IPRO 307 Project Plan

Spring 2008

Intermodal Container Transport System Solutions for Chicago Region

Advisor: Laurence Rohter

Planning

1 Project Organization

What is intermodal transportation?

Intermodal transportations are the use of multiple types of transportation such as ships, planes, locomotive and semi-trailers to transport goods in and out of the United States. An example of this would be the importation of goods from overseas that arrive in the United States via cargo ships. Distribution of these goods can vary depending on the distance the container needs to travel. Containers that travel short distances will be done via semi-trailer, whereas containers that have to travel cross country are loaded into locomotives and transported the Midwest for sub-distribution or the other coast for distribution.

Why is intermodal transportation important?

The efficiency in moving products is what makes Intermodal Transportation important. The more efficient a product is distributed the more money is saved, due to less time and less labor involved in the process.

What is the scope of this IPRO?

The scope of this IPRO is to provide a manifesto of good practices that will improve intermodal transportation to be environmentally conscious and friendly. The IPRO team will produce a book containing good practices in the design of an intermodal facility. The team will also implement the methods by producing a build-out. The team will also focus on the Clark Road bridge design from previous semester to help improve the commerciality of Gary, Indiana.

There is a growing concern today to be more environmentally conscious and friendly. Cities like Chicago are introducing green roofs to help the environment by reducing carbon dioxide therefore lessening the green house effects. The challenge for this IPRO team is how we can improve intermodal yards while

keeping in mind the environmental and ethical issues. Some of the environmental issues the team is dealing with are noise, water, air and land quality. The ethical issues are the effect on the individual and the community of having an intermodal facility at your back door. The team will research and find solutions for these issues and write up a report to publish in the book.

To implement the research into actual practice the team will provide a build-out containing a generic layout of a 7000 to a million lifts per year site. The build-out will reuse a brown site or green site, provide buffers that are environmentally friendly and give back to the community. The team will also produce a design for a warehouse that is energy efficient and environmentally friendly.

The previous IPRO team provided a design for Clark Road in Gary, Indiana to prevent the growing congestion of trucks parked adjacent to Clark Road. The trucks not only produced congestion but sitting idling on the road also produce fumes that hinders the air quality in the surrounding areas. The bridge would not only provide access to commercial areas but also recreational areas such as the lakefront. The bridge will be accessible via pedestrian and vehicular while architecturally pleasing.

The IPRO is sponsored by Mi-Jack Products, Inc. based in Hazel Crest, Illinois that produces special cranes utilized in intermodal facilities to move containers to and from train and trucks.

2 Task Definitions

2.1 Work Breakdown Schedule

Task Name	Start Date	Finish Date
IPRO Deliverables	**2/14/2008**	**5/02/2008**
Project Plan	2/14/2008	2/22/2008
Midterm Presentation	2/26/2008	3/06/2008
Code of Ethics	2/28/2008	3/07/2008
Midterm Report	3/06/2008	3/14/2008
Meeting Minutes	4/03/2008	4/18/2008
Website	4/01/2008	4/29/2008
Abstract, Posters	4/17/2008	4/25/2008
IPRO Day Presentation	4/08/2008	4/25/2008
Final Report	4/15/2008	5/02/2008
IKNOW Uploads	2/14/2008	5/02/2008
IPRO Day Exhibit		5/02/2008
Book Design	**1/28/2008**	**4/25/2008**
Research phase	1/28/2008	2/28/2008
Generate materials for book	2/21/2008	3/04/2008
Check over materials	3/04/2008	3/11/2008
Generate generic layout	3/06/2008	3/25/2008
Layout materials for book	3/25/2008	4/01/2008
Produce deliverables	4/01/2008	4/25/2008
Bridge/Warehouse Design	**1/28/2008**	**4/25/2008**
Research phase w/ structural engineer	1/31/2008	2/21/2008
Generate alternative design	2/21/2008	2/28/2008
Produce estimate of design	2/21/2008	2/28/2008
Produce deliverables	4/01/2008	4/25/2008
Build-Out	**1/28/2008**	**4/25/2008**
Research site	2/14/2008	2/21/2008
Produce conceptual design for yard	2/21/2008	2/28/2008
Check zoning and possible buffers	2/21/2008	4/03/2008
Finalize design	4/03/2008	4/25/2008
Produce deliverables	4/01/2008	4/25/2008
Milestones		
Midterm report and presentation		3/06/2008
Sub-project deliverables completed		4/04/2008
IPRO Day		5/02/2008

