



**reclaimed wood products**

# Final Report



Presented by:  
EnPRO 350: Environmental Wood Reclamation  
Summer 2008

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## Abstract

The Emerald Ash Borer has created a huge problem in the Midwest. Migrating from Southeast Asia via human transport, it has invaded the United States and select portions of its Ash tree population. This has resulted in devastating effects for the ash tree and its habitat. This situation has resulted in a lot of ash wood that is currently mostly going to waste and the goal of our EnPro is to find a use for this wood.

In the beginning, our focus was solely on ash wood. However, when we discovered how much of an untapped resource urban wood was, we decided to broaden our focus to include other urban woods that face similar problems due infestation or other destructive forces that include but not limited to nature, and use the wood as a way to provide a positive environmental impact. Since the focus shifted from one particular wood to all urban from urban forest we developed a business model that utilizing the concept of vertical integration.

Furthermore the business model we developed is one that can be used in many urban areas such as Chicago and surrounding suburbs but we put to test the model in the 3<sup>rd</sup> ward as a pilot. This pilot covers the every area from finance to marketing to ethics that would be necessary to run a business across a greater area. Through the implementation of this pilot we have discovered many of the problems we would face and many of the successes. Enpro 350 has come a long way since the very first day and has developed successful ideas and valuable resources along the way that has led this group to develop into an actual business that we are proud of. SmarTree formally known as Enpro 350 is glad to present the work we have done in efforts to attack the issues of urban forestry.



## Business Plan

EnPRO 350 · Summer 2008

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# Executive Summary

## General Company Description

One of the biggest problems in cities across the United States is the vast amount of garbage that ends up in landfills. In many cities, much of this waste could be avoided by utilizing the urban wood “waste”, including street tree trimmings, dead trees, and private backyard trees. Often, good quality wood is tossed, treated as worthless simply because it was obtained in the urban environment. Usually sawmills are not interested in urban wood due to metals, concrete, or infestations that cause expensive problems when found in the logs. For this reason, utilizing urban trees poses a much greater challenge than with forest harvested trees wood, even though the quality of the finished product is the same or even better than products from harvest trees.

SmartTree has turned this problem into a green opportunity to create a business around salvaging- or reclaiming- those trees. The goal is to find a more efficient and environmentally friendly way of utilizing the wood from the urban forest that was either affected by the Emerald Ash Borer or had to be removed for another reason. One of our goals at SmartTree is to educate and create awareness about how valuable urban wood can be to the community by providing an integrated service of tree assessment, removal, milling to client specification, or selling unwanted wood to a variety of specialized markets, thereby using the entirety of urban wood waste.

## Products and Services

SmartTree is a vertically integrated business. We provide tree assessment and removal service, as well as custom milling and lumber. Clients have the option to purchase lumber that has been processed in our mill, or have their tree milled into custom cabinetry, flooring, or furniture. The urban forest provides many species of lumber, from low quality to potentially very high end material. We are initially focusing on Ash tree, due to the current Emerald Ash Borer problem, and will be marketing and promoting awareness in the community about the potential use of urban wood and the specific qualities of Ash wood.

## Marketing Plan

SmartTree intends to dive into the niche market of urban wood. It is a small market that to date has had very little success. Our mission is to think outside the box to come up with solutions to the long established problem of urban wood waste. We intend to market ourselves in the “green” industry, selling the environmentally sustainable nature of our business. We are also pursuing local political and organizational contacts for community support and program coordination. Through our ‘giving back to the community’ programs, we will create local awareness, as well as provide jobs to the community. By marketing the story of the wood, we plan to attract customers by the novelty of our goods.

Some marketing tactics:

- Involvement in the reclaiming of urban timber from the traditional tree removal and disposal methods.
- Creation of gift items from urban-ash wood.
- Making of furniture, flooring, doors, architectural millwork and molding, kitchen cabinets, paneling, tool handles, railroad ties, park benches, baseball bats, hockey sticks, billiard cues, skis, oars and turnings, railroad ties.
- Selling the parts of urban tree that are not usable as a finished product to a biomass fuel company to generate electricity.
- Start programs within the city, targeting grade schools, technical/trade schools, and community organizations. These programs would promote the development of new ideas concerning the urban forest, as well as efforts to improve the community through environmental consciousness.

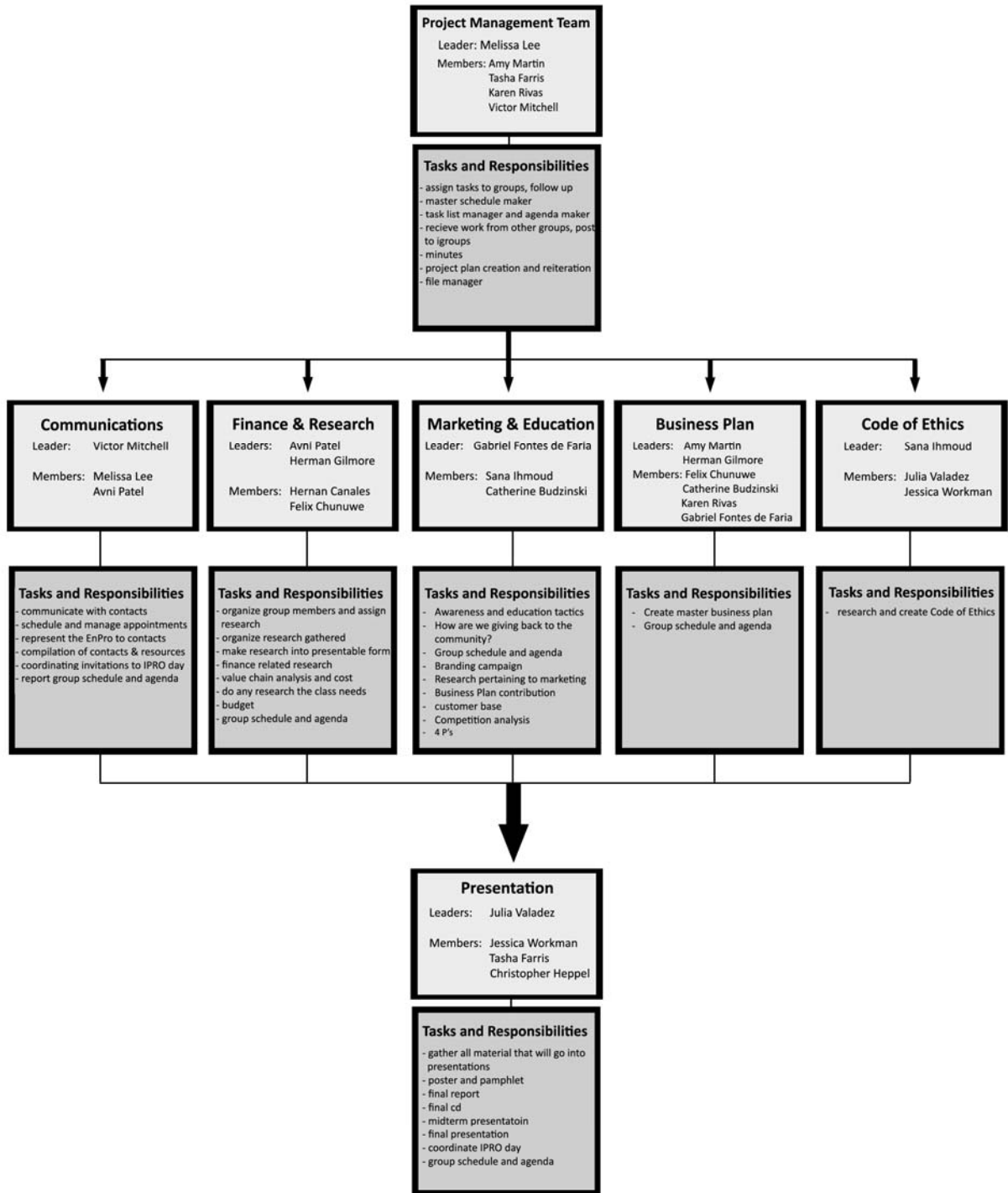
### **Financial Plan**

Using sales assumptions, Smart Tree will show positive cash flow in year 3. A cumulative cash balance of \$2,134,370 will result at the end of year 6. Net income for the first 6 years will be (\$72,083.20), (\$35,228.20), \$72,729.80, \$415,831.80, \$813,405.80, \$939,714.70, respectively. This is mainly because the first sale is not made until year 1. This is because the lumber will take 1 year to air dry. Initial startup capital required will be \$134,139, which includes a \$26,828 safety buffer. Over the span of the 6 years, the return on investment is estimated to be at 113.15 % ( 18.85 yearly).

### **Conclusion**

Overall, this business venture shows a lot of promise and potential impact on the Chicagoland area. SmarTree is taking a tragic situation and turning it into it has the possibility to be a major force in the wood industry and the ability to change peoples' minds about the use of urban wood. However, these goals can only be attained provided that the startup expenses are met. Due to its non-profit nature, there is a large sum of money available in grants which will be able to help SmarTree begin operations. Assuming that the \$1.5 million in available grants will cover the \$134,139 in startup expenses, SmarTree will begin to make a profit in its fourth year of operations. This is significant for our business, as we will not have debts to pay off in our starting years of operation. Instead, we can immediately begin to focus on marketing and education efforts to promote SmarTree. Also, if we are not consumed with debt, we will be able to expand the business to other locations earlier than we could have if we were paying off loans. Grants will be a tremendous resource to SmarTree, and will allow us to smoothly transition our business from the planning stages into operations. In conclusion, SmarTree is an extremely feasible business venture and has the potential to not only create revenue, but also provide jobs to local individuals and educate them about the value of urban wood.

# Organization and Work Breakdown Structure



## **General Company Description**

SmartTree has taken the problem urban wood waste into a green opportunity to create a business around reclaiming that wood from the landfills and chippers. The goal is to find a more efficient and environmentally friendly way of utilizing the wood from the urban forest that was either affected by the Emerald Ash Borer or had to be removed for another reason. One of our goals at SmartTree is to educate and create awareness about how valuable urban wood can be to the community by providing an integrated service of tree assessment, removal, milling to client specification, or selling unwanted wood to a variety of specialized markets, thereby using the entirety of urban wood waste.

### **Mission Statement:**

"To Satisfy Our Customers by Providing High Quality Wood from Urban Forests while Creating a Positive Change in the Environment"

### **Goals and Objectives:**

- To successfully develop a business model in the 3<sup>rd</sup> ward of Chicago in which urban trees are utilized into various products, such as lumber, biofuel, etc., instead of being primarily reduced to mulch.
- Once successful, SmartTree will expand its business into other wards and communities, focusing on utilizing trees affected by the Emerald Ash Borer.
- To be morally responsible by investing a portion of our profits in the Emerald Ash Borer problem, and other problems like it.

## Product/Service Description

SmarTree is a vertically integrated business. We provide tree assessment and removal service, as well as custom milling and lumber. Clients have the option to purchase lumber that has been processed in our mill, or have their tree milled into custom cabinetry, flooring, or furniture. The urban forest provides many species of lumber, from low quality to potentially very high end material. We are initially focusing on Ash tree, due to the current Emerald Ash Borer problem, and will be marketing and promoting awareness in the community about the potential use of urban wood and the specific qualities of Ash wood.

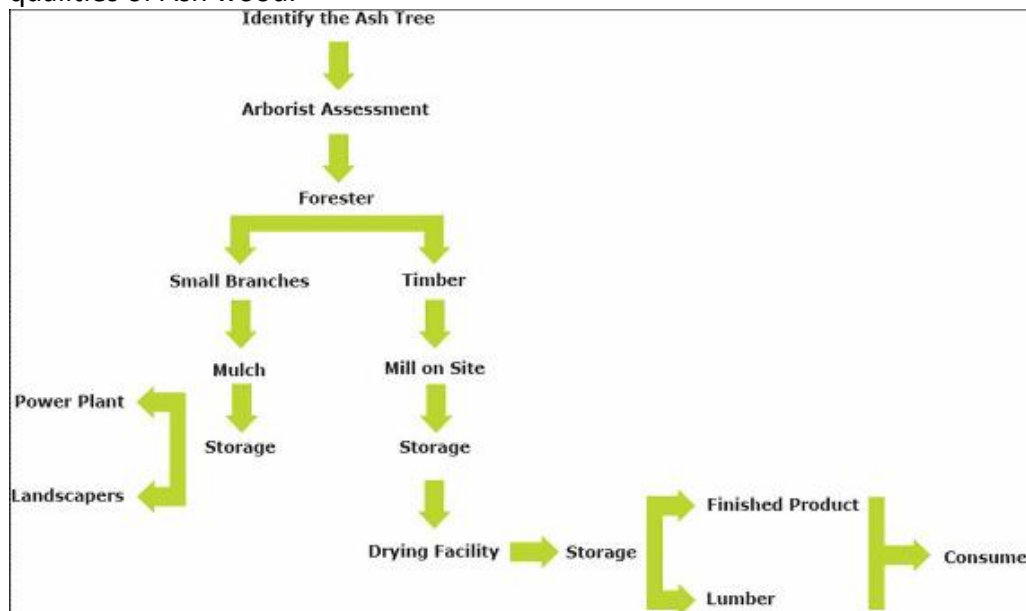


Fig. 1: Product Process Chart

Figure 1 is an example of our vertically integrated process. First, the Ash tree is identified. Next, an Arborist assesses the tree to determine whether it needs to be taken down. If the tree needs to be removed, the forester takes care of that dangerous process. The tree is then sawn into logs. The remainder is processed as follows:

1. Branches/Leaves are processed into mulch and woodchips which are stored and sold to power plants for biofuel and/or to landscapers for landscaping purposes.
2. The trunk logs are milled into lumber and sent to storage. The lumber is then sent to a drying facility where the wood is either air dried or kiln dried. If the wood is infested, it must be fumigated before it can leave the quarantined area. Once all the necessary processes have occurred, the dried lumber is sent to lumber yards where it is sold to the end consumer.

## **Marketability**

The goal of SmarTree is to find a use for urban trees that are cut down and wasted, which includes trees that have been destroyed by nature and daily human activities. There is a large supply of this urban wood, but there is currently very little demand for it. Recently, the Emerald Ash Borer infestation in Chicago has destroyed many trees in the local 3<sup>rd</sup> ward area, and it is expected to spread to many other locations throughout the city. SmarTree will utilize the trees affected by the Emerald Ash Borer and find a use for the wood that would otherwise be burned. Additionally, our business will provide a use for other trees that are taken down in urban settings, usually due to storm damage or old age.

Because there is already a demand in the market for raw wood, our product addresses this demand. Additionally, there is increasing demand from environmentally conscious consumers for products that are sustainable. The incentive to buy our product will be the sustainable aspect of it, as it can potentially contribute to LEED certified buildings and other sustainable projects.

One fourth of the wood available in the United States is found in urban areas, and it is currently being underutilized. Our customers will come to SmarTree because they are looking for lumber that is environmentally friendly and is not harmfully harvested from nature.

## **Target Customer Profile**

Our customers will include local Chicagoland governments and businesses that would otherwise buy wood from generic sawmills. These would include construction companies, developers, furniture makers and home furnishing manufacturers (cabinetry, flooring...). Our customer base will be diverse, yet local.

The psychographic of our target customer will target those who are environmentally conscious. Because our product has an environmental story and is a salvaged material, our target consumer will be intrigued by urban trees that are being wasted.

## **Service Usefulness**

Traditionally, urban trees chopped down because of disease, age, or development, and consequently have been sent to the dump. SmarTree has identified ways to more constructively use the estimated 3.8 billion board feet of timber - about 25 percent of the annual hardwood lumber production in the United States- that is removed from cities and suburbs annually. That's roughly enough wood to build about 275,000 environmentally friendly new homes, but only a small fraction of that wood is currently recycled.

Eventually, our business will help nearly a dozen counties dispose of urban trees that are dying naturally or being cut down by the millions in an attempt to stop a

growing infestation of the Emerald Ash Borer, by processing the wood and selling it primarily as lumber or as biomass fuel.

SmarTree will remove urban trees for clients who want them made into customized tables, desks, cabinetry, or other woodworks. After removing the trees and processing the wood into lumber, they will be shipped to the IIT Department of Architecture or the Greater Westtown Training Partnership where the lumber will be made into custom pieces made with nontoxic glues and finishes. The finished lumber may also be used by the clients for their own construction projects. Our business will charge the customer for overseeing the removal of trees, the milling, and furniture production.

Recycling city trees slated to be chopped down remains a mostly unregulated cottage industry, where business is generated primarily through word of mouth and a few websites. We acknowledge that two of the biggest problems is a lack of information and changing the perception that no value is attached to urban wood products. However, SmarTree will find a useful way to dispose of a client's unwanted wood and simultaneously create employment and training opportunities in the 3<sup>rd</sup> ward.

### **Intellectual Property**

We are planning to trade mark the name of our company as well as our SmarTree logo. Trade secrets will include our contacts with government officials, marketing strategy, and cost analysis. On a smaller scale, all of our presentation material, including but not limited to brochures, posters and electronic presentations will also be protected under copyright. We understand that the creation of SmarTree took place on IIT property and therefore the university has the rights over our business. However, we acknowledge the potential that these rights may be transferred to us upon proper request.

# Marketing Plan

## Marketing and Product Objectives

The marketing intent of the SmarTree is to take full advantage of the lack of an urban wood industry in the Chicago land area, to establish a base from which revenue sources could be mined from the lumber that would otherwise be wasted or used for a lesser use.

Some of the products to be undertaken include the following:

- Involvement in the capture of urban timber from the traditional tree removal and disposal methods.
- Creation of gift items from urban wood.
- Making of furniture, flooring, doors, architectural millwork and molding, kitchen cabinets, paneling, tool handles, railroad ties, park benches, baseball bats, hockey sticks, billiard cues, skis, oars and turnings, railroad ties.
- Selling the lower value urban wood as biomass fuel for generating electricity.

