FREEPORT
Revitalization Project
Fall 2013
Acknowledgement

City of Freeport, IL
University of Wisconsin-Madison
Vandewalle & Associates
Adam Holder
Amy Kuhlemeier
Bernard Lischwe
Brian Borger
Brian McIntyre
Colleen Johnson
Connie Sorn
Craig Beintema
Curt Suttman
Dan Eckberg
Daniel Payette
Euan Ford
Evelyn Curry
Excell Lewis
George Benson
Jim Gitz
Jim LaGro
Jim Leamy
Joe Ginger
Joel Zirkle
Joy Sellers
Julann Jatczak
Kevin Cooley
Kim Ellingson
Michael Meade
Robert Rogers
Scott Harrington
Shelly Griswold
Stephen Spyrison
Steve Ehlbeck
Tiffany Nieman
Tom Glendenning

American Family Business Accelerator
Euan Ford
Blackhawk Hills Regional Council
Dan Payette
City of Freeport Transit
Kevin Cooley
City of Freeport Grants Coordinator
Kim Ellingson
Downtown property owner
Michael Meade
Downtown property owner
Amy Kuhlemeier
Water and Sewer Commission Director
Tom Glendenning
Eastside Neighbors
Joy Sellers
Stephenson County Convention & Visitors Bureau
Connie Sorn
Northwest Illinois Trail Foundation
Bernard Lischwe
Stephen Spyrison
Fehr-Graham & Associates
Adam Holder
Joel Zirkle
Freeport Park District
Steve Ehlbeck
Freeport Area Young Professionals Network
Tiffany Nieman
Freeport Downtown Development Foundation
Brian Borger
Friends of the Pacatonica River Foundation
Jim Leamy
Joe Ginger
Freeport / Stephenson County Convention & Visitors Bureau
Connie Sorn

Freeport Branch NAACP
George Benson
Rock Valley College SBDC
Brian McIntyre
Selinoir Café
Joy Sellers
Wisconsin Women’s Business Initiative Corporation
Julann Jatczak
XL Academics
Excell Lewis
For over 40 years, The University of Wisconsin – Madison's Department of Urban and Regional Planning (URPL) has offered a planning workshop course to provide graduate students with training in real-world planning practice. The planning workshop also serves an outreach function by connecting communities across the upper Midwest with the resources of the University system in addressing applied planning problems. This year, URPL students were given the opportunity to join in partnership with the City of Freeport, Illinois and Vandewalle & Associates to participate in the Freeport Riverfront Enterprise Initiative.

Reflecting the greater trend of deindustrialization in the rust belt, Freeport has, over the past several decades, suffered from losses in its industrial sector and a deteriorating downtown vitality. In turn, other aspects of overall city health have also been negatively affected. However, in the face of these difficulties, it is the city’s own rich industrial past which presents unique opportunity and a focal point for the future economic development and growth of Freeport.

In order to support the substantial body of work and progress made since Freeport and Vandewalle began their partnership in 1999, the workshop class divided into seven topic areas that addressed some of the City’s most pressing concerns. These topic areas and a brief description of their intent is as follows:

- **Brownfields** - Compiled information on potentially contaminated properties into a GIS database
- **Green Infrastructure** - Created tools to assist the city in future green stormwater infrastructure planning.
- **Housing** - Carried out inventory of Freeport’s East Side neighborhood.
- **Minority Entrepreneurship** - Created a framework for greater involvement of minorities in the business community of Freeport.
- **Local Transit** - Outlined a fixed-route bus route.
- **Passenger Rail** - Examined anticipated economic impacts of a proposed Amtrak line running from Dubuque to Chicago via Freeport.
- **Tutty’s Crossing** - Improve the potential of a former Superfund site through design features and public art improvements.

Together, the work contained within this report will advance the course of Freeport’s revitalization efforts. Not only does it address specific concerns brought to the students by the City, but also incorporates current planning thought and mechanisms for achieving the City’s goals. It is our firm desire that the concepts and recommendations brought forth in this report continue to move the City towards a vibrant and dynamic future.
For over 40 years, The University of Wisconsin – Madison’s Department of Urban and Regional Planning (URPL) has offered a planning workshop course to provide graduate students with training in real-world planning practice. The planning workshop also serves an outreach function by connecting communities across the upper Midwest with the resources of the University system in addressing applied planning problems.