2.2 Summary Tasks Defined

- Produce book for “Good Practices/ Current Events” Intermodal Yards
- Produce a feasible bridge/warehouse design
- Produce Build-out for intermodal yard
- Submit IPRO deliverables

2.3 Individual Tasks Defined

This IPRO will be producing a book on “Good Practices/Current Events” on the design of an intermodal facility. IPRO 307 will also produce a Build-Out of an intermodal facility. This semesters IPRO will also follow-up and finalized the bridge design for the Clark Road in Gary Indiana. The team will need to:

- Research and gather information on green-sites, brown-sites and recycling existing yards
- Research and gather information on noise control, water-retention, air-pollution
- Research and gather information on zoning and possible buffers
- Research and gather information on alternative excavations of brown-sites

To produce a functional bridge/warehouse the team will:

- Research the previous semester’s bridge concept and design
- Research on warehouse construction
- Brainstorm on addition to the concept of the bridge & warehouse
- Determine feasibility of the design with structural engineer
- Create drawings, reports and deliverables

To produce a Build-out the team will need to:

- Research on current site and current practices
- Brainstorm ideas and concepts for an intermodal facility
- Determine concept to pursue
- Create drawings, reports, and deliverables

The following IPRO Deliverables will be submitted:

- Syllabus
- Project Plan
- Midterm Report
- Midterm Presentation
- Website
- IPRO day presentation
- IPRO day poster
- IPRO day model of a yard
- CD-ROM
- Final Report
- Meeting Minutes

3 Start & End Dates/Duration

3.1 Start and End dates for tasks listed

See Work Breakdown Schedule (section 2.1)

3.2 Hours Estimated for Tasks

Task Name	Estimated Time (in HRS)
IPRO Deliverables	**340**
Project Plan	25
Midterm Report	20
Code of Ethics	20
Midterm Presentation	10
Meeting Minutes	10
Website	15
IPRO Day Presentation and Rehearsal	100
IPRO Day Poster	10
IPRO Day Map	100
Final Report	30
Book Design	**150**
Research and gather information on location	25
Research and gather information on environmental issues	25
Research and gather information on zoning and buffers	20
Research and gather information on excavation	30
Make deliverables	50
Bridge/Warehouse Design	**160**
Research bridge/warehouse design	10
Brainstorm on the concept of the bridge/warehouse	60
Determine feasibility of the design with structural engineer	40
Make deliverables	50
Build-Out	**100**
Research on current site and current practices	25
Brainstorm ideas and concepts for an intermodal facility	50
Determine concept to pursue	5
Make deliverables	20

As can be seen, approximately 750 hours have been delegated. IPRO-307 has 11 weeks to finalize the project, there are 15 members and each member is expected to commit 6 hours outside of class per week. This yields 11wks *15 members*6 hours = 990 hours total. The 240 hours not yet accounted for will be used for meetings, correspondence, peer reviews, etc.

3.3 Tasks Assigned to Individuals

- The tasks associated with the book, bridge design and build-out will all be assigned to sub teams (see section 5.1)
- IPRO Deliverables will be managed by the IPRO Deliverables team and will organized into sub teams

Project Plan:	Arnold, Renee
Midterm Report:	Marek, Peter
Code of Ethics:	Matt
IPRO Day Poster:	Joseph
Final Report:	Algirdas
Web-site and CD-ROM:	Matt, Tony
IPRO Day Presentation and Model:	Ryan
Meeting Minutes:	Renee