## Target Markets

The primary target market for SmarTree is those who desire custom made products made from urban-ash wood. Since this group is currently very small our target market is then consider to be a niche market, of those who are not cost sensitive but want a unique product that they would connect with emotionally (since they are part of the design process), and combine with the environmental friendly message they want to send out.

## Points of Difference

The “points of difference” – characteristics that make SmarTree products unique relative to competitors – fall into two important areas:

- The uniqueness of the products made from urban wood as compared to other types of wood, combined with the environmental benefits (carbon offsetting and sequestration).
- Premium packaging in terms of our lumber marked with a special stamp, and buyers receiving a literature describing the origin, processor, treatment, and benefits of using ash tree lumber.

## Positioning

Since the urban wood industry has not actually taken off in the Chicago land area, SmarTree Inc. is positioning itself in the customers mind as a pioneering agent for urban wood utilization, through the provision of quality and cost effective products.

## Identification of niche markets

We are focusing on providing environmentally conscious end customers, construction companies, developers, furniture makers and home furnishing manufacturers with great quality wood that would otherwise be sent to landfills or



made into woodchips. Our market is the urban harvested, environmentally conscious niche market of the wood industry.

### **Marketing strategy**

Key promotion programs feature advertising and personal selling.

Advertising: In order to generate awareness and interest SmarTree Inc. would indulge in the following:

- Chicago park district/Sox park collaboration – This would ensure that our baseball bats will get the necessary exposure. With trial ability and the present concern about violent ruptures of maple bats in Major League Baseball games, white ash bats may come to prominence.
- Furniture and sustainability exhibit: The display of furniture and art work in exhibitions such as the “Rising from the ash” would go a long way to create awareness and education.
- Brochure and magazine ad: Distribution of brochures and the placing of ads in high-end and ecological magazines will also spread the word out.

Personal Selling: This is the most effective and the most costly promotional method because it involves architects and designers who generally work very closely with clients looking for unique custom made furnishings.

To price our product competitively, we must depend on the effectiveness of our operation. By having our location set locally at IIT where most of our resources are, we will reduce our transportation costs and be able to provide a better price to our customers. When our business expands outside of IIT, we plan to set up local warehouses in many Chicagoland areas in order to continue providing competitive transportation costs. Additionally, our SmarTree will acquire a lot of equipment that is necessary for day to day operation, such as the equipment for cutting down trees. It is crucial to our business to depreciate in the most effective way so the equipment can have a positive impact on the final price of our product and therefore on our net income. Using IIT space for our warehouse will give our business a huge competitive advantage over our competitors because if we do not need to pay rent or to buy land, our costs will be reduced significantly and we could offer the best price in the market.

A number of alternate channel distributions may be available for our business, but to make it simple and to reduce costs as much as we can, the best strategy is selling directly to retailers. In this way, the retailers can reach the end consumers and we could save a lot of money in advertising costs and keep a competitive price in our product. This strategy will be accomplished by using the internet or telephone and having students or employees from our business advertising our product without using sales agents who usually sell on behalf of the producer and charge a commission that could increase our costs. After our product is manufactured it will be shipped to the retailer and the retailer will sell it to the end customer.

## **Management and Organization**

### **Management Prowess**

With 15 team members currently, our business is structured as a partnership. All of the partners share equally in the decisions regarding SmarTree and will share equally in any profits or losses the company encounters. Each individual member of the team is also responsible for the management and liability of the business. When the business expands, more partners will be added. Due to the heavy responsibilities placed on each partner, our business will demand team members that are reliable, hardworking, and dedicated to SmarTree. Each team member must work just as hard as the others in order to maintain operations and ensure success to our business.

### **Future HR Needs**

Currently, our business is lacking the manpower necessary for a successful start. We have 15 team members, and they are focusing all of their efforts into finalizing our business model. However, when we move past the planning phase and into operation, we are going to need more people to help get the business off the ground. Presently, our processes are being halted because there is simply not enough manpower to finish tasks efficiently. Even maintaining communications with all of our contacts is a daunting task, as there are only 3 available people to stay in contact with dozens of people throughout the Chicago area. When we move on to the operations stage, the business will need to run at a much faster pace. Therefore, we are going to need more people in order to run an efficient and successful business.

The basic qualities that will be looked for in additional team members will be, first and foremost, strong communication skills. The team member must not only be willing to communicate with the rest of the team, but also be able to contact and maintain ties with other people and resources outside of the company. Also, the team member must be able to adapt to changing conditions, as the sources of wood for the business is ever-changing and will vary greatly. Finally, since there will always be new problems affecting urban trees, the team member must be a creative problem solver in finding ways to deal with these problems and utilize the affected trees.

### **Resource Sufficiency**

Our team will require more team members in order to function as a viable and successful business. In the fall, we are going to start on our business operations. At that point it would be preferred if we could break up into smaller teams, each dealing with one aspect of our service (about 7-8 in all). If the class continues to be capped at 15 students, there will only be about 2 people per group. However, our business is expanding, and we think our class should as well. Ideally, we would like to petition the IPRO office to expand our class and include another section, adding 15 additional members to our team. This would allot around 4 members per team, allowing tasks to be completed much more efficiently.

Currently, the skills and qualities of the team members are sufficient for the creation of the business. The team represents a broad diversity of cultural and educational backgrounds, and each team member is interested in a variety of different topics. The comprehensive aspect of our business allows each team member to work on the problems they are most interested in and contribute their expertise to their respective groups.

Several resources will be necessary to ensure the future success of the business. Most importantly, the business will need more team members in order to function efficiently and start operations. However, it will be very important for the future team to remain diverse and maintain different interests and areas of expertise. Finally, the business will need to establish many more contacts with city officials, homeowners, and sawmill operators in order to provide a substantial and competitive service.

### **Location**

Our business will for the main time be located in the car garage provided by the school. This location is desirable because:

1. Since we would be starting with the trees already assessed within the school premises and hopeful from the ones we will assess ourselves within the school property. This makes the location convenient for our freight/transportation companies, suppliers, clients, and would be employees.
2. With the school offering the location at no cost to the business is a big plus because we do not need to come up with rent/lease money for a start.

At the long run we would be looking at renting a building in the form of a warehouse, which will be structurally compatible for our use, has the necessary facilities to operate our business, the location must also be convenient for our customers and business partners, has the possibility for expansion, and the rent is below market. For a start the location has to be in close proximity to our source of raw material because this will go a long way in helping us reduce transportation cost, which could be huge factor considering the fact that it is part of our fixed costs.

Since in most cases, all three aspect of the business (processing, storage, and retail) are not allowed to stay in the same premises. For the location of the processing and storage facility, it will be very important to consider the following factors: space, good truck access, and zoning bylaws to make sure the regulations covering the building, would permit the establishment of a lumber processing business.

# Financial Plan

## Financial Summary

Using sales assumptions, Smart Tree will show positive cash flow in year 3. A cumulative cash balance of \$2,134,370 will result at the end of year 6. Net income for the first 6 years will be (\$72,083.20), (\$35,228.20), \$72,729.80, \$415,831.80, \$813,405.80, \$939,714.70, respectively. This is mainly because the first sale is not made until year 1. This is because the lumber will take 1 year to air dry. Initial startup capital required will be \$134,139, which includes a \$26,828 safety buffer. Over the span of the 6 years, the return on investment is estimated to be at 113.15 % ( 18.85 yearly).

## Assumptions for the Pro Forma Income Statement

### Revenue

#### Line Item

1. Gross Lumber Sales-This is the total of lumber sales made. The assumption is that all inventory from the previous year is sold in the next year.
2. Inventory-This is the amount (in dollars) of the lumber (in board feet) that is available. The assumption that all lumber in inventory is sold in the upcoming year.
3. Number of units-This is the numerical amount of board feet. The first figure in year 1 for 300 logs, with a height of 15 feet and a diameter of 14 inches, yields approximately 28125 board feet of wood. The figures after year 1 are for logs with a height of 15 ft and a diameter of 25 inches. In year 2, it is assumed that SmarTree would process the 80 trees that fall annually (see Appendix). After year 2, the amount of logs processed increases by 25%.
4. Gross Revenue from Removal-This is the amount charged to remove 80 trees of off private property (See Appendix for unit costs).
5. Net Milling Expenses-This is the amount spent by SmarTree to process the trees for the first 3 years.
6. Total Revenue-This is a summary of line items 1 and 5.

### Expenses

#### Line Item

1. Advertising-This expense includes a \$61 charge to have a display in a park in the city or on the street of the city, a \$650 cost to make 20 bats and deliver them 20 miles away, a \$1450 cost to send 1000 brochures to prospective customers through the mail, and a \$2491 cost for driving expenses for the salesperson to transport 1000 brochures.
2. Equipment-A numerical summary of line items a-c. It will be acquired in year 4.
3. Rent/Storage-No rent will be charged at startup because the company plans to use a school office. At the beginning of year 1, as the expansion/sales effort increases, a (insert square footage here) office space will be leased for 14,400 a year.

4. Repairs and Maintenance-This is an assumed figure of the costs of maintaining equipment. We assume that as equipment becomes older that repair cost will increase, by an assumed rate of 10 percent. This will not be charged until year 4.
5. Supplies-This is an assumed figure for the costs of miscellaneous supplies for the office.
6. Trademark- A cost of \$375 will be paid for trademark registration [\$275 for Application for registration, per international class (electronic filing, TEAS Plus application) and \$100 for filing an Amendment to Allege Use under §1(c), per class]. A fee of \$100 will be paid in year five for a section 8 affidavit.
7. Utilities-This includes internet access, phone bills, etc. We assumed a base rate of \$6000 for year 1 and assumed a 10 percent increase yearly.
8. Vehicle Expenses-This expense is a summary of the estimated expenses involved with transporting the lumber (fuel, maintenance, etc.).
9. Contract Labor- A numerical summary of line items a-e which are individual wages for key employees.

## Code of Ethics

### Law

*Pressure:* There is a short supply of trees.

*Risk:* We steal trees from private property.

*Measure:* We would be reported to the police by the owner of the property.

*Canon:*           **We will abide by all state and federal regulations.**

### Contracts

*Pressure:* A high volume of wood needs to be sawn in a short amount of time.

*Risk:* An employee cuts corners, does a sloppy job, and breaks the contract by producing low quality wood.

*Measure:* Customer is not satisfied and takes legal action.

*Canon:*           **We will adhere to the terms of the contract.**

### Professional Codes

*Pressure:* We are overstaffed and not all staff have an equal knowledge of procedures.

*Risk:* The employees are not well-trained so they produce low quality wood and the potential for accidents exists.

*Measure:* Higher level employees and customers complain.

*Canon:*           **We will conduct employee evaluations and train employees on a regular basis.**

### Industry Standards

*Pressure:* Facilities and equipment are not inspected or updated and become out of date.

*Risk:* The workplace becomes hazardous to the employees and others.

*Measure:* The workplace fails a safety inspection.

*Canon:*           **We will abide by all industry standards for facilities and equipment safety.**

## Community

*Pressure:* Provide awareness to communities about EAB and Urban Wood Reclamation

*Risk:* Providing false information to mislead community to allow us to take their trees that are not infested.

*Measure:* Community finds out and protests.

*Canon:* **We are honest and respect the values of the community we serve.**

*Pressure:* We work with the city of Chicago (a city that uses tree-age)

*Risk:* The treatment becomes harmful and negatively affects the city forest and potentially other life.

*Measure:* We are associated with the city therefore we are also associated with tree-age. We are pressured to take measure.

*Canon:* **We inform people about tree-age and warn them about any negative affects we know it has and urge the people to speak up to the city and/or not use it for their private property.**

## Personal Relations

*Pressure:* Employee befriends customer and wants to maintain the friendship.

*Risk:* The employee offers friend discounted shady deals.

*Measure:* Other employees and customers observe this and complain to the Better Business Bureau.

*Canon:* **Regardless of personal relations with customer we are honest and provide equal service to every customer.**

## Moral Values

*Pressure:* A city hires us to cut down public trees.

*Risk:* We offend and upset the community due to their ignorance of the problem.

*Measure:* Major community protests emerge.

*Canon:* **We will properly educate and inform the community before taking action to cut down trees.**







Revised Project Plan

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## **Abstract**

The Emerald Ash Borer has created a huge problem in the Midwest. Migrating from Southeast Asia via human transport, it has invaded the United States and select portions of its Ash tree population. This has resulted in devastating effects for the ash tree and its habitat. This situation has resulted in a lot of ash wood that is currently mostly going to waste and the goal of our EnPro is to find a use for this wood.

In the beginning, our focus was solely on ash wood. However, when we discovered how much of an untapped resource urban wood was, we decided to broaden our focus to include other urban woods that face similar problems due infestation or other destructive forces that include but not limited to nature, and use the wood as a way to provide a positive environmental impact. Since the focus shifted from one particular wood to all urban from urban forest we developed a business model that utilizing the concept of vertical integration.

Furthermore the business model we developed is one that can be used in many urban areas such as Chicago and surrounding suburbs but we put to test the model in the 3<sup>rd</sup> ward as a pilot. This pilot covers the every area from finance to marketing to ethics that would be necessary to run a business across a greater area. Through the implementation of this pilot we have discovered many of the problems we would face and many of the successes. Enpro 350 has come a long way since the very first day and has developed successful ideas and valuable resources along the way that has led this group to develop into an actual business that we are proud of. SmarTree formally known as Enpro 350 is glad to present the work we have done in efforts to attack the issues of urban forestry.

### **Mission Statement:**

"To Satisfy Our Customers by Providing High Quality Wood from Urban Forests while Creating a Positive Change in the Environment"

## **Background**

A – Our customers will include local Chicagoland governments and businesses that would otherwise buy wood from generic sawmills. These would include construction companies, developers, furniture makers and home furnishing manufacturers (cabinetry, flooring...). Our sponsors would provide us with potential grants that support the awareness of the Emerald Ash Borer infestation and also the expansion of urban forestry. One of the sponsors would be the Illinois emerald Ash Borer Wood Utilization Team. Another sponsor on a national level would be the U.S. Forest Service Wood Education and Resource Center.

B – The goal of our Enpro is to find a use for urban trees that are cut down and wasted. Our Enpro is focused in finding a more efficient and green way of reclaiming the wood from urban trees that were either affected by the Emerald Ash Borer or had to be removed for another reason. Our research began focusing on the Emerald Ash Borer infestation and how thousands

of trees with salvageable wood weren't being used to their full potential or even at all. We then realized that the problem was much bigger and extended to any tree being taken down in an urban setting, where most of the time, they ended up being made into sawdust or completely thrown away.

Problems our company will face include getting our product certified as a sustainable material so that in the future, LEED points will be granted to consumers that use our wood in their projects. Another problem we might encounter is the lack of control over the quality and quantity of supply of our raw material. Lastly a big challenge will be to educate and raise awareness of this urban wood market, so that our customer base is expanded.

C – The technology involved in our business deals with the actual milling of the urban wood we process. Because of the presence of metals in the wood, metal detectors are needed. However, we do not see technology as a possible failure for the business. Our main concern is to get certified, because based on other sawmills that deal with Urban Forestry, certification is necessary to grow your client base and to sell the product at a higher price.

D- Not applicable because this is a first semester EnPro.

E – Our business will be morally responsible in that we will not only make a profit off of the Emerald Ash Borer problem, but we will invest into the research to find solutions for it, and also to educate the public about it. Wood will also be donated to charities, such as Habitat for Humanity. We are also true to our mission statement in that we will only use wood from urban trees that were cut down either because they were infested with the Emerald Ash Borer or because they posed a safety concern to the community they were in. Also, another responsibility the company will have is to guarantee the wood is safe for the potential consumer.

