skylights and light sensors
Environmental Improvements

- Improved water retention
- Site specific improvements
- Improvements in air quality based on current standards
Bridge Design

- Meets needs of people and cars
- Two sided concept based design
The Team
The Team

- **Buildout**
  - Matthew Allen
  - Renee Bartosik
  - Anthony Carfang
  - Arnold Ibardaloza
  - Joseph Russell

- **Warehouse Design**
  - Daniel Fuentes
  - Matt Schulz
  - Jac Selinsky

- **Bridge Design**
  - Lukas Janulis
  - Marek Wisniewski

- **Environmental Improvements**
  - Algirdas Bielskus
  - Sebastian Jaromin
  - Ryan Maas

- **Website**
  - Matthew Allen

- **Other**
  - Tom Lis

- **Advisors**
  - Laurence Rohter- PE IIT
  - Peter Mirabella- MiJack
End Products

- Posters
- Website http://omega.cs.iit.edu/~intermodal
- Technical Presentations
  - Chuck Allen-Norfolk Southern Rail Road
  - John Bosca-Riverdale
  - Jim Kvaderas-Canadian National
Recommendations

- Investigate more into alternate energy including solar power
- Dynamic braking solutions
- Full brown site development
- More research to further improve warehouse design