3.4 Gantt Chart or Equivalent

Refer to Gantt chart at the end of the report

Organizing

4 Team Members

Name	Major	Skills & Strengths	Roles & Tasks
Matthew Allen allemat@iit.edu	Computer Science 4th year	Software Engineering, Web-Design	Book Team, Bufferzones and Zoning
Renee Bartosik rbartosi@iit.edu	Architecture 5th year	Skilled with AutoCad, 3D Max, Sketchup, Adobe Illustrator and Photoshop	Project plan, Build-out, Bufferzones and Zoning
Peter Beran berapet@iit.edu	Architecture 5th year	Experienced with construction documentation and permits	Bridge design, 3D animation
Algirdas Bielskus bielalg@iit.edu	Mechanical Engineer 3rd year	Skilled with google earth pro, image overlays and render video scenes	Book Team, Air Pollution/ Quality
Anthony Carfang carfant@iit.edu	AerospaceEngineer/ Computer Science 5th year	Skilled with Logistics, Business & Compueters	Book Team, Linear Connections (Bike Paths and Parks), Web-Site, Intermodal
Daniel Fuentes dfuente1@iit.edu	Architecture 5th year	Skilled with AutoCad, 3D Max, Photoshop, Revit, Viz, MS-Office and Laser Cutter	Zero-excavation research & Warehouse Design
Arnold Ibardaloza Ibaram@iit.edu	Architecture 5th year	Skilled with AutoCad, 3D Max, Sketchup, Adobe Illustrator and Photoshop	Project plan, Build-out, Bufferzones and Zoning
Lukas Janulis ljukas1@iit.edu	Civil Engineer 4th year	General understanding of structures	Book Team, Current events, Bridge Design, Warehouse Design
Sebastian Jaromin Jaroseb@iit.edu	Architecture 5th year	Skilled with AutoCad, 3D Max, Sketchup, Adobe Illustrator and Photoshop	Book Team, Urban Design research
Tom Lis tls@iit.edu	Architecture 5th year	Skilled with AutoCad, 3D Max, Sketchup, Adobe Illustrator and Photoshop	Book Team, Rural Design research
Ryan Maas rmass@iit.edu	Civil Engineer 2nd year	Skilled with Autocad, Knowledgeabe with railroads and logistics	Book Team, Water Retention & Quality research
Joseph Russell russjos@iit.edu	Aerospace Engineer 4th year	Skilled with 3D Design, Pro Engineering, Matlab	Book Team, Noise Control research, Images of South Suburbs
Matt Schulz schumat3@iit.edu	Civil Engineer 5th year	Real-world construction cost estimation experience	Zero-excavation research & Warehouse Design
Jac Selinsky seljac@iit.edu	Architecture 5th year	Skilled with Autocad, Adobe CS3 and making models	Industrialized neighborhood friendly green-sites
Marek Wisniewski wisnmar@iit.edu	Architecture 5th year	Skilled with Autocad, software consultant, experience with design build/construction documentation	Bridge design, 3D animation

Advisors

Laurence Rohter rohter@iit.edu	Adjunct Professor for the Department of Civil & Architectural
Peter Mirabella pmirabel@cpsales.com	MI-Jack representative

5 Accountability and Role Allocation

5.1 Sub Teams

(*denotes team leader)

- Book Team
- Responsible for researching and gathering information for the book
    - Tom
    - Sebastian
    - Matt
    - Matthew
    - Joseph
    - Algirdas
    - Ryan*
    - Lukas
    - Anthony
    - Jac

- Bridge/Warehouse Team
- Responsible for design, research, and deliverables for bridge & warehouse
    - Marek*
    - Peter
    - Lukas
    - Matt
    - Daniel

- Build-Out Team
- Responsible for organizing and designing an intermodal facility
    - Renee*
    - Arnold
    - Ryan
    - Anthony
    - Matthew
    - Sebastian
    - Tom
    - Matt

- IPRO Deliverables Team
- Responsible for organizing, delegating and compiling IPRO Deliverables
    - Renee*
    - Arnold

Controlling

6 Expected Results

6.1 Deliverables Described

Book Design Deliverables

- Overview of what is Intermodal
- Current events in the field of intermodal
- Issues pertaining to intermodal (Ethical / Financial)
- Provide best solution (Environmentally Friendly)

Bridge / Warehouse Design Deliverables

- Produce 2-Dimensional rendering of bridge
- Produce working drawings of the design
- Animation of design

Build-Out Deliverables

- Produce a 3-Dimensional map for a design of an intermodal yard
- Locate designed warehouse within yard
- Locate water drainage solution
- Locate possible buffers

6.2 Key Milestones Identified

- March 6, 2008 Midterm report and presentation
- April 4, 2008 Sub-project deliverables accomplished
- May 2, 2008 IPRO Day

6.3 Budget Provided

The IPRO team will need $150 to construct the IPRO day model and posters.

6.4 Key Results Described

The results expected for this IPRO is to compile a manifesto of good practices that will help move Intermodal Transport into an environmentally conscious and friendly logistics.

7 Performance Metrics Data Gathering & Documentation Tools/Processes

7.1 Recording Meeting Minutes Assigned

As mentioned in section 3.3 each member of the IPRO team will be responsible for taking minutes and leading the meeting through a rotation process throughout the semester.

7.2 Filing and Organizing Weekly Timesheets Assigned

The reports and progress of the project will be documented during each IPRO meeting.

7.3 Preparing Weekly Task List Assigned

Assignments and Tasks will be designated during IPRO meetings.

7.4 iGROUPS Coordination Assigned

Each IPRO Team Member is responsible for the coordination and utilization of the iGROUPS database.