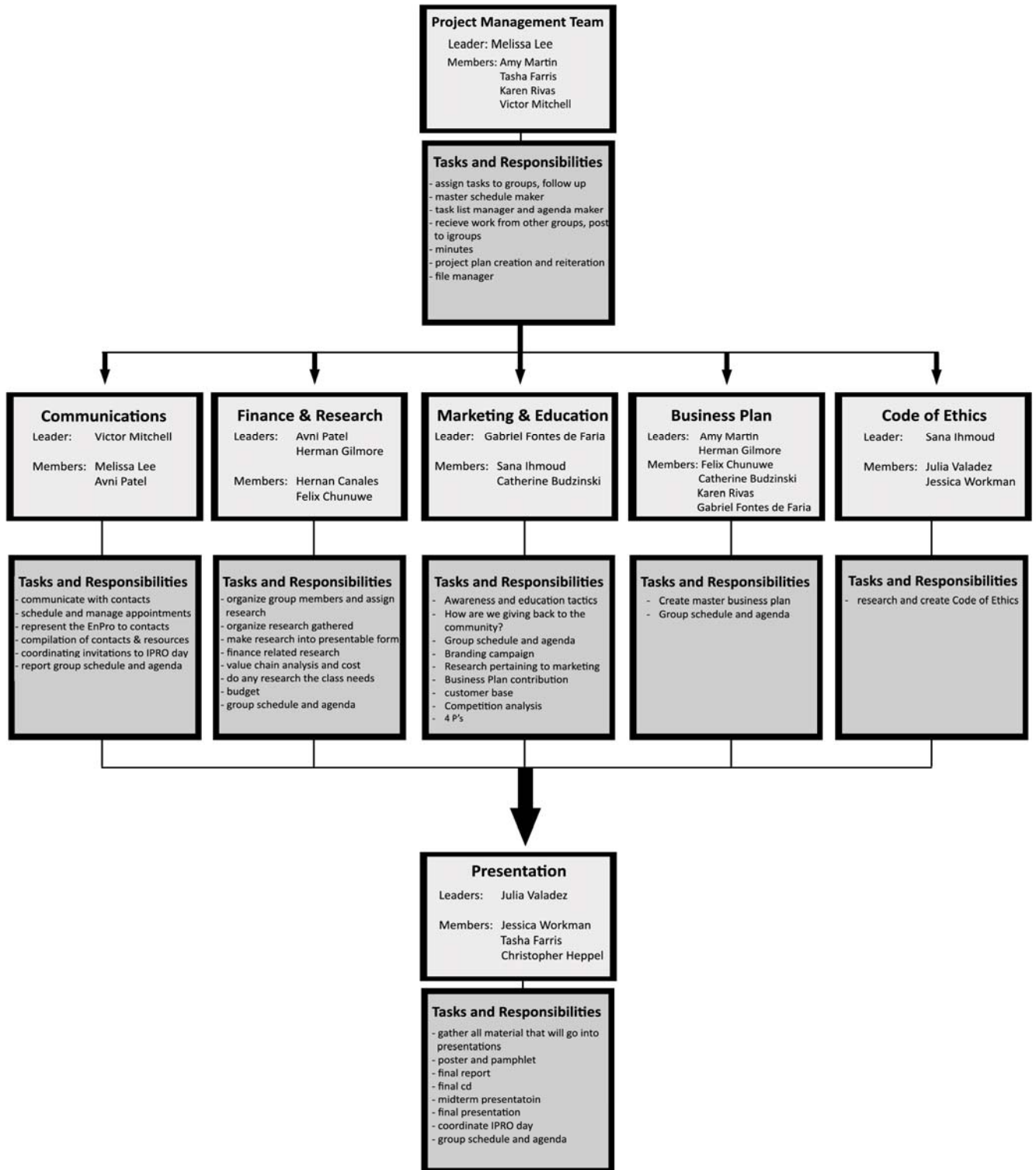
## Objectives

To achieve the aforementioned goals, we must fulfill the following objectives:

- Local- we must create a partnership with local governments as both customers and support for potential tax break laws.
- Urban-we are focused on wood from local urban setting, and thus, must evaluate the profitability of each city's urban wood offerings
- Quality, variety- we will understand how to utilize and market the variety of woods we will be obtaining.
- Problem-we must address the issue and contribute to education regarding the EAB issue that inspired the EnPro. Emerald Ash Borer beetles are destroying ash trees across the Midwest, subjecting them to removal. The wood is of quality and not properly utilized.

- Sustainability- we must project to the customer how our product is sustainable and also find a way to contribute back to the initial environmental problems associated with some urban woods (EAB).
- Competitive pricing- we must determine how to turn a profit, beat out our competitors, and find investors
- Certification- we would like to offer some sort of certification that our wood is a.) safe b.)of quality and c.) sustainable/ green
- Education- we must find a way to market our sustainability and create connections with local environmental associations
- Target market- We must look to target individuals or groups that are concerned with environmental issues or our wood product.

# Methodology/ Work Breakdown Structure



## Schedule of Tasks and Milestone Events

This is the first semester of EnPro 350 Environmental Wood Reclamation, so there is a broad array of work to do.

We broke our research down into 2 phases. **Research Phase One** consisted of basic research on the topic of Urban Wood and the Emerald Ash Borer problem. After that was out of the way, and we had roughed out the basics of our project plan, we moved on to Phase Two. During **Research Phase Two**, we began to get really specific in our research. We divided into 7 subgroups, each of us participating in two groups. Within these groups, there are team leaders who are responsible for the organization and completion of their group's tasks.

Each of the team leaders reports to the Project Management Team, which organizes and oversees the Project Plan as a whole.

### Research Organization and Contributors

<b>Id</b>	<b>Task</b>	<b>Start</b>	<b>End</b>	<b>*Hrs.</b>	<b>Team members</b>
<b>1.0</b>	<b>Research Phase I</b>	<b>06/05/08</b>	<b>06/12/08</b>		
1.1	Group I people who cut trees	06/05/08	06/10/08	1.0	Karen-Julia-Jessica
1.2	Group II sawmill operators	06/05/08	06/10/08	1.0	Herman-Felix-Hernan
1.3	Group III wood manufacturers	06/05/08	06/10/08	1.0	Chris-Catherine-Tasha
1.4	Group IV	06/05/08	06/10/08	1.0	Avni-Gabriel-Sana
1.5	Group V wood products retailers	06/05/08	06/10/08	1.0	Melissa-Victor-Amy
1.6	EAB conference	06/10/08	06/10/08	2.5	All members
1.7	General meeting to re-structure and start Research Phase II	06/12/08	06/12/08	2.0	All members
<b>2.0</b>	<b>Preliminary Project Plan</b>	<b>06/12/08</b>	<b>06/17/08</b>		
2.1	Division of task for project plan	06/12/08	06/12/08	1.0	All members
2.2	Abstract	06/16/08	06/16/08	1.5	Tasha-Victor
2.3	Background	06/12/08	06/16/08	3.0	Gabriel-Sana-Catherine
2.4	Objectives	06/16/08	06/16/08	1.5	Melissa-Victor
2.5	Work breakdown structure/Methodology	06/16/08	06/16/08	3.0	Julia-Jessica-Karen-Avni
2.6	Budget	06/16/08	06/16/08	1.5	Chris-Hernan-Amy
2.7	Team structure and assignments	06/16/08	06/17/08	2.0	Tasha-Felix
<b>3.0</b>	<b>Research Phase II</b>	<b>06/12/08</b>	<b>06/19/08</b>		
3.2	Certification of urban wood	06/12/08	06/19/08	2.0	Victor-Hernan

3.3	Tree manufacturers	06/12/08	06/19/08	2.0	Chris-Jessica
3.4	Wood species and qualities	06/12/08	06/19/08	2.0	Karen-Sana
3.5	Potential grants	06/12/08	06/19/08	2.0	Amy-Tasha
3.6	Value Chain	06/12/08	06/19/08	2.0	Herman-Avni
3.7	Urban wood in Chicago	06/12/08	06/19/08	2.0	Melissa-Felix
3.8	Tree assessment and removal	06/12/08	06/19/08	2.0	Julia
3.9	New team structure	06/19/08	06/19/08	1.0	
			<b>Total</b>	<b>17.0</b>	
<b>4.0</b>	<b>Project Management Team</b>				
4.1	Team structure division of task meeting	06/20/08	06/20/08	2.5	All members
4.2	Creating master schedule			4.0	Tasha
4.3	E-mail to teams			0.5	Tasha
4.4	Agenda	06/22/08	07/13/08	4.0	Amy
4.5	IGroup files	06/24/08	07/18/08	4.0	Karen
4.6	Minutes	06/24/08	07/22/08		Amy
4.7	Meeting preparation for mid-term deliverables	06/20/08	06/20/08	2.0	All members
4.8	Meeting preparation for final deliverables	07/16/08	07/16/08	2.0	Tasha-Melissa-Karen
			<b>Total</b>	<b>19.0</b>	
<b>5.0</b>	<b>Finance and Research Team</b>				
5.1	Research Phase III	06/20/08	07/16/08		
5.2	Raw materials	06/22/08	06/22/08	1.0	Herman
5.3	Wood for power plant	06/20/08	06/20/08	2.0	Hernan
5.4	Cost of Ash tree processing	07/01/08	07/01/08	4.0	Felix
5.5	Marketing research	07/06/08	07/06/08	3.5	Chris-Avni-Herman
5.6	Marketing cost	07/09/08	07/09/08	1.0	Avni
5.7	Financial plan research	07/11/08	07/11/08	2.0	Avni-Herman
5.8	Cost assessment	07/11/08	07/11/08	2.0	Herman-Avni
5.9	Value chain analysis	07/06/08	07/16/08	8.0	Avni-Herman
			<b>Total</b>	<b>23.0</b>	
<b>6.0</b>	<b>Communication Team</b>				
6.1	EAB Press conference EnPro 350 representation	06/17/08	06/17/08	1.5	Victor
6.2	Logistics for Ash Trees	06/17/08	06/17/08	0.5	Victor
6.3	Contacting speaker for lectures	06/20/08	07/01/08	4.0	Avni
6.4	Communications and Marketing team meeting	06/18/08	06/18/08	1.0	Victor-Avni



6.5	Media collection from press conference	07/08/08	07/08/08	1.0	Victor
6.6	Follow-up e-mail with outside resources	07/10/08	07/10/08	2.0	Victor
6.7	Developing and e-mailing questionnaire to contacts	07/11/08	07/11/08	2.0	Victor
6.8	Create and send invitations to contacts	07/17/08	07/17/08	2.0	Victor
6.9	Gifts for contacts	07/17/08	07/17/08	1.0	Victor
			<b>Total</b>	<b>15.0</b>	
<b>7.0</b>	<b>Marketing and Education Team</b>				
7.1	EAB Press conference EnPro 350 representation	06/17/08	06/17/08	1.5	Catherine-Gabriel-Sana
7.2	Potential customers, competitors, the 4P's, awareness and education	06/23/08	06/23/08	2.0	Catherine-Gabriel-Sana
7.3	Patent and marketing seminar	06/24/08	06/24/08	2.5	Catherine-Gabriel-Sana
7.4	Logo brainstorming	07/01/08	07/01/08	1.0	Catherine-Gabriel-Sana
7.5	Marketing strategy and product story	07/07/08	07/07/08	1.5	Catherine-Gabriel-Sana
7.6	Wood manufacturers	07/15/08	07/15/08	1.0	Gabe
7.7	Business cards and gift graphics	07/17/08	07/17/08	5.0	Catherine-Gabriel-Sana
7.8	Marketing diagrams	07/18/08	07/18/08	3.0	Catherine-Gabriel-Sana
7.9	Company name and logo	07/07/08	07/07/08	3.0	Karen
7.10	Design and Creation of wood cards	07/07/08	07/23/08	6.0	
			<b>Total</b>	<b>26.5</b>	
<b>8.0</b>	<b>Business Plan Team</b>				
8.1	Division of tasks	06/19/08	06/19/08	1.0	Amy-Herman
8.2	Business plan samples research	06/19/08	06/24/08	1.0	All members
8.3	Budget plan	06/16/06	06/16/06	1.0	Amy
8.4	Business plan review section	07/01/08	07/01/08	1.0	All members
8.5	Introduction and Product analysis	07/07/08	07/07/08	2.5	Karen
8.6	Marketing strategy	07/07/08	07/07/08	1.5	Gabriel-Catherine
8.7	Financial research	07/07/08	07/7/08	4.0	Herman-Hernan
8.8	Financial plan research	07/08/08	07/11/08	6.0	Herman
8.9	Analysis of prepared location and usefulness	07/09/08	07/17/08	3.0	Felix
8.10	Compiling 1 <sup>st</sup> draft of business plan	07/09/08	07/09/08	1.0	Amy
8.11	Marketing strategy	07/14/08	07/14/08	2.0	Hernan
8.12	Marketing plan	07/17/08	07/17/08	5.0	Felix

8.13	Final Financial research and plan	07/16/08	07/16/08	4.0	Herman-Hernan
8.14	Cost reassessment	07/19/08	07/19/08	1.0	Herman-Avni
8.15	Compiling, write and proofread final business plan	07/19/08	07/19/08	4.0	Amy
			<b>Total</b>	<b>38.0</b>	
<b>9.0</b>	<b>Code of Ethics Team</b>				
9.1	First draft	06/23/08	07/10/08	2.0	All members
9.2	Completing Code of Ethics	07/14/08	07/14/08	2.0	All members
9.3	Review and final Code of Ethics	07/17/08	07/17/08	1.0	Sana
			<b>Total</b>	<b>5.0</b>	
<b>10.</b>	<b>Presentation Team</b>				
10.1	Midterm presentation layout	06/25/08	06/25/08	1.5	Julia
10.2	Midterm power point presentation	06/25/08	06/25/08	5.0	All members
10.3	Midterm presentation script	06/24/08	06/24/08	3.0	Tasha-Victor
10.4	Compiling material for final presentation	07/08/08	07/08/08	1.5	Tasha
10.5	Preparation for final presentation	07/17/08	07/17/08	2.0	All members
			<b>Total</b>	<b>13</b>	
<b>11.0</b>	<b>EnPro Final Deliverables</b>				
11.1	Abstract/Brochure – Poster outline and script	07/18/08	07/18/08	3.5	Karen-Melissa
11.2	Creating Abstract/Brochure	07/19/08	07/19/08	9.0	Jessica
11.3	Creating Poster	07/20/08	07/21/08	8.0	Chris
11.4	Compiling and Final Report			10.0	Tasha
11.5	Power point presentation			20.0	Julia - All Members
11.6	Final Project plan			3.0	Tasha-Victor
11.6a	Abstract			1.0	Victor-Tasha-Herman
11.6b	Background			1.0	All-Members
11.6c	Objectives			1.0	All-Members
11.6d	Work breakdown structure/Methodology	07/21/08	07/22/08	9.0	Karen- Tasha
11.6e	Budget			1.0	Herman
11.6f	Team structure and assignments	07/23/08	07/23/08	2.0	Karen
11.6g	What we learned	07/17/08	07/22/08	5.0	Melissa
			<b>Total</b>	<b>73.5</b>	

\* Hrs. represents time spend per each member on respective task

## Team Goals and Time Projections

**Finance and Research-** This group was in charge of Value chain analysis as well as developing the overall cost sheet of our organization both incoming and outgoing and a possible financial scenario that pertains to a particular area of our business.

Projected time allotment: 75 hours

Actual Time: 40 hours

**Marketing and Education-**This group's objective was to develop ways of marketing our company and services in both a way that would make a positive impact on the community through education. This group also was tasked with the development of making literature including business cards, story cards, etc.

Project time allotment: 60 hours

Actual time: 26.5 hours

**Ethics-** This group's objective was to come up with ethical questions and solutions pertaining to our business practices.

Projected time allotment: 20 hours

Actual time: 5 hours

**Communications-**This group was charged with developing and maintaining connections through networking. This group monitored and handled all communication between our organization and the outside connections. Furthermore all meetings and presentations were set up through this group.

Projected time allotment: 40 hours

Actual time: 15 hours

**Presentation-** This group had the responsibility of developing presentation materials ie., Posters, Brochures, PowerPoint, etc., that all pertained to the deliverables that were needed for IPRO day.

Projected time allotment: 80 hours

Actual Time: 86.5 hours

**Business Plan-**This group developed a very detailed report of how to develop a functioning business through the research and data that we ascertained. The collection of all of this information developed a business model that can be implemented to start our business successfully.

Projected time allotment: 60 hours

Actual time: 38 hours

All deadlines were met before the next set due date with the help of all members through reminders. Most of the due dates were cumulative so the completion of one task sometimes relied on the completion of another whether that was internal of the particular group or external with other groups.

## Milestone Events

Project Planning: There were clear calendar dates that were set in order to accomplish certain goals such as research, marketing plans, and due dates for deliverables. To ensure that these things were done constant reminders were sent out from the project management group.

Calendar:

### June

12-General meeting: Discussion focused on Project planning

23-Update Tasks: Update tasks and goals and days you would like to add to the calendar and submit

    this list along with agenda items for next meeting to Amy by 9:00pm.

    Business Plan Group-Task: Think of sections that should be included in the Business Plan and send to Amy

24-Presentation Materials due by 9pm: All materials for the midterm need to be submitted to the

    presentation group folder by 9pm.

    Task: Research group: List and prioritize research topics

    Task: Think of all questions for resources to give to communications department

26-Midterm Presentation: Present

30-Agenda: Submit agenda to Amy by 9:00pm including: anything you would like to discuss in the

    meeting, things accomplished in the last week, tasks planned for upcoming due dates.

### July

1-Speakers: Mike Brown from Streets and Sanitation of Chicago and Gerry Ham saw mill operator, and Matt and Thorton from Carbon Solutions.

3-Budgets due: Financial budgets due plus budgets for the class.

7-Agenda-Send Agenda topics to Amy by 9pm

    Communications: Work on invites for IPRO Day

10-Finance: Final Budget

    Business Plan: First Draft due

13-Final: Presentation materials due

14-Agenda: Turn in agenda items to Amy

17-Final: Business Plan due

    Code of Ethics due

    Tentative: Presentation materials due

21- Agenda: Turn in agenda items to Amy

22-Abstract and Poster due to IPRO office

24-IPRO office due date: Meeting Minutes, iknow uploads, final reports, etc.

26-IPRO DAY!

