**INTERMODAL YARDS**

- Intermodal freight is the movement of containers and trailers by rail, truck or water carriers and is the fastest growing segment of the US freight rail industry.
- Chicago is the third largest intermodal freight hub in the world.
- Ease of trucks traveling to yards determines the accessibility of train intermodal yards.
- Of seven major US railroads, six of those, UP, BNSF, NS, CSX, CP, and CN, have facilities in Chicago, the only place in the US with these many.
- Most of this intermodal traffic is moved in containers. Container movement through intermodal freight is expected to double within 10 years.

**THE TEAMS**

Under the sponsorship of MiJack Products, IPRO 307 has completed many projects of various types pertaining to the intermodal industry. With the guidance of Professor Laurence Kohrer P.E., MiJack advisor Peter Mirabella, and guidance from MiJack founder John Lanigan, Sr., there have been close to seventy students that have applied their knowledge and talents to these projects. These seventy students have come from a variety of fields of study:

- Over a dozen civil and architectural engineering students
- Over a dozen architecture students
- More than ten mechanical and aerospace engineering students
- A number of students from other fields, such as computer science, psychology, biomedical engineering, and business

**THE PROJECTS**

**Advanced Shipping Container Transport System Implementations - Spring '06**

- The focus of this project was to emphasize the benefits of using rail transport rather than trucks. Rail transport is more reliable and efficient. Presented here are the products of this project.

**Transport System Solutions - Spring '07**

- 80% - 70% - 60% - 50% - 40% - 30% - 20% - 10% - 0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80%

**The graphic here provides a look at what goes on inside an intermodal yard. It shows a typical layout of the yard with color coding. The blue area represents the rails, and this is where containers are transferred from the trucks to the rail and the rail to the trucks. The yellow area is the trailer parking, where the trucks and containers are placed when they are not needed. The purple area are the warehouses.**

**Sharing Container Transport System Solutions in Gary, IN - Fall '07**

- Cross section of bridge proposed by IPRO 307. The purpose of this bridges is to provide a safe path for cars, trucks, and civilians to cross the intermodal yard. On the bottom right is a proposed rezoning of the area, considering future development as well.

**Environmental Solutions - Spring '08**

- One of the several environmental improvements proposed by this team was water retention. The diagram on top shows how runoff water is beneficial, and below how runoff will be collected in the yard.

**Intermodal Solutions for Chicago - Fall '08**

- This team created a flipper model. A flipper is used to remove containers from trailers and improves the efficiency of the yards. Pictured on the left is the proposed layout of the intermodal yard, including a proposed expansion. This team also proposed a switch to compressed natural gas (CNG) as an alternative fuel, and a CNG station is included in this layout.