## Individual Team Member Tasks/ Roles

Name	Major, year	Skills and Strengths	Experience and Academic Interest	Team	Assignments
Catherine Budzinski	Architecture, 5	Illustrator, Photoshop, AutoCAD, 3ds Max, MS Office, Viz, Powerpoint, Dr Frame, Lasercutter, shop. Public speaking ok. Organizing and managing.	architectural internship, secretary, and counseling kids. I also enjoy gardening, biking, and movies	Marketing and Education, Business Plan	minutes, background part of project plan, marketing strategy, product story, business card, local wood manufacturers research, press conference, marketing seminar
Hernan Canales	Business Administration, 4	Business Finances (strength), not so much public speaking.	worked for a big company in Mexico, recording revenues into system.	Finance and Research, Business Plan	Financial research, marketing strategy, financial plan, certification, Budget part of the project plan, wood for power plant research, income statement of business plan
Felix Chunuwe	Mechanical	Microsoft office suite, AutoCad,Solid Edge, Organizing, and Managing.	Current working with a design engineering group, and interested in business	Finance and Research, Business Plan	Team structure part of project plan, urban wood research, cost of Ash tree processing, marketing plan, analysis of prepared location
Tasha Farris	Architecture, 4	Illustrator, Photoshop, AutoCAD, 3ds Max, MS Office	Campus and Conference Center Employee, tentatively plan on pursuing a career in digital design (3d modeling and animation). Also very interested in entrepreneurship.	Project Management, Presentation	Abstract and Team structure part of project plan, potential grant research, master schedule, communication to other sub-teams, preparation for midterm and final deliverables, midterm script and presenter, outline for final deliverables, created outline and script for final presentation, compiled and created booklet, power point presentation, compiled, revised and updated final project plan
Gabriel Fontes de Faria	Architecture, 5	Illustrator, Photoshop, AutoCAD, very organized and detail oriented. Public speaking ok.	I am from Brazil and have lived in 5 cities, and 3 countries because of my dad's executive position. Aside from architecture, I am interested in photography and traveling.	Marketing and Education, Business Plan	minutes, background part of project plan, marketing strategy, product story, business card, local wood manufacturers research, press conference, marketing seminar, marketing team leader
Chris Heppel	Architecture, 5	Illustrator, Photoshop, AutoCAD, very organized and detail oriented. Public speaking ok.	Internship at Chicago Park District. Interested in Photography, Outdoor, Computer	Presentation, Code of Ethic, Research and Finance	Budget part of project plan, tree manufacturers research, marketing research, creating code of ethics, midterm power point presentation, poster,
Sana Ihmoud	Architecture, 5	Illustrator, Photoshop, AutoCAD, 3d Programs, MS Office, model making	previously employed in retail, I like writing, reading, coloring. I have the experience of an average fifth year architecture student .	Marketing and Education, Code of Ethics	Minutes, background part of project plan, wood milling and safety research, press conference, patent seminar, product story, code of ethics team leader
Melissa Lee	Biochemistry, 4	writing, speaking, facilitating team discussions, biological aspects	Intern at IIT for Service-Learning group. Have done research on non-profits and lead group discussions with 20+ peers. Interested in biology and business.	Project Management, Communications	Objectives part of project plan, urban wood research, preparation for midterm and final deliverables, outline and scrip for abstract/brochure, what we learned part of booklet, project management team leader
Amy Martin	Business Admin and Applied Science, 3	collecting and organizing things, taking notes, communicating with other team members, and finding information. I'm a behind-the-scenes person.	work in telecommunications office at IIT, at home I am a pharmacy technician. Involved in SGA, chess club, tennis club, and Alpha Sigma Alpha- VP and recruitment. Really interested in biochemistry.	Project Management, Business Plan	Budget part of project plan, potential grant research, minute taker, agenda maker, budget plan for business plan, compiling first draft of business plan, compiling proofread of final business plan, co-leader of Business Plan Team
Victor Mitchell	International Business w/ minor in Architecture, 4	Project leading, Visions, Design, Photoshop, AutoCAD, detail oriented, Public Speaking, Presentation	Student Government Association-VP of Comm., GLAM!-VP, Student Ambassador-Admissions, Student Peer Councilor-OMSS, Gospel Choir, Registrar's office, Traveling, Environmentalism, Marketing, Design	Project Management, Communications	Abstract and objectives part of project plan, urban wood certification research, preparation for midterm deliverables, midterm script and presenter, logistics, contacting speaker for lectures, EnPro350 representation to outside resources, created invitations and gifts to contacts, compiled, revised and updated final project plan. final presenter
Avni Patel	Architecture, 4	Illustrator, Photoshop, AutoCAD, organizing, keeping work on task, busy work. Yuck public speaking.		Finance and Research, Communication	Work breakdown structure part of project plan, value chain research, marketing research, marketing cost, financial plan research, cost assessment, value chain analysis, Finance and Research team leader, contacting speaker for lectures, scheduled lectures

Karen Rivas	Architecture, 5	Illustrator, Photoshop, AutoCAD, MS Office, Power Point, planning, organizing	Project Coordinator for Interior Design Company, currently helping build bakery business specializing in custom 3-d and specialty cakes. Other interests: arts and crafts projects, photography.	Project Management, Business Plan	Work breakdown structure part of project plan, wood species and qualities research, Igroup files, preparation for midterm and final deliverables, created outline for final presentation, outline and script for abstract/brochure-poster, made work breakdown structure chart and updated team structure and assignments chart for final project plan, compiling information for booklet, introduction and product analysis part of business plan, made company name and logo
Julia Valadez	Architecture, 5	Illustrator, Photoshop, AutoCAD, organizing,	president of Architectos, lit chapter, knitting, playing guitar	Presentation, Code of Ethics	Work breakdown structure part of project plan, tree assessment and removal research, creating code of ethics, midterm presentation layout, midterm power point presentation, final power point presentation, Presentation Team leader
Jessica Workman	Architecture, 5	Illustrator, Photoshop, AutoCAD	associates degree in Engineering, work for small engineering firm, a member of Architectos	Presentation, Code of Ethics	Work breakdown structure part of project plan, tree manufacturers research, creating code of ethics, midterm power point presentation, final power point presentation, created final abstract/brochure.
Herman	Business Admin. And Applied Science, 5	Microsoft office, quicken, micromanagement, organizing	member of undergraduate business council, worked on semester-long entrepreneurship project.	Business Plan, Finance and Research	Value chain research, marketing research, financial plan research, cost assessment, value chain analysis, financial plan of business plan, cost reassessment, compiled, revised and finalized final business plan, co-leader of Business Plan Team

**Results**

The results of this business have been ever changing because of the change of our focus throughout the project due to the presentation of new information that has changed outcome. At first our expectations were that we were going to be able to use City of Chicago as a resource to get urban trees from primarily ash trees but due to the introduction of a chemical treatment that resource was reduced. From all the wood that we received we would continue the process outlined in our vertical integration to produce lumber, energy or other products. As of current we have been able to use the wood we have to be made into gifts, furniture and energy. By correctly cutting the tree there will always be enough to make energy from the tree and using the other part for gifts, furniture, or lumber. We have developed many options in the various product areas that can be an avenue of income for our business. Since discovering the many uses of the reclaimed wood we will be able to gain more income by broadening our focuses. Throughout this project we wanted to provide education and promote environmental healthiness by utilizing this wood that is seen as garbage we promote environmentalism and educate people of the options of how to make the environment better along with increases the value of urban woods by showing the many uses it has. The evidence provided through our deliverables is enough to start a business but it is understood that revisions will need to be made accordingly. We believe that while we have not discovered all the answers to the patrons of the urban wood industry or that of our consumers we know that we have made great strides towards solving them in one semester. As this enpro is continued throughout other semesters we believe that are results will be expanded upon because the options that were developed and the results yielded are just a scratch on the surface of what can be done to solve more problems in the future.

## Final Project Budget

I PRO Budget		
I PRO Day Table	\$100	Table at I PRO day
Poster	\$160	Posters for I PRO day
Final Report	\$40	Print & Bind Final Report
Food	\$200	Dinner for late nights working
Total	\$500	

## Obstacles & Resolution

1. Cooperation from the city of Chicago in rearranging the way wood waste is dealt with in, despite the stigma that urban wood is trash.

Resolution: We are working with the Illinois Wood Utilization Team and the office of the 3<sup>rd</sup> ward Alderman to make progress in community awareness of urban wood, as well as make people aware of the opportunities that urban wood can provide.

2. Transportation and storage of infested trees in a quarantine zone, as well as the startup costs associated.

Resolution: Illinois Institute of Technology has worked with us to cover the costs inherent in treating the infested wood with proper precautions. We are storing the wood near its original location, on IIT property, keeping it within the quarantine zone and within regulations.

3. Changing the perception of “no value” associated with urban wood.

Resolution: Our team has created a marketing and education group to delve into the issues of awareness and marketing opportunities. We have also established relationships with political leaders like Senator Dick Durban and the Alderman of the 3<sup>rd</sup> Ward. Our contacts and resources we have made through the semester are willing and able to support our cause and help us in finding a solution to the no market situation.

4. The City of Chicago wants to use a chemical treatment *Tree-Age* to kill off the Emerald Ash Borer and get rid of the problem. This would take away the original advantage we foresaw in our original ideas for our business. Due to the costs associated with *Tree-Age*, our team thinks that that solution will not stick. Eventually, the trees will die anyway, but only after having incurred many “medical bills.” So, basically, we don’t think *Tree-Age* will be successful, and we are continuing our business plan as we originally intended.



## **Recommendations for EnPro 350**

### **What we have learned**

The EnPro was an eye opener, in terms of seeing how a societal problem could be turned into a business opportunity. It also, made us aware of the different types of trees in our urban areas, and the impact that a small pest can make on an entire community.

### **Ideas for next semester's EnPro**

One thing that is evident from the many discussions with the subject matter experts, is the problem associated with the demand of the products made from ash/urban wood and not the supply of ash/urban wood. So we advise the next EnPro 350 class to devote a substantial part of its time trying to come up with the type of marketing strategies and tactics to be use to overcome or create a demand for the products made form ash/urban wood. We believe this could be achieved by going to the field to talk to sellers of ash/urban wood, woodworkers, and customers alike to find out what are the current market challenges both sellers and woodworkers are facing (what are they doing now, and what could be done differently), and what is it the current customers want, and how can we add value to that. Since part of the problem is the perception of "no value" associated to the wood. Then, how do we change that? How do we create a need for products made from this wood, because that is the driver for every purchase decision (consumer wanting to meet a need).

### **What not to repeat**

We would not want to see the next group talk about selling ash/urban lumber in massive quantities. Currently the market is not just there (for reasons expressed above), and that is why wholesalers and retailers/woodworkers do not want to carry large inventories of these lumber (even if the supply exist). We believe the driver for this business would be what can be made out of the ash/urban wood, which would generate a demand amongst customers, and in turn encourage the customers to ask the retailer/woodworker for the product. Seeing demand from the customers, retailers/woodworkers would order more ash/urban wood from the wholesalers and thus demand for the lumber is then pulled through the marketing channel.

# Presentation Materials



**EnPRO 350**

**Environmental Wood Reclamation**



# Definitions



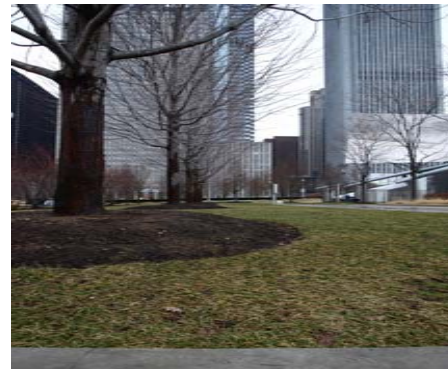
**Urban Forest**



**Harvest Forest**



**Reclaimed wood**



**Urban Wood**

**We are wasting valuable resources!**



**Urban Wood**



# Emerald Ash Borer (EAB)



# Opportunity for Wood



# Emerald Ash Borer (EAB) found at IIT



Senator Dick Durban shows his support at the 29<sup>th</sup> and State press conference on June 22, 2008.



Trees along State Street.



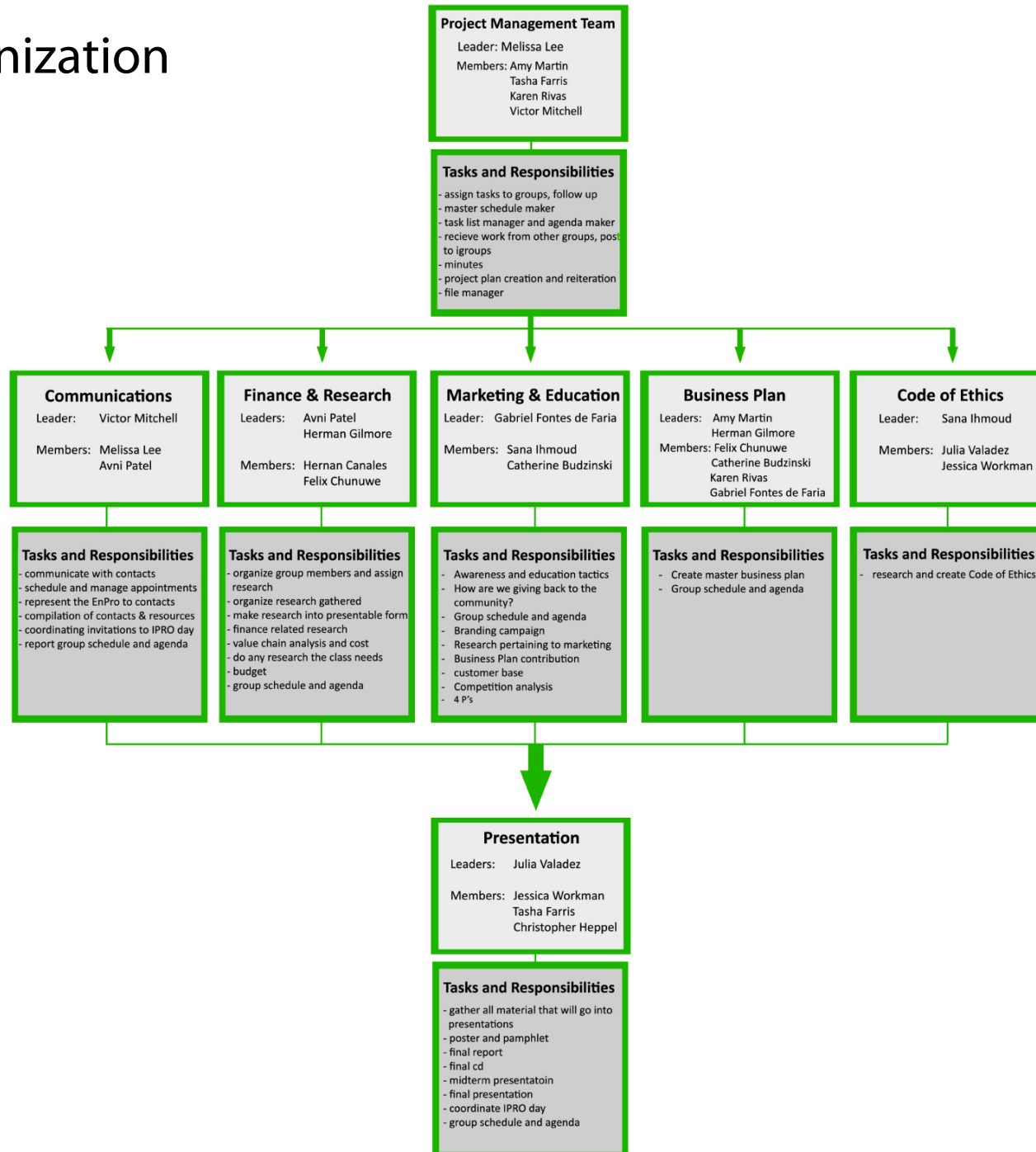
Edith Makra from the Morton Arboretum talking about the Emerald Ash Borer problem and the Wood Utilization Team efforts at the.



Portable Mill on site.



# Team Organization



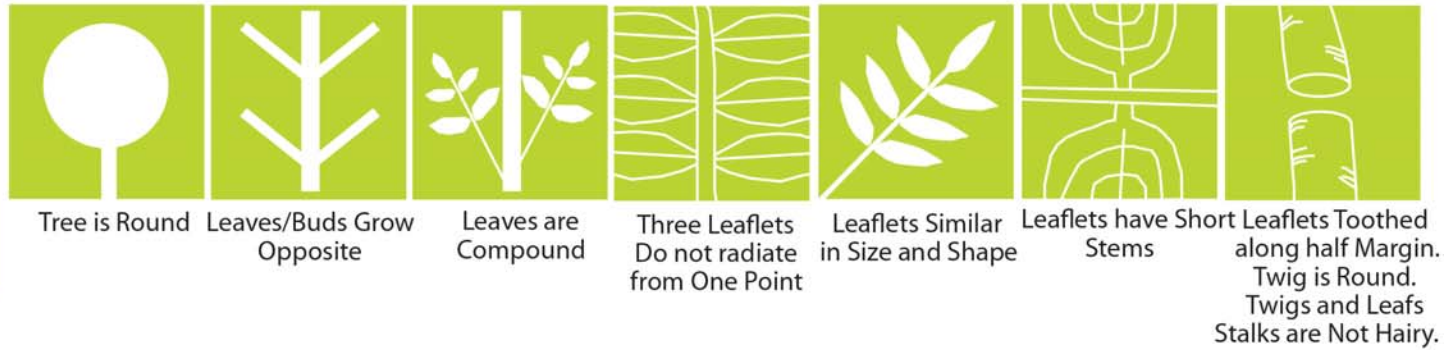
Our Business Solution



**reclaimed wood products**

# Process Flow Chart

Identify the Ash Tree



Arborist Assessment



Sprouting



Exit Holes



S-Shaped Galleries



Adult Emerald Ash Borer

# Process Flow Chart

(continued)

Forester



Branches



Timber



Mulch



Mill on Site



Storage



Planks



Power Plant



or

Landscapers



Consumer



Drying Facility



Storage



Product



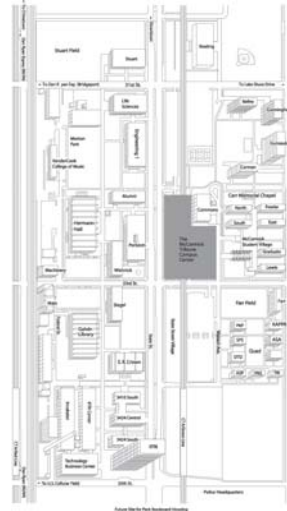
Lumber



# Management and Organization of Business

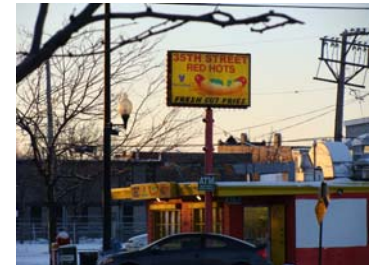
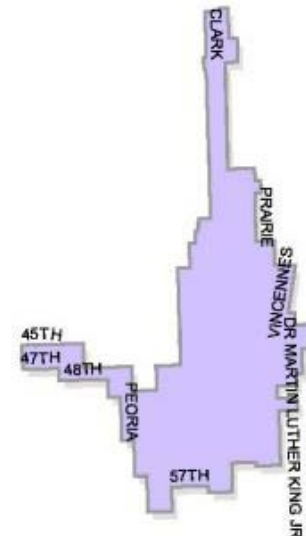
## Location: IIT

- Reduces transportation costs.
- Convenient for clients.
- No cost for rent/lease of facilities.



## 3<sup>rd</sup> Ward (upon need to expand)

- Convenient for our clients
- Able to expand
- Below market rent.
- Important factors to consider: space, truck access, and zoning bylaws concerning a lumber processing business.

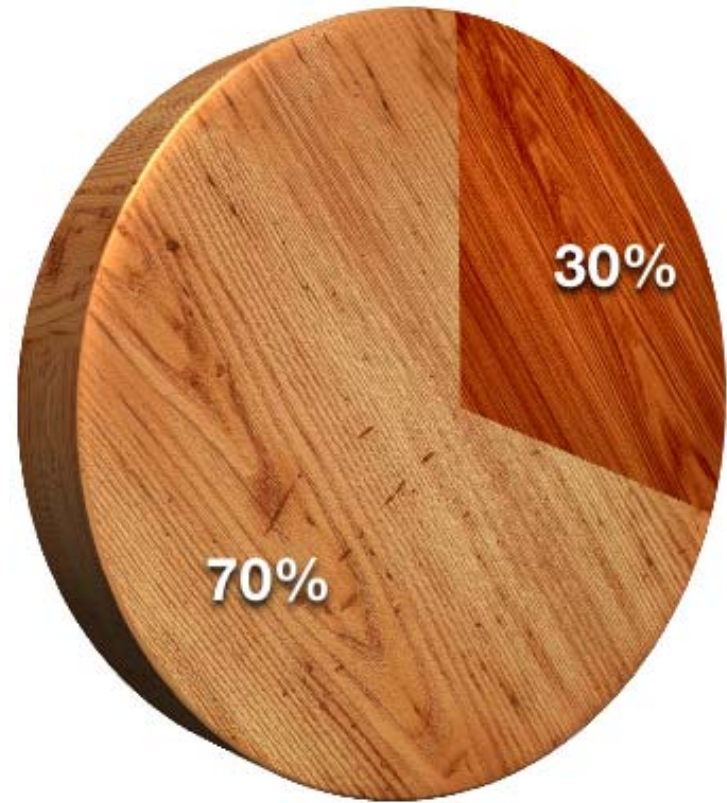


# Total Startup Capital

## Net Income

Cumulative Cash Balance  
- \$553,779

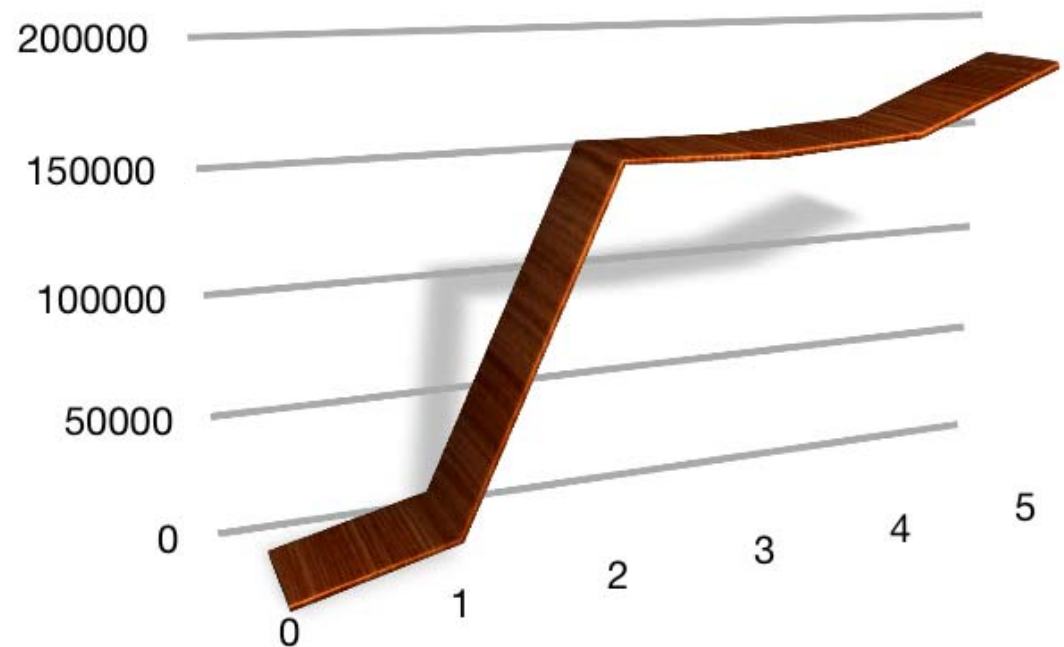
Total Startup Capital Required  
- Initial Startup Capital - \$109790  
- Safety Buffer - \$76316



# Net Income

## Net Income for Startup Year through Year 5

- \$ 15,631.08 – Startup
- \$ 155,524.08 – Year 2
- \$ 154,416.38 – Year 3
- \$ 158,615.08 – Year 4
- \$ 184,066.48 – Year 5



## Investment Return

- Over span of 6 years (startup year and following 5 years) the estimated return on invested is **47.18%**

## Revenue

- Gross Sales - All inventory from the previous year is sold in the next year.
- Inventory -all lumber in inventory is sold in the upcoming year.
- Number of units - This is the numerical amount of board feet. After year 2, the amount of board feet processed increases by **25%**



# Expenses

## Advertising

- \$61 - a display in a park in the city or on the street of the city, a
- \$650 - production of 20 bats and deliver them 20 miles away, a
- \$1450 - send 1000 brochures to prospective customers through the mail,
- \$2491 - driving expenses for the salesperson to transport 1000 brochures.

## Drying Expense

- Kiln Dried - \$3 per board-foot
- Air Dried - Free

## Equipment

- Equipment will be purchased every 5 years. Old equipment will be sold.

## Insurance

- This expense is provided for employees

## Rent/Storage

- Free
- After year 1, office space will be leased for \$14,400 a year

## Supplies

- Cost for miscellaneous office supplies

## Trademark

- \$375 for trademark registration (\$275 for application, \$100 for Amendment to Allege Use)
- \$100 in year 5 for section 8 affidavit

## Utilities

- \$6000 for year 1, 10% yearly increase

## Vehicle Expenses

- Summary of estimated expense with lumber transport

## Wages

- Summary of line items a-e which are individual wages for key employees

## Other Income

## Gain (Loss) of Sale of Assets

- Equipment purchased in startup year will be sold for 1/5th the original purchase price in year 5.

# Acknowledgments and Resources

Laureen T Blissar

**LTLB Development**

Michael Brow

**City of Chicago Streets and Sanitation**

Joseph Clai

**IIT-Director of Campus Energy and Sustainability**

Jeffrey T Coat

**USDA**

John Collin

**IIT-Vice President of Business and Administration**

Michael Dal

**Senator Dick Durbin Chief of Staff**

Paul Deizman

**Illinois Dept of Agriculture**

David Dilwort

**Design within reach**

Robert Elcher

**3rd Ward Alderman assistant**

Gerry Ham

**G.H. Woodworking**

Edward Kalebic

**Robbins Community Powers**

John Krieghause

**College of Arch. IIT**

Edith Makr

**Morton Arboretum**

Michael Picard

**City of Chicago Streets and Sanitation**

T. Thorton Schaa

**Carbon Solutions Group**

David A Vroo

**Morton Arboretum**

Malcolm Whiteside J

**City of Chicago Streets and Sanitation**



## Challenges

### EAB infested wood may not be available due to new pesticide, Tree-age

At this time, Tree-age has not been approved by any local or national government regulatory association as safe or effective. However, the City of Chicago plans to forge ahead and use it. This will affect the amount of trees projected to be obtained from Chicago.

### There is no urban wood market

Urban wood holds a stigma for those in the wood production industry, who believe it is filled with metal. While this is true in many cases, metals can be properly removed and don't compromise the quality of the wood itself.

### People may have objections to tree removal on or near their property

One facet of our company is to educate and consult with prospective customers about the value and safety of removing a dying tree. The free tree assessment will allow the customer to make an informed decision of aesthetics versus safety. Offered in our services is a tree replanting.

### EAB awareness is a primary concern

As EAB is a prevalent issue, we may direct our initial marketing toward it. Within this marketing, we will get customers concerned and aware about this problem. This will reduce the spreading of the bug as well. Once revenue is generated, some funds will go to the EAB organizations.

## The Future

SmarTree plans to be a premier tree removal service. We want to provide unique services in the fact that we deal with a tree from its removal and processing to its distribution as timber. We have researched and compiled competitive rates from separate companies that provide each of our services. Not only do we offer lower prices, but we are going to integrate the services into one company. Reduction in overhead will drive our lower pricing as will a focus on quantity of clients. We are also unique because we will produce reclaimed timber as one of our wood products. Our research sustains that this taps into a very viable green market, as environmentally sustainable materials continue to have high demand.

## Code of Ethics

**Law:** We will abide by all state and federal regulations.  
**Contracts:** We will adhere to the terms of the contract.  
**Professional Codes:** We will conduct employee evaluations and train employees on a regular basis.  
**Industry Standards:** We will abide by all industry standards for facilities and equipment safety.  
**Community:** We are honest and respect the values of the community we serve.  
**Personal Relations:** We are honest and provide equal service to every customer.  
**Moral Values:** We will properly educate and inform the community before taking action to cut down trees

## Resources

### Joseph Clair

Michael Daly  
Edward Kalebich

Michael Picardi

### Malcom Whiteside

Michael Brown

### Edith Makra

Gerry Ham m

### Michele Beaulieux

John Collins  
Robert Elchert  
Jeff Bierig  
Evan Venie  
Mindie Sherman

### Director Campus Energy & Sustainability

Senator Durbin's office

### Robbins Community Power Plant C.O.O.

Commissioner Dept of Streets & Sanitary

### Deputy Commissioner Dept Streets & Sanitary

Assistant General Superintendent Dept of Streets & Sanitary

### Morton Arboretum

G.H. Wood Working (Portable Saw mill operator)

### Work in Motion Marketing Consultant

Vice President of IIT

### Alderman office

IIT Marketing

### IIT Marketing

IIT Marketing

## ENPRO 350

## Environmental Urban Wood Reclamation



reclaimed urban wood products

## Team Members

### Catherine Budzinski

Hernan Canales

### Felix Chunuwe

Tasha Farris

### Gabriel Fontes de Faria

Herman Gilmore

### Christopher Heppel

Sana Ihmoud

### Melissa Lee

Amy Martin

### Victor Mitchell

Avni Patel

### Karen Rivas

Julia Valadez

### Jessica Workman

## Faculty Advisors

Nik Rokop

John Stoner

## Problem Statement

"Create a business solution that targets the problem with urban wood and educates consumers via products and services."

## Objectives

To successfully develop a business model in the 3rd ward of Chicago in which urban trees are utilized into various products, such as lumber, biofuel, etc., instead of being primarily reduced to mulch.

Once successful, Smart Tree will expand its business into other wards and into suburbs, with a focus on utilizing trees affected by the Emerald Ash Borer.

To be morally responsible in not only making a profit off of the Emerald Ash Borer problem, but invest into the research to find solutions for it, and also to educate the public about it.

## What is Urban Wood?

Urban wood is a less desirable wood that usually sawmills are not interested in due to metals, infestation or any other imperfection in the logs. Urban wood comes from construction and demolition sites, dead trees, stumps, sawn lumber, pruned branches, and shipping pallets. This is good quality wood that is treated as waste.

## What is an Urban Forest?

An urban forest is a forest or a collection of trees that grow within a city, town or a suburb. In a wider sense it may include any kind of woody plant vegetation growing in and around human settlements. In a narrower sense it describes areas whose ecosystems are inherited from wilderness leftovers or remnants.

## What is Reclaimed Wood?

Any wood that can be utilized without the need to cut down a healthy standing tree inside the urban forest that has acceptable properties of structural stability, minimal environmental impact, pose no physical harm from prior infections such as natural disease, insect infection, or chemical introduction.

## Our local problem: Emerald Ash Borer

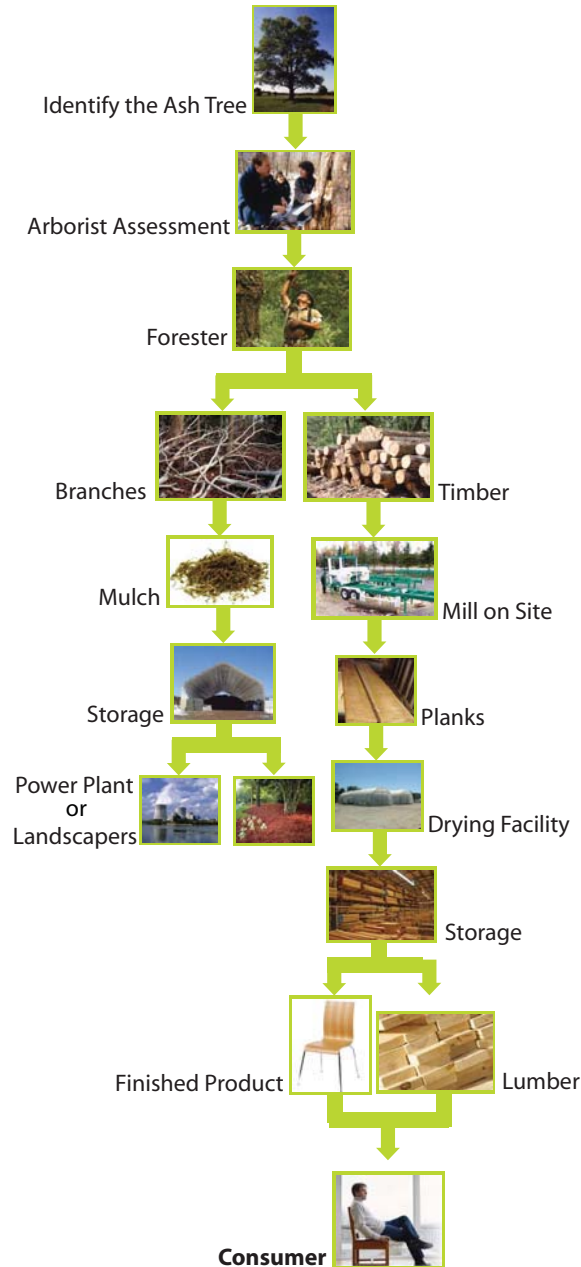
Emerald Ash Borer (EAB) is an exotic beetle from Asia. EAB feeds off of Ash trees by burrowing into the tree until it gets into the cambium layer. When they are larvae (immature stage) they feed off the cambium layer. By feeding off of that particular part of the tree, it cuts off the trees ability to transport water and nutrients. When the EAB is in its adult stage they feed off the leaves of the Ash tree.

## Our Business Solution

### Mission Statement

"To Satisfy Our Customers by Providing High Quality Wood from Urban Forests while Creating a Positive Change in the Environment"

### Process Flow Chart



## Our Team Structure

The success of our project lies in every single member of our team. It is structured where the leaders act as a communication vehicle between the sub teams. All of the partners share equal importance in the decisions regarding SmarTree.



# EnPRO 350: Environmental Urban Wood Reclamation



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## What is Urban Wood?

Urban wood comes from the trees that are growing in cities, towns and suburbs. Its the wood that no one wants because it has foreign objects such as metal, concrete, beer cans, nails, arrowheads. For people that own saw mills it is just to much liability because the wood could damage their mills and injure their workers.

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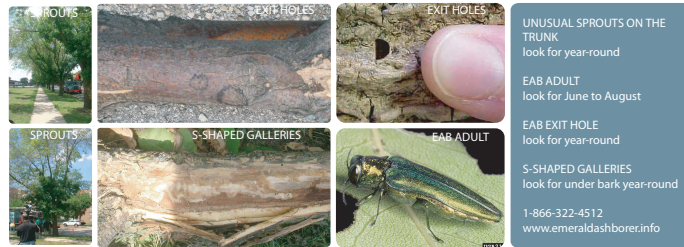
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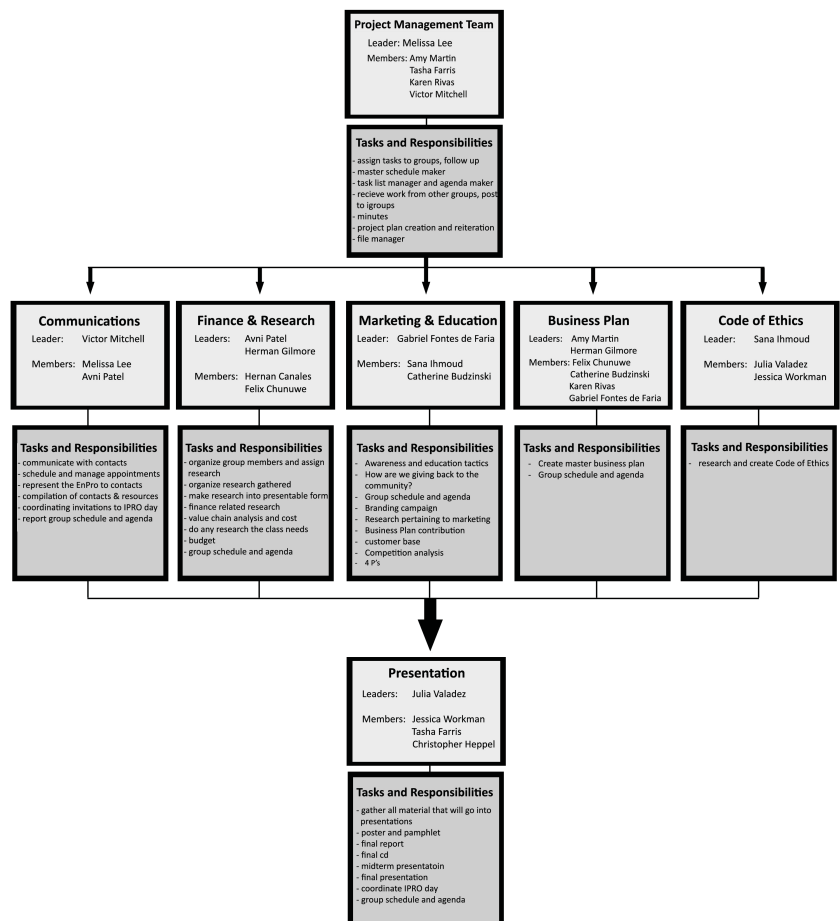
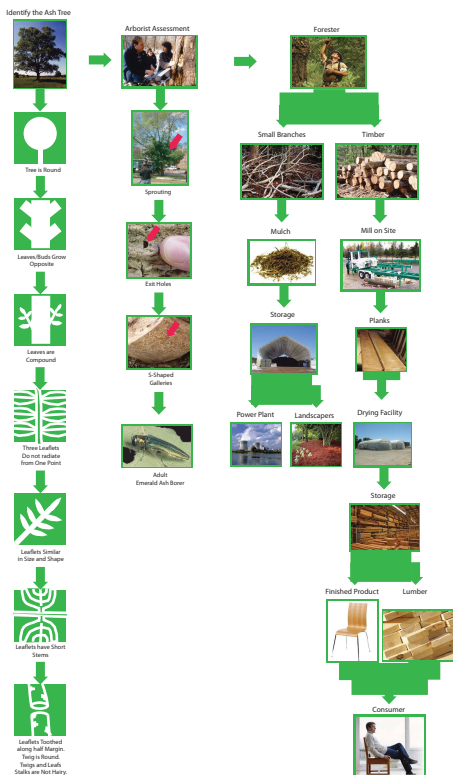
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## Process Flow Chart



# EnPRO 350: Environmental Urban Wood Reclamation



## Challenges

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At this time, Tree-age has not been approved by any local or national government regulatory association as safe or effective. However, the City of Chicago plans to forge ahead and use it. This will affect the amount of trees projected to be obtained from Chicago.

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## Management and Organization

### Management Process

- 15 Team Members in structured partnership
- Each team member is responsible for decisions, management, and liability of the business

### Future HR Needs

- Once operating, business will require more employees
- Employees require strong communication skills, networking skills, quickly adaptive thinking, and creative thinking.

### Location

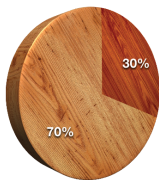
- Initially, our business will be located at IIT.
- Prime location in 3rd Ward, reduces transportation costs and convenient for clients.
- No cost for rent/lease of facilities.
- Upon need to expand, our business will rent a warehouse building.
- The building will need to be convenient for our clients, able to expand, and have a below market rent.
- Important factors to consider: space, truck access, and zoning bylaws concerning a lumber processing business.

## Net Income

Cumulative Cash Balance  
\$553,779

Total Startup Capital Required  
Initial Startup Capital - \$109790  
Safety Buffer - \$76316

Total Startup Capital



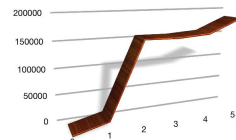
## Net Income for Startup Year through Year 5

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\$158,615.08 - Year 4  
\$184,066.48 - Year 5

## Investment Return

Over span of 6 years (startup year and following 5 years) the estimated return on investment is 47.18%

Net Income



## Revenue

Gross Sales  
All inventory from the previous year is sold in the next year.

## Inventory

All lumber in inventory is sold in the upcoming year.  
Number of units  
This is the numerical amount of board feet. After year 2, the amount of board feet processed increases by 25%

## Expenses

Advertising  
Drying Expense  
Equipment  
Insurance  
Rent/Storage  
Supplies  
Trademark  
Utilities  
Vehicle Expenses  
Wages

## Other Income

Gain (Loss) of Sale of Assets  
Equipment purchased in startup year will be sold for 1/5th the original purchase price in year 5.

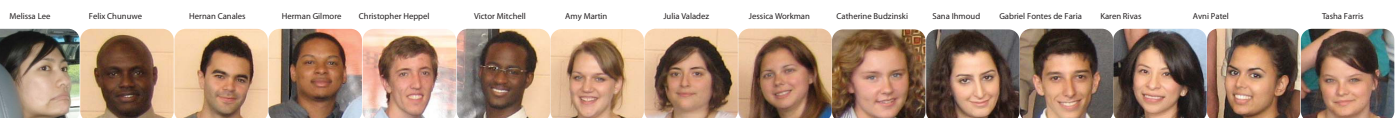


**Products with a story.**  
Mid and high end furniture, cabinetry, hard wood flooring, and sculpture.

This wood is an environmentally conscious product. It was harvested from your local urban forest. Each piece of wood has its own character, just like the tree it was taken from. This very piece was harvested from (location) in the (city name) on \_\_\_\_\_

**SmarTree Products and Gifts**

**Lumber**



# Midterm Presentation

## EnPRO 350 Environmental Wood Reclamation



### Introduction To Our Project

The Emerald Ash Borer is the cause of death for tens of millions of Ash trees in the Midwest.

These dead trees could be utilized, but are often sent to landfills instead.






Countless species of **HEALTHY** trees in cities and towns are getting the same treatment every day.

**We are wasting valuable resources.**

### Project Goals

1. Create a profitable sustainable business
2. Vertical Integration
3. Create Awareness



### Product Process Chart

```

    graph TD
      A[Identify the Ash Tree] --> B[Arborist Assessment]
      B --> C[Forester]
      C --> D[Small Branches]
      C --> E[Timber]
      D --> F[Mulch]
      E --> G[Mill on Site]
      F --> H[Storage]
      G --> I[Storage]
      H --> J[Landscapers]
      I --> K[Drying Facility]
      K --> L[Storage]
      L --> M[Lumber]
      M --> N[Finished Product]
      N --> O[Consumer]
  
```

Vertically Integrated Business

### Progress Towards Goals

**Emerald Ash Borer found at IIT!**

300 Ash trees along State Street to be cut between 29th and 35th.

**Defined uses:**

- Hardwood floors for new student housing.
- Refurnish President Anderson's office.
- Scrap goes to biomass power plant in Chicago.
- Trade School and IIT shop supplier.



Senator Dick Durbin shows his support at the 29th and State press conference 6-22-08.

**Marketing and Education- giving back.**

- create competition programs at public schools to promote awareness and new ideas
- give a percentage of the profit to organizations such as Emerald Ash Borer Society





### Major Obstacles and Resolutions

1. Cooperation from the City of Chicago (or any community)
  - Resolution-** We are working with the Illinois Emerald Ash Borer Wood Utilization Team and the office of the 3<sup>rd</sup> Ward Alderman.
2. Transportation and storage of fallen trees.
  - Resolution** – The Illinois Institute of Technology has volunteered to front the cost for this venture.
3. Changing the perception of “no value” associated with the urban wood.
  - Resolution** – Our team created a marketing and education sub-group to help create awareness and marketing opportunities for the end product of the wood. We have also established relationships with political leaders like Senator Dick Durbin, who are willing to promote the cause, and our solution.

### Major Challenges Anticipated

1. Lack of existing viable urban wood industry
2. Possible low financial return
3. Huge removal demand within a limited time
4. Very little demand for the supply
5. Coordinating with local governments besides Chicago
6. Wide-spread education of urban wood utilization

### Project Team and Organization

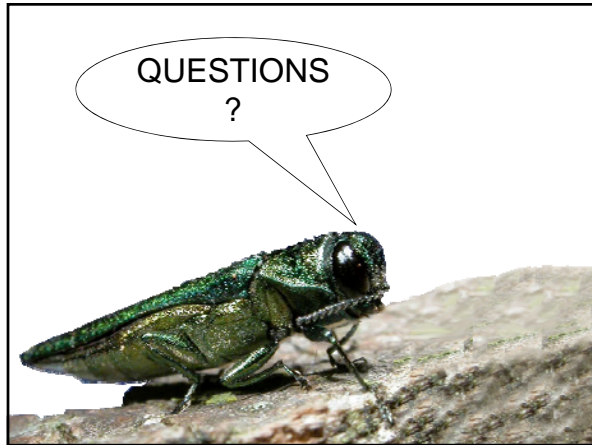
#### IIT

##### Students

Catherine Budzinski  
Hernan Canales  
Felix Chunuwu  
Tasha Farris  
Gabriel Fontes de Faria  
Herman Gilmore  
Christopher Heppel  
Sana Ithmound  
Melissa Lee  
Amy Martin  
Victor Mitchell  
Avni Patel  
Karen Rivas  
Julia Valadez  
Jessica Workman

##### Professors

John Stoner  
Nik Rokop





## Research- Tree info

The following numbers are estimates from a random sample survey done in 2005.

There are 530,000 parkway trees in the city.

There are 250,000 in the parks

and an estimated 2,000,000 on private property.

There are 95,000 ash trees on the parkway

There are an estimated 400,000 ash trees on private property

To remove 25,000 trees with diameter 13" – 30" with a replacement = \$39,000,000

To treat these trees with Treeage = \$2.5 million

To treat these trees with Treeage and remove trees needing removal = 5 million

In one storm 600 Chicago trees fell

Steve Bratts states that  $\frac{1}{4}$  of the wood used in the country could come from urban trees. The state of Michigan itself could provide enough urban wood for 362 houses or 5 million board ft.

Drying : 1" of thickness needs 1 year of air drying – the goal is 12% wetness with air drying. In Chicago this is the best you can get with air drying. Cabinetry needs 6 -8% moisture in the wood, so this wood will need to partly be kilned dried. It takes 40 days to only kiln dry.

Value of wood triples once dried.

Check wood for foreign objects, staining, rotting, grade of tree, character before milling

Annually, one percent of Chicago's million urban trees are brought down by storm damage.

Our business is identifying ways to more constructively use the estimated 3.8 billion board feet of timber - about 25 percent of the annual hardwood lumber production in the United States every year - that is removed from cities and suburbs annually. That's roughly enough wood to build about 275,000 environmental friendly new homes, and only a small fraction is now recycled.

# Meeting Minutes

**ENPRO 350 Minutes**  
**Tuesday, June 5, 2008**

**ANNOUNCEMENTS**

-On Tuesday, June 10, Illinois EAB Wood Network will be coming in to talk about open houses, projects, conventions, etc.

-In class, we will get background info about previous projects at the arboretum and at other universities, and general information about wood reclamation and the supply chain

-Class will be in the MTCC Ballroom

-Furniture will be on display

-Groups for Tuesday:

Group 1, people who cut down trees: Karen, Julia, Jessica

Group 2, sawmill operators: Herman, Felix, Hernan

Group 3, people who make things out of wood: Chris, Katie, Tasha

Group 4, people who specify wood products: Avni, Gabriel, Sana

Group 5, people who sell wood products: Melissa, Victor, Amy

***Questions to keep in mind:***

How should things be priced? How much do they cost? What does the map of the supply chain look like? Every group should think about the costs involved in their project area and the scope of their involvement. Remember, SOMEONE has to be paying for free wood. Everyone should also do a little bit of research on their group's subject.

-Think about questions you would like to ask people in your group. Also, think about what your answer is going to be when someone asks you "What is this project all about?" (~30 second response)

**CLASS**

-We have enough time and opportunity to explore the options and opportunities in our project, so we don't necessarily have to start out small

-One of the important things to learn in an ENPRO is how to network. Get contact information from people that may be able to help you.

-Value chain: Identify each of the links in the chain, what value does each member of the chain provide? Why is each end product better than the product they started with?

***What is the purpose of a business?***

-Make money

-Find an ethical balance between satisfying investors and employees

-We have to think about the reasons for starting the business, the possible opportunities, the tradeoffs and their consequences, and ultimately what's better for society.

-Ask "What if?" questions to find different alternatives

-Focus on the fact that this is a multi-term project. Students will be working on this project next semester as well. How can we make next semester more successful than this semester?

-Look on the IGroups (ENPRO 355) account to find sample business plans and sample materials

***What are the major concerns/ideas of this project?***

- How much wood can we obtain?
  - We can get LOTS of wood. There is a lot available.
- How much will it cost?
- What is the quality of the wood?
- How do you prevent the spread of ash boar?
- What is the impact on the environment?
- What is the availability in Cook/Dupage County?
- Are we marketing toward environmentally friendly people? What clients do we have?
  - Do ethnographic research
  - Find out if people care about environmentally friendly wood or not
  - Talk to people who buy gifts, find out their preferences
  - What kinds of questions should we ask them?
  - Where do we find these people?
  - How many questions should we ask?
  - Our group will develop a set of questions and then conduct ethnographic research.
- Is the EAB the only type of wood that has problems?
  - Is there another type of wood or other materials that have had problems like this?
  - Have problems like this been solved in the past with different materials?
  - Think about similar industries
- Is there a higher level body? What is their website?
  - What is going on at a higher level than Chicago?
  - Check out the EPA website
- What are the ethical implications?
  - Think through the WHOLE process
  - Consider the different ethical issues at every different level
- Will people care more about the price of the product, or the story behind the wood?
- Who are our consumers and how are we going to reach the relevant marketplace?

***What do we want to do?***

- Tasha: Gifts are not the way to go. They're too small. We should do bigger projects like custom cabinets, floors, etc. for more marketability and targeting bigger audiences. We could attach the story of the background of the wood to our product. We could create a store that sells unique product with unique histories, which would attract buyers.
- Chris: Also wants to do a project on a bigger scope, maybe a furniture store. This would give us a huge marketplace for these items. What happens to the products when people don't want them anymore? Can we re-use them?
- Victor: Wants to do cabinetry, wood flooring, and ALSO try gifts. We could have a national gift shop and see if that might be the best option. A gift could actually be a piece of furniture.
- Felix: We shouldn't limit our options. We should look at a broad opportunity
- Katie: We should look into a large-scale project. Maybe we could provide wood for CTA platforms. We have to have standards on the wood we reclaim. It has to be high

enough quality to make useful products. Multiple distribution channels: making a very attractive, high end product AND a mid-range, useful product.

-Sana: Do we have to also figure out what other kinds of wood have the same problems?

-Hernan: We should target manufacturing companies

-Herman: Would people want to buy the EAB wood?

-Gabriel: Agrees with Sana. Thinks it depends on wood availability. Are we going to profit from this project, or does some money go back to solving the original EAB problem?

-Melissa: Wants to fill niche of environmentally friendly AND cheaper. We can add flare to our product by adding a nice story about the wood.

-Avni: People need furniture, so that's a stronger market than gifts. We should make a quality, affordable, mid-price range product that people COULD buy.

-Amy: Do people want to buy floors that have been infected by bugs? Wants to make a larger market of gifts, maybe provide gifts to sell to large markets like Target

-Jessica: Likes the flooring/cabinetry idea. Bigger profit, bigger market

-Karen: What are the wood's qualities? What are the wood's properties? We should make things to use in a household. How can we combine the "cheap chair" product and the product with a story? Why does a chair with a story have to be the more expensive chair?

-Julia: The wood is good for furniture. People might buy our product, but it just depends on who we're marketing to.

-Nik: What is the problem? Is the problem the EAB? Or is the problem what to do with all the extra wood? Which problems are we addressing and which problems should we ignore? If we make money and still don't address the problem, is that ethical?

-John: Is it ethical to sell reclaimed wood if it's treated with harmful chemicals? Do we want to use the wood for useful or aesthetic purposes? How can we communicate to our customers that our products are environmentally friendly? Maybe we could find a way of tracking the tree from the woods to our final product.

### ***What's the definition for reclaimed wood?***

-Is it wood that would otherwise be trash?

-Not just specifically EAB wood

-Could even include wood from the bottom of Lake Michigan and shipping palates

-Should this ENPRO include those types of woods?

-Melissa: For our purposes, we should use the term "reclaimed" to denote environmentally-friendly wood

-What is the reclaimed wood being used for? Is it being used for sawdust? What are other uses other than gifts/furniture?

**EnPro 350 Minutes**  
**Tuesday, June 10, 2008**

**ENPRO 305**

**Reclaimed Wood Industry Presentations**

Notes by Gabriel Fontes de Faria

**First Presentation**

- Illinois is taking ideas from Michigan, Ohio and Indiana because they had to deal with the EAB problem earlier.
- As soon as the EAB was discovered in Illinois, the Wood Utilization Team (with support from local politicians) was created (November 2006).
- Steve Bratts (?) stated that  $\frac{1}{4}$  of the wood used in the country could come from urban trees.
- The Wood Utilization Team (WUT) received a grant in order to develop their projects.
- The team includes arborists, city leaders, members of wood products industry, power plants, scholars and others.
- Later the Wood Utilization Network (WUN) was created with the purpose of educating, and creating an infrastructure for the utilization of wood (network and linkage).
- Help is needed to resolve issues with the gaps in the chain.
- The organization tries to invest and support an array of companies and projects and not just one.
- It gives priority to high profile projects.
- The organization focuses on Ash only to set an example for how other urban woods could be reutilized.
- It also tries to show a positive (the utilization of wood) in a negative story (the EAB problem).
- One of the biggest challenges is to educate people and show them the advantages of urban wood. Also teach foresters the proper way of harvesting these trees.

**Michelle \_\_\_\_\_**

- Teaching cabinet makers about the advantages of reutilized wood.
- Organizing the Rising from the Ashes furniture show that will be happening at the Morton Arboretum displaying furniture made from lost trees.

**John Kriegshauser**

- Chicago Furniture Designers Association (CFDA)
  - 50 members

- Facilitates communication amongst furniture designers in the Chicago area.
- Lately, sustainable design is an important element.
- Rising from the Ashes show will create EAB awareness.
- Exhibit will start at the Morton Arboretum, and then move to the Ryerson Woods Nature Center, the Hafele Hardware showroom, Design Within Reach, the Chicago Center for Green Technology and others. Other possible places still being worked on are the Illinois galleries and the Notebaert Nature Museum).
- Artists that are members of the CFDA include: Dolly Spragins, Kurt Vanucci, Bill First, Richard Dlugo, Hall Link, Michael Dreeben, Lisa Elkins, Michael Koehler, Laura Drake, Bill Groot and Brandon Fenninger.
- Information kiosks are being created for the show. These kiosks will display information on the EAB problem and the process taken to create the furniture from the reclaimed wood.
- Show sponsors include: the Wood Utilization Team, the different show venues and pesticide manufacturers.

### **Paul Pettigrew**

- 10 years as an Architecture professor at IIT. 3 years teaching furniture design.
- Interested in wood work, and integrating furniture and architecture.
- Cottage in Michigan: custom furniture to fit small rooms, all made with Douglas Fir wood.
- Crown Hall benches: made with Red Cedar donated by the Western Red Cedar Lumber Association (wrcla.org). Benches currently at Smart Home exhibit at Museum of Science and Industry.
- Charnley House: students in furniture class designed games, furniture pieces and gifts which were displayed at the Sullivan and Wright designed house.

### **Bruce Cordigan (?)**

- In 1978 Bruce and his wife started thinking of ways to use urban wood which at the time was being sent to landfills. He now owns a sawmill that processes urban wood.
- Illinois doesn't allow urban wood to be disposed of at landfills anymore.
- Ash trees killed by the EAB are only a small portion of all the wood available in urban areas.
- Sequestered carbon: coal and oil.
- Trees are sequestered carbon. Making a use out of the wood keeps that carbon from going to the atmosphere.
- A very interesting reason for using urban wood is because some of the wood holds historical information (like history of Native Americans).
- Purpose: cut down the waste, prevent carbon from being released into the atmosphere.

### **President Canning (Wilmette Village President)**

- Wilmette was the first town with EAB in Illinois.
- The Dutch Elm Disease also affected Wilmette in the past.
- There are a total of 54,000 trees in the village of Wilmette.
- In 2006, EAB was discovered at a Wilmette school. Canning quickly contacted the media in order to educate Wilmette residents and people from the surrounding towns and cities about the problem. He also reached out to politicians in many levels, including senators Durmin and Obama.
- Because of his connection to baseball, President Canning decided to use the wood from the affected trees to make bats to be used by Wilmette's children and also to be given as a gift to visiting officials.
- 85% of major league baseball bats are made with Ash wood.
- In the beginning, they thought the Ash trees were dying because of the drought of 2005.
- An easy way to identify an infected tree is observing if woodpeckers prefer that tree over others, because woodpeckers go for the trees with larvae under the bark.
- Just in Wilmette, 300-400 trees are taken down every year.
- Another use found for the wood was in the construction and furniture of a new public works building for the village.

### **Mark Younger**

- Member of the government of Evanston.
- Ash wood from Evanston has been used to create furniture for the city's public areas, and also for baseball bats.
- By 2007, 60 trees were identified as infected with EAB in Evanston.

### **Jessica Simmons**

- Member of the Southern Michigan Resources Conservation and Development Council.
- Wood from dead urban trees in southern Michigan could become 5 million board feet of lumber. That is enough to fully build 362 houses.
- EAB only affects the outer layer of the tree, so the wood itself is still useable.
- In order for the affected wood to be safe for use it must be: kiln dried, fumigated or bark free.
- Goals of the council: lower wood disposal costs for the cities, find uses for the wasted resources, create economic benefits with this new process, and develop a stronger wood industry.
- Process taken: demonstration, research, training, outreach, networking.
- Plan: How much wood? What products? Locate and develop markets.
- How much wood is available?
  - Not just Ash.
  - 28% is currently land filled.



- In Southern Michigan, 354 football fields, filled 10 ft deep with wood is wasted yearly.
- That is 8.8 million dollars worth of wood.
- Out of that number, urban wood accounts for 4.7 million board feet.
- That is enough to build 362 homes or flooring for more than 2 thousand homes.
- Cities could reduce the cost of disposal and also cut cities' spending on wood products for city projects.
- Steps:
  - Inventory: what do you have? How much? Quality of material.
  - Inventory capacity: partners, equipment, expertise.
- Lower Value: firewood, mulch, compost, biomass fuel.
- Higher Value: railroad ties, landscape timber, rough sawn lumber.
- Highest Value: planned lumber, finished products.
- Challenges:
  - Huge removal demand, short timeline.
  - Lack of existing viable urban wood industry.
  - Perception of no value, lack of interested partners.
  - Economies of scale = difficult collection and market.
  - Transportation.
  - Coordinating with governments.
- Successful examples: UM Nichols Arboretum (wood used for barn renovations and park sculptures), City of Monroe (wood for city projects, sawmills keep some of the wood as payment, unmillable wood goes for mulch, firewood and compost), and the Ann Arbor Library project (wood used for beams and building detailing).
- Urbanwood.org is an urban wood marketplace.
- Character + story = value.
- Michiganwoodenergy.org shows how the wood that can't be used for wood products can be used as fuel.

## **Discussion**

- Ash is only 10% of urban wood.
- Definition of "urban wood": wood that wouldn't interest a logger. Wood found around where people live.
- Price difference. Wood that is mass produced for low cost is usually half the price of the wood Bruce Cordigan's sawmill produces because of the low demand for his product. His business doesn't get many big projects. Another setback is how difficult it is to cut urban trees into boards because of the variation in their sizes. Everything is custom made, and therefore more time is taken in production.
- Bruce receives all the wood for free, so if the demand for his product increases and money is

June 10, 2008

invested in more machines, the price for the consumer could be much lower.

- Currently there is an endless amount of wood available and not enough buyers.

- **GROUP MEETING: Thursday, June 12<sup>th</sup>, 1pm, 3424 S State St. Same room as last week.**

**EnPro 350 Minutes**  
**Tuesday, June 12, 2008**

PROJECT PLAN

- objectives
- background
- methodology/brainstorm
- expected results
- project budget
- schedule of tasks
- individual team assignments
- designation of roles

1. Tree assessment-FREE       -\$
2. Tree removal               +\$
3. Transport                   -\$
4. Storage                     -\$
5. Mill                         -\$
6. Certification (gov. board) -\$ or Send back to Customer (they pay for process) +\$
7. Sell finished product       +\$

OUR PRODUCT: certified reclaimed wood.

**CERTIFICATION**

ASSESSMENT-professional assesor

1. what is it used for? Ie. Furniture?
2. Healthy
3. Quality

MILLED

- raw wood
- urban forestry
- reclaimed wood? Urban reclaimed wood? Environmentally sound wood.
- offer rates of other tree removal

**RESEARCH**

- major construction companies (how much wood they need?)
- certification-Reclaimed Wood Council (have LEED like ratings)-[www.reclaimedwoodcouncil.org](http://www.reclaimedwoodcouncil.org)
- what wood is safe(quality) to mill?
- how many trees fall in Chicago area?
- quantity of tree manufacturers?
- value chain analysis
- local companies (ie, furniture makers)

7. sell finished product-government (City of Chicago)
  - construction
  - developers (ie. Bulley and Andrews)

-furniture makers

\$

1. Profit
2. Support/Teach EAB groups

Discussion

We should not limit ourselves of product...

Start Local-Chicago urban area (branch)-networking

MARKET STRATEGY

- media
- convention
- magazines
- green
- tax incentive

MISSION STATEMENT:

KEY POINTS:

- local, urban
- reclaimed wood
- quality, variety
- problem (EAB-profits go to them)
- sustainability
- competitive pricing
- certification
- education/awareness
- target market

IN CLASS NOTES-JUNE 12, 2008

How was the meeting?

Scale of destruction that is made by Ash Borer.

Supplies.

People of different areas are profiting or approaching the problem.

Clarified the problems that still exist.

Could see the missing components.

Seeing the amount of urban foresters and the impact.

How the mayor of Wilmet used the problem as an opportunity.

How to market, going to the end customer.

The basic problem can be used for almost anything. Potential of wood was clarified.

The end user will push the demand in the chain.

The biggest thing was the importance of where the problem was coming from and not so much the profit perspectives.

EAB is important...showed us if we should be more general or specific.

The government should be involved and certification is important.

The communities lack the skill to negotiate with other companies. There is a gap.

The amount of wood that is wasted and how everyone needs to be aware.

The examples and opportunities that were shown.

Prof:

Made is concrete, the problems that need to be solved.

Is there a problem that can be solved?

Prospective of urban lumber.

When you see a business opportunity, one of the questions to think about is...why haven't other people jumped on this? What do I know that others don't? why am I special? Why have I seen what others haven't seen yet? People have different perspectives.

Think outside the box and come up with different solutions?

Sometimes not knowing is to your advantage. There are no biases or prejudice.

Continue to involve them as a resource. Can get funding from them. Support.

Laid out what we wanted to do...Business Moto

Explanation of plan.....

Observation

Remember, the city is also a potential customer, city has trees to removed...the city could be purchasing the wood...city could influence.

We are making it really easy for the customer.

Some cities don't like the millers to make profit so they don't donate...we are not obligated the donation.

P: selling to the government is very difficult...long and tough because of politics. We can influence the problem, like the mayor of Wilmet. Takes a lot to get into a government organization...but when you are in there is much less haste.

S: the government has a lot to gain...but we start small first...like suburbs.

P: we have very willing support for customer intake.

What are the risks, weak spots? Who would be likely to oppose this? A tree removal service. Who would have a problem with this?

S: risk...we lose a lot of money first before we actually make any. Financially harmful.

P: how would you address this?

S: start with marketing first...get an idea of the consumers. Sell to the governments first.

P: how would you get money from them? How do you adjust the fact that you spend money first?

S: we mentioned how we could you get a grant from the association, by using the networks because of the strong foundations they already have. We would be very community oriented.

P: what are our options?

S: grants, loans, fundraising,

P: strategic partners...give money but benefit from the business. When you develop the spreadsheet, the financial issues will need to be scheduled and solved. We could give an order to not pay until later...12 months from now.

.....talking about the plan (look at those notes above).....

P: what is the finished product?

S: lumber supply, single wood...no end product

P: will you be selling 1X6 planks of wood

S: depends on the tree and customer, if we sell to a furniture they would expect a different cut. Also depends what we can mill and the quality. Regional availability. Idea is to be very localized, if that wood does not come from that area then we will not export it to a different state. Localized woods for localized products. Even if we become a chain, it stays local to an area.

P: vision if you would...I am a cabinetry shop...have a shop on north Milwaukee ave. I am the president owner etc. \$100,000. Am I a potential customer.

S: Depends on the wood you want.

P: my expertise is cabinetry...go into oprah's house. Would someone approach me to buy your wood?

S: if the customers are green sensitive they would want to do this.

P: how would you approach me

S: it's exclusive...the wood is local, comes with a story. And the wood is environmentally sound.

Chicagoans have conferences about Green Technology...we need to market in these types of places to create a large awareness...We would also heighten his company because of our mission. Potentially we can increase the amount of business...and those customers would spread the word to other environmentally friendly customers.

P: would you give Joe exclusivity.

S: no we are building a relationship with the city and the township

P: cabinet guy...I'll give you \$23,000 extra if you agree to not sell to others.

S: we would research first and figure out where along the line we would gain the most amount of money...then because it's only business, it would be considered.

.....talk about our objectives and background...as far as we got.....

P: vision statements/ mission statement. What do you want to do with this company? How can you do and say that with the most compelling way?

S: mission statements are short and to the point...we want to highlight these objectives without making it lengthy but expressing with clarity our mission.

P: hmwk. what does this project mean to me? What is the impact we could make...what are we doing here? Saving urban trees. Something simple like this. Get people thinking and believing in our mission. The big thing that you are trying to do. Imagine in 6 weeks, you will be making a presentation in front of 50 people...how do you present it? Most important message is at the beginning. The mission statement is often the first thing presented. We are here to preserve. Should it have the word "URBAN" or "WOOD"? who's going to do what...when speaking of the project plan?

S: we started going through the bullet points of the existing example of a project plan...but we have to break it up from there.

Awareness, showing the quality of the wood...folding in of the products.

Products in a financial stand?

-incorporating the idea of the arboretum .

-our store can showcase the products of local artisans. This gives back to the community.

Product, placement, promotion, price.

Placement: storefronts, arboretum

Product: the actual wood made things

Price: how much money does it take to produce an item. Profit.

Promotion: in our marketing strategy. Green approach. Our customers can also market for us through a certification process of the wood.

P: national problem. Urban wood is maybe not just US...but international. How do you address that we have local initiatives...but have opportunities globally. Own the whole...or franchise.

S: localized idea comes into play...if the store was in Chicago, it would deal with counties around it. The mother ship could oversee the community based stores.

P: the continual local perspective. Why?

S: transportation is more sustainable is local. We don't want the employees to travel far.

One of our selling points is that we are giving people back their wood. We have a story behind it.

P: the product is more than just mere product, it is also a story. Buck's Bats is an example that the story behind the wood works as a marketing strategy. Make sure that you do...a plan to have that project plan done by the end of Tuesday. It can be changed, updated later. Also think about how we want to take the process forward. We need to think into context about who does what...who is responsible...make sure to assign task to get things done...very key.

Region wise maybe Chicago is not large enough...or it is.

Do we want to own all the machinery needed or use another company...partnerships? Do we want to be Vertical Integration?

**RESEARCH GROUPS:**

LOCAL COMPANIES/MAJOR CONSTRUCTION COMPANIES---**KATIE, GABE**

CERTIFICATION---**VICTOR , HERNAN**

QUANTITY OF TREE MANUFACTURERS---**CHRIS, JESSICA**

WHAT WOOD IS SAFE TO MILL---**KAREN, SANA**

POTENTIAL GRANTS---**AMY, TASHA**

VALUE CHAIN---**HERMAN, AVNI**

HOW MANY TREES FALL IN CHICAGO---**MELISSA, FELIX**

TREE ASSESSMENT AND REMOVAL---**JULIA**

**PROJECT PLAN GROUPS:**

ABSTRACT---**TUESDAY, TASHA, VICTOR**

BACKGROUND---**SANA, GABE**

OBJECTIVES---**MELLISA, VICTOR**

WORK BREAKDOWN STRUCTURE---**KAREN, JULIA, JESSICA, AVNI**

BUDGET---**CHRIS, HERNAN, AMY, (CLASS, COMPANY-LAYOUT #S FILL IN)**

TEAM STRUCTURE AND ASSIGNMENTS---**TASHA, FELIX**

**WORD DOCUMENT-FOR TEXT**

**JPEGS-FOR IMAGES**

**EnPro 350 Minutes**  
**Tuesday, June 17, 2008**

- Assigned groups:
  - Project Monitoring/ Management
    - Karen
    - Amy
    - Victor
    - Melissa
  - Finance and Research
    - Hernan
    - Herman
    - Avni
    - Felix
  - Marketing and Education
    - Katie
    - Sana
    - Gabe
  - Presentation Group
    - Julia
    - Tasha
    - Jessica
    - Chris
- How will the structure of the EnPro team work? Will we have a flat structure where we have representatives of each team together acting as the leaders of the whole class? Or will we need a single leader?
- A small discussion about research:
  - Refer to Karen for a list of some successful businesses that utilize urban wood.
  - Wood can be re-certified for structural purposes, for example, reusing items from a construction site.
  - Some deliverables we should consider proposed by Tasha is that we may want to make a presentation about the benefits of using urban and reclaimed wood to hand to organizations so they can present it to potential consumers or government officials.
  - Video of milling a tree on site. [www.losverdesarborist.com/custom-milling-photos.htm](http://www.losverdesarborist.com/custom-milling-photos.htm)
  - Small companies don't get certified because of price. \$30,000-\$50,000 for initial price of certification. The bigger companies have an advantage of getting certified while the smaller more sustainable companies cannot get certified due to lack of funds
- Urban and Reclaimed Trees/ Wood
- Midterm is next week June 26<sup>th</sup>.
- Code of ethics due date? Ask Shetal
- Feedback of group divisions from professors: General, Business, Marketing, Finance

DISCUSSION NEXT CLASS: Certification



## **Breaking News**

The city of Chicago has found ash borer between 29<sup>th</sup> and 35<sup>th</sup> on State St. They will be cutting down 300 trees starting Thursday. Those who can make it to the public announcement please come on Thursday 10:30 am.

John Collens agrees to pay for processing the wood if we can develop a business plan to show on Thursday.

Edith will be attending and she will try to bring a sawmill operator.

John Collens asks for an arborist to look at the IIT campus.

Edith suspects that there may be ash borer around the Morton Arboretum.

What to do....

City plans to mulch the wood if we don't act.

Set up a process by Wednesday. A Business Plan.

-Where do we set up a portable sawmill?

-Research cover costs. How much will it cost to set up and process 300 trees?

-What do we do with the wood? *Maybe Chicago cuts and de-branches trees and hands them over to us. We may be able to convince IIT or Dirk Denison (architect) to use the wood for flooring or any other architectural elements for the new IIT dorms.*

*We could give them back to the city to use for benches.*

*We could use them for flooring*

*Sell them to artists.... Zhou Brothers (35<sup>th</sup> St.) they make sculptures out of wood.*

-How much do the trees give us? 300 trees btwn 29<sup>th</sup> and 35<sup>th</sup>. *Approx. 30,000 board ft. of ash.*

-Where do we store the wood? *A few possibilities on the IIT campus, M&M or outside maybe?*

-Who operates the wood? *Ediths pick?*

-How do we price the wood?

**EnPro 350 Minutes**  
**Tuesday, June 19, 2008**  
**By Catherine Budzinski**

Wood can be used for energy.

Contacts + Connections were made with different groups from news conference, many people interested. (Woodworkers + millers wanted free wood)

Green globe certification vs. Leed certification

Merchandise Mart is now Leed certified, biggest issue addressed was water usage, only cost \$100,000 to become Leed.

Chief of Staff for Senator Dick Durban suggested City of Chicago use wood bats as a law

We will need a government relations group and with the contacts made at the news conference.

Laws created to advantage and disadvantage people. This is an ethical issue on both sides.

Email from Robert elchert@uchicago.edu: why interested with the EAB problem and want to help (email available at IGROUPS homepage.)

Email from John Collins collinsj@iit.edu: email to President from the vice president, opportunity and visibility from this project. Morton Arboretum is willing to provide a probono assessment of iit's campus and train us to spot the bug.

Build a business that provides jobs for the community and training community, it becomes a community service. Women whose father was a carpenter and now unemployed asked question at meeting. Employees subsidized training. Bring down labor costs, state has money for this. There is a lot out there.

A lot of opportunity in this incident and many people are interested and want to help.

Exciting but there is a challenge to capitalize on this opportunity.

City trees start coming down Monday.

300 trees stored at 30<sup>th</sup> and State. Will be fenced to store.

Cut by saw mill operator and cut in board feet. 2" sections 8/4. University is paying for this.

University will front the money for cutting, storing, and drying. ( Need to track the costs of all this ) Jerry will talk to us about each step and costs. Jerry also is a woodworker and reclaims woods from old buildings.

Mike Brown: Assistant General of Streets and Sanitation, in charge of schedule of taking trees down. Will come in and talk to class about costs he deals with.

Someone needs to work with Mike and Gerry.

Today: we have to get trees down...

Joseph Clair- in charge of sustainability on IIT's campus + paying for our needs of our NPRO

Find out who this important to and get there aid (government, saw miller, IIT)

Cooperation and enthusiasm is unusual

Joe Clair email- John Anderson's new office furniture + Mr Pettigrew will design, flooring, bats

Need to create project plan

Friday to asses trees along state Michael Brown

Jerry will then tell us how much wood in board feet we can get out of it.

Trees evaluated on campus

Will get an inventory + decide where to go.

Indoor storage for wood, security

Drying then processing

Who is going to do what and make sure things get done?

Mulch and sell to powerplant along with flooring, furniture etc...

Raw mtrl – need to maximize revenue from it.

Determine cost and revenue from wood chipping compared to us taking the wood

Department of Sanitation gifts ... give back ( giving them good publicity / were getting there help) this is applicable to alderman + Senator

Durban – Demacratc whip... big influence

Pair up with Sox and make a bat with signatures of players

Local artists donate wood

Working with other colleges, Art Institute new museum

Different facets of utilization. List, benefits

Add communications + Business Plan groups

\*Communications Group: Melissa , **Victor**, Avni, Tasha

\*Business Plan Group: Hernan, Katie, **Amy**, **Herman**, Karen

\*Code of Ethics: **Sana**, Jessica, Julia, Chris

Finance + Research: Herman, Hernan, Felix, **Avni**

Project Monitoring: Karen, Amy, Victor, **Melissa**, Tasha

Marketing +Education: **Gabe**, Sana, Katie

Presentation + Research: **Julia**, Jessica, Chris, Tasha

Risks, issues, suggestions (Send to Amy by Monday 9pm and she will condense and make print outs and upload to IGROUPS)

Victor: communication with public, “go to guy”

Need to do:

1. Find out what form wood need to in for power plant? \$ ( **Research**)
2. Raw material ( how much? What form? Uses for various forms, cost associated w/ each form of wood) ( **Research**)
3. Contact Michal +Jerry to come in + talk with us
4. Create brands Dept of Sanitation + City of Chicago—approval ( other forms of buzz + publicity, /Durban / Alderman) (Marketing + Education)
5. Plan photo opportunity= location
6. Finalize logistics with Sawyer
7. Follow up with
8. Make contact list
9. Utilization of wood marketing and buzz (Research)
10. List of opportunities who to sell to , pros, cons of each ( Marketing + Education)
11. Government relations coordination ( Communications)
12. Certifications for marketing ( Research, Marketing)

Need to do by Monday:

1. Finalize the logistics Gerry Hamm, Mike ( **Project Monitoring**)
2. Make contact list ( **Katie Victor**)
3. Contact Michael +Jerry to come in + talk with us ( **Communications**)
4. Contact MA Arborists for training ( **Communications**)

Contacts:

Joseph Clair	Director Campus Energy + Sustainability
Michael Daly	Senator Durbin's office
Edward Kalebich	Power plant C.O.O.
Michael Picardi	Commissioner Dept of St + San
Malcom Whiteside	Deputy Commisioner Dept St + San
Michael Brown	Assistant General Superintendent Dept St + San
Edith Makra	Morton Arboretum
Gerry Ham m	G.H. Wood Working (Portable Saw mill operator)
Michele Beaulieux	Work in Motion Marketing Consultant
John Collins	Vice President of IIT
Robert Elchert	Alderman office
Jeff Bierig	IIT Marketing
Evan Venie	IIT Marketing
Mindie Sherman	IIT Marketing

Think about next semester... Entity expanding (i.e. Google and other companies always expanding)  
(common problem of many companies) HR function

Proposal for IPRO office

Production vs. Sales side (Morton Arboretum)

Microsoft Project Plan

**EnPro 350 Minutes**  
**Tuesday, June 24, 2008**

**ANNOUNCEMENTS**

- Robert Elchert from the Alderman's office comes in to talk
  - When Robert is gone, we can still call (773-517-3540) and email (elchert@uchicago.edu) him
  - Office is at 50<sup>th</sup> and State
  - Alderman's office email is ward03@cityofchicago.org
  - A good outlet to sell wood might be ACE technical high school
  - The Black Pearl (art gallery)-has access to lots of artists in the U of C neighborhood
- Their office can help in the following ways:
  - Liaison between us and the department of streets and sanitation
  - Find out the status on the parking lot (for storage)
  - Help with advertising
  - Alderman wants to use this as an economic opportunity for the 3<sup>rd</sup> ward
  - They have a newsletter that gets distributed to about 3,000 people that we can utilize
- Mike Brown says that the trees on State St. won't be cut down for about a month
- We should find out about the Rising from Ashes exhibit and try to host one here at IIT
- Nik says we should figure out a short "elevator pitch"

**CLASS**

- Presentation Group
  - Julia is working on the layout for the presentation
  - Group will probably meet tonight and tomorrow
  - They will figure out within their group who is going to present
  - All the group leaders should figure out by tonight what material they feel is important to the midterm presentation and submit it to the presentation group by 9 pm tonight
  - Felix thinks that the presentation group should present to the rest of class at 3 on Thursday
  - Julia uploaded slides she has so far
- Finance and Research
  - Waiting to figure out the process to do a cost analysis
  - For the powerplant to use our wood, the wood needs to be under 3" diameter
  - Costs for materials vary depending on where wood is coming from, where wood is, etc.
  - Edward said that he is willing to show us around the power plant if we want to go
  - Waiting on the marketing ideas
  - Waiting to see what our final process will be

- Tasha says we don't need final numbers now, but we do need to find out what our options are
- Victor says that we should narrow down our choices to our 3 most lucrative options with the most information available
- Herman thinks we're going to have 2 products: lumber and woodchips
- Finance and research group will take the process chart from the marketing group and then find out how much stuff will cost

#### -Communications

- Jerry and Michael will be in our class to talk on July 1<sup>st</sup> from 3-5:30
- If one group needs information from one of our contacts, send Victor an email and he'll contact them with the question
- Use Victor as a middle-man so that our communication is streamlined
- Victor's compiling the media we've received so far (photos, videos) to put in the presentation on Thursday
- For next week, Victor is going to follow up with all of the contacts we've made so far and give them an elevator speech
- Will come up with a group vision by next week
- Edith is coming in on July 3<sup>rd</sup> to train us about recognizing infested trees
- We should involve the alderman and the senator in the continuation of our business
- We should talk with the Center for Tall Buildings and Urban Habitat (in 3410)

#### -Marketing and Education

- Where is the short term need for the wood?
  - We pretty much have already figured those sources out
- What markets could use the wood in the long term? Research.
- Gabe is concerned about selling the wood that IIT is loaning to us, but we're most likely going to sell it back to a contractor anyway (not IIT)
- Marketing group is going to compile a chart of our process, then send it to the finance and research group
- Anyone with ideas about our business name and logo should send them to the marketing group
- Tasha thinks we should give back to the community by rewarding schools who have environmental programs with wood benches, playground equipment, etc.
- Melissa thinks we can give back by teaching kids how to make things out of wood
- Victor thinks all of us should write down 2-3 options for giving back to the community, submit them to the agenda, and talk about them next Tuesday
- Is there an opportunity to apply for a grant from the CWSC?

**EnPro 350 Minutes**  
**Tuesday, July 1, 2008**

**ANNOUNCEMENTS/GUESTS**

-Matt and Thornton from Carbon Solutions

- Work to help out businesses that wish to reduce their carbon emissions
- Give carbon credits, tax breaks, other incentives to green-friendly places
- Show businesses how to reduce their carbon footprint
- The cap and trade program doesn't exist in the US yet
- There is a ready market for carbon credits today
- 4 Ideas of ways to use our wood:
  1. Sell wood to biomass plant to use wood instead of coal (ashes left after gasification could also be used as fertilizer)
  2. Sell biomass to IIT facilities
  3. Get a boiler, use biomass wood to heat water
  4. Sell wood to district heating and cooling

-Next steps for us:

- Find out how much we're offsetting the cost by burning wood instead of coal
- Does the wood have to be dry?
- How long is the supply going to last?
- What fuel are they currently using in the heating/cooling units?

-They can help us in the following ways:

- They can work with the city to find out how much wood is available
- See how much heat will come out of the wood
- They'll contact gasification places and learn more about emissions, see if they would like to work with us, find out more information
- This could be a potentially large program, depending on whether the university wants to do something simple like buy a new boiler, or completely revamp their energy usage system and buy a gasification unit
- Melissa and Victor will stay in contact with Carbon Solutions

-Mike Brown from the sanitation department

- To remove 25,000 trees with 13"-30" is about \$39 million
- 50,000 trees would be about \$78 million
- To treat trees, it would be about 5 million (treatment only lasts for 2 years)
- Aside from ash trees, there are many other sources to of wood debris
- The trees on State St. are treatable, which means they might not have to come down
- Ash is about 1/5 of Chicago public trees
- If a tree is treated and the treatment does not work, the wood is still considered usable
- All the trees that need to come down on State St. have already been taken down



- Gerry Hamm from the milling company
  - Basically, as a sawmill operator, he takes a round log of wood, squares it off, and from there it can be used to do mostly anything
  - You have to take the metal out of the wood before you mill it
  - For every 1" of thickness, wood requires 1 year to sit out and dry
  - Gerry can do it in about 6-8 months
  - Kiln drying is faster (only 45 days), but more expensive
  - The climate here will only allow wood to dry to about 12%, cabinetry requires 8%
  - A lot of people are looking for reclaimed wood products from many different sources
  - Sometimes Gerry has to pay for scrap wood
  - Many architects are actually requesting reclaimed wood for their green projects
  - An 8x8 usually sells for about \$35/linear foot
  - Gerry would charge us either hourly or by the linear foot, but it would depend on how much metal is in the wood to turn the timber into lumber
  - However, it is much cheaper to mill our own wood than to pay for already-milled wood that meets our specifications
  - It's very feasible to track the story of the tree from its beginning to the finished product
  - A piece of lumber with a story can't necessarily be sold for more money, but it will be easier to sell than a piece of lumber with no story
  - There's different ways to make wood more valuable, depending on how you process it
  - To cut 1 tree: \$250-\$300
  - Base price just to show up on site: \$210
  - Hourly rate is \$110 an hour
  - Extra help is an additional \$45
  - About 35-40 minutes per tree (assuming there's no damage)
  - Approximately a dollar per board foot
  - Gerry is in compliance with the Department of Agriculture to be able to sell the ash wood
  - There are certified lumber graders who work in the mass-production industry
  - Clients are split between green builders and people building lodges

## CLASS

- Think about everything we learned today, and make a pro and con list. Think about what this information means to our business, and how we are going to respond to it. What are we going to do from here?

**EnPro 350 Minutes**  
**Tuesday, July 8, 2008**

**ANNOUNCEMENTS/GUESTS**

Bob and Edith come in from the Morton Arboretum

- At first, there was a treatment for Dutch Elm Disease
- For that, the treatment was really just a of controlling the losses
- Thinks that Tree-Age might be successful, but it will depend on the cost
- People might be more willing to just cut down their tree instead of spraying it every year. It might be cheaper for them to just cut it down and replace it.
- Edith thinks that Tree-Age might work in the short term, but it might not make sense in the long run
- i-Tree is a way to assess and inventory trees in urban environments
  - For our class, we should use MCTI
  - Storm Damage Assessment Protocol might also be useful
  - There's a tool in STRATUM that lets us figure out how much carbon a particular tree will sequester
- There's an appraisal book to estimate the value of trees, which approximates what the cost of a certain tree of a certain condition and height is
- The value of a tree depends on a lot of things, like the height, the canopy, etc.
- A lot of sawmills use energy that comes from their own sawmill shavings
- Making high-end products with the ash tree will protect the carbon sequestered in the tree
- Bob is going to find a value chain analysis
- An ash bat is safer than a maple bat, because it's more resilient and doesn't make shrapnel when it breaks
- Phone number is: 312-617-8980
- Email is [tooltree@sbcglobal.net](mailto:tooltree@sbcglobal.net)

Identification of trees

- You can identify trees by many different ways
- Luckily for us, we only need to identify what's ash and not
- An easy way to identify ash is that it has opposite branches. So if a tree doesn't have opposite branches, it definitely isn't an ash tree
  - Maple, Ash, Dogwood, Buckeye, and Horsechestnut are the only trees with opposite branches
- Ashes have compound leaves
- Diamond shaped bark
- When growth starts to slow (the length between scars decreases), there is probably something wrong with the tree
- Trees with a central stem are not dangerous because the chance of one of the branches tipping over or falling onto something is low
- At least 10 feet of the tree should be straight and in good form

**EnPro 350 Minutes**  
**Tuesday, July 10, 2008**

**ANNOUNCEMENTS/GUESTS**

- We like Karen's logo for the business (SmarTree)
- Checked trademark website (uspto.gov) and it's available
- We found our business name!
  
- We should plan to use the wood...so how?
  
- Rising from Ashes show is coming up soon

**CLASS**

Group Progress

- Communications: kept up with small communications last week, is working on invitations
- Finance/Research: finished value chain analysis, financial analysis, and final budget. Now they just need to go through old minutes and find any unanswered questions

What are we going to do?

- Seems like we are going to focus on a local area for the business pilot
- Start small, then branch out when we get more money, focus on all urban wood
- The 3<sup>rd</sup> ward should be our pilot model
- We should find out how much available wood there is in the 3<sup>rd</sup> ward
- Also find a way how to create demand for this wood
- Maybe work with the city? Use Tree-Age where necessary, but cut trees down where necessary. It might be the more sensible idea.
- Woodcraft might be a possible choice for a buyer, someone should call them
- Rockler is another possible choice

What is our next step?

- We should kiln dry it first (talk to Bruce, see how much it costs)
- We need to get more wood so that the saw mill can come down and process them
- There are some small trees in the parking lot, so we should figure out what to do with those
- We should first try to figure out how much wood we have
- Also, figure out whether the trees on our campus are infested or not
- If they are, maybe we can add them to our existing pile
- Maybe we can make gifts out of the wood we already have and make gifts for people like the alderman, John Anderson, etc.
- Do we want to replace the trees we cut down?
- The wood will take too long to dry, so we should try to get wood from the Arboretum

**EnPro 350 Minutes**  
**Tuesday, July 15, 2008**

**ANNOUNCEMENTS/GUESTS**

- Minutes are due to the IPRO office this Thursday
- This Thursday at 4:30 there will be a presentation about IPRO day
- John and Nik think we should split into smaller groups for more efficient meetings
- We should make a class schedule for the rest of the semester
- John's phone number is 630-915-8149
- We'll meet a half hour before class ends to discuss the progress of the day
- The first day of class in the fall, John and Nik want us to come back and present to the new class

**CLASS**

- Victor is going to mail out e-vites to our contacts
- Gabe and Katie are going to make business cards
- Our final book will include everything we've done all semester
- Victor and Herman will be presenting on IPRO day

**Project Management Group**

- Final drafts of the business plan, code of ethics, and value chain analysis, minutes, and marketing costs due by Thursday
- First drafts of the brochure, poster, and powerpoint are due by Thursday (upload to igroups)
- Final drafts of the brochure, poster, and presentation are due by next Tuesday
- Everyone should fill out the following questions and send them to Melissa:
  - What you learned
  - Ideas for next semester's EnPro
  - What not to repeat

**Code of Ethics Group**

- The final draft was uploaded today

**Presentation Group**

- Final book will include:
  - Business plan
  - What we've done, learned, see in the future
  - Contacts
  - Research
  - Presentation and parts of poster
  - What not to do
  - Proposal for next semester
  - Minutes



**EnPro 350 Minutes**  
**Tuesday, July 22, 2008**

**ANNOUNCEMENTS/GUESTS**

- John will be uploading the assessment materials onto Igroups
  - Assessment of our class...be honest!
  - Give feedback on the IPRO experience
  - How would we allocate money to group members?
  - Due on Sunday at 11:59 pm

-EMAIL NIK OR JOHN IF YOU WANT TO BE IN THE IPRO NEXT SEMESTER!

-The information session about presentations on Thursday was helpful

**CLASS**

- Everyone gets together in their groups to work on final stuff
- The brochure is almost done
- The presentation and posters are due on Thursday in class, we'll go over them then

## Contacts

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