This year’s planning workshop class, “Studio 912”, consists of 23 Urban and Regional Planning master’s candidates. In order to specialize tasks and provide the most value to the client, (the city of Freeport, Illinois) these students split into these seven teams:

- **BROWNFIELDS**: Mike Beale, Anna Brown, Ramona Lowery
- **GREEN INFRASTRUCTURE**: Kris Canto, Amanda Jacobson, Lani Skipper, Sijia Scarlett Zhang
- **MINORITY ENTREPRENEURSHIP**: Cynthia Sweet
- **LOCAL TRANSIT**: Jeremy Hall, Phin Hanson, Ben Kollenbroich, Jacci Ziebert
- **PASSANGER RAIL**: Khalid Aljuhani, Zhu Cheng, Geoff Hartnell, Cory Schenn
- **TUTTY’S CROSSING**: Becky Binz, Tzu-Hsuan Chung, Shan Xiao, Xiaoting Yang
- **HOUSING**: Becky Binz, Tzu-Hsuan Chung, Shan Xiao, Xiaoting Yang

**STUDIO 912**
Urban and Regional Planning, UWMADISON

**INTRODUCTION**
The Planning Process

The Freeport Revitalization Project has given URPL students an opportunity to apply the planning process in a practical environment. In the spring of 2013, early project scopes and work plans were developed based on research and communication with various stakeholders in Freeport and partners from Freeport’s planning and economic development consultant, Vandewalle & Associates. Project groups were also created at this time. Over the following summer, students continued to advance their respective projects by meeting with stakeholders and enhancing the direction of work plans and project scopes. Each of the seven project teams utilized the same general approach to the planning process, but applied it to their specific topics. Each team performed research to gather knowledge of best practices to propose relevant case studies for the City of Freeport to consider. Stakeholder meetings in Freeport, and teams employed different methods to involve the public in their projects and to incorporate their insight into the final report. This project’s success is largely dependent on how the community receives the work of the students and how the City decides to implement the recommendations.

Stakeholder feedback was a crucial part of the overall project development, and was taken very seriously by all teams. Critical feedback was gathered from stakeholder meetings in Freeport, and teams employed different methods to involve the public in their projects and to incorporate their insight into the final report. This project’s success is largely dependent on how the community receives the work of the students and how the City decides to implement the recommendations.

City of Freeport: 
General Information

The city of Freeport, IL is located 20 miles south of the Wisconsin border, and 25 miles west of the city of Rockford. U.S. Highway 20 runs north of Freeport, and connects to I-90 and I-39 in Rockford. Highway 20 runs west from Freeport to Galena, Illinois and the metropolitan area of Dubuque, Iowa. The total municipal area Freeport is 11.79 square miles.

The city of Freeport is the county seat and largest city of Stephenson County. The city, founded in 1827, was originally a trading post on the banks of the Pecatonica River. Originally referred to as Winneshiek, the name was changed to Freeport to credit the generosity of the city’s founder William ‘Tutty’ Baker, who operated a free ferry across the river and provided lodging for travelers. Early German settlers, key to the vitality of the young city, earned Freeport the nickname “Pretzel City, USA.”

As of the 2010 census, the population of Freeport was 25,638, making it the largest city in the four-county region of Northwestern Illinois. Seventy-seven percent of Freeport residents identify themselves as white compared to 71% in the state of Illinois as a whole. 16% of Freeport residents identify as black compared to 14% in the state. Freeport has an aging population when compared with the state, 19% of residents are over the age of 65 compared to 12% in the state. Poverty is also a concern in Freeport, as 18.5% of its residents live below the poverty line compared to 13% in the state.

The municipal government of Freeport is structured as a Mayor-Council government. The mayor, currently James Gitz, is the chief executive officer of the city and is elected separately from alderman for four-year terms. The city also has eight aldermen, one aldermen from each ward and an at-large aldermen.

Reflecting the greater trend of deindustrialization in the rust belt, Freeport has, over the past several decades, suffered from losses in its industrial sector and a deteriorating downtown vitality. In turn, other aspects of overall city health have also been negatively affected.

Freeport Revitalization Project

However, in the face of these difficulties, it is the city’s own rich industrial past which presents unique opportunity and a focal point for the future economic development and growth of Freeport. With a well coordinated city effort to reestablish the city as a viable economic and social region, Freeport can once again be a standard for a healthy small-town American city.

The City of Freeport has brought a number of economic and community development initiatives together through the Freeport Riverfront Initiative. This initiative is funded through several grants including from US HUD, USEPA, USDA, and the State of Illinois. The initiative is bringing together community partners to expand economic opportunities for all citizens and to bring new life to the historic heart of the City through sustainable redevelopment projects. This Workshop project in particular is supporting the work plan through the city’s HUD Community Challenge Planning Grant through the HUD-DOT-EPA Sustainable Communities Program.

In our support of this initiative, we first addressed the issues currently present in Freeport. Among other difficulties, the departure of industry from the area has left the city with a substantial need for environmental remediation necessary for development. While urban brownfields present an obstacle to potential redevelopment, they represent unrealized wealth and infill opportunity. Green infrastructure, for example, offers a sustainable redevelopment option to transform the existing contaminated landscape into a fertile, adaptive and functioning ecosystem. Revitalization of urban infrastructure would also support residents of the struggling East Side Neighborhood, create opportunities for minority entrepreneurship, support cultural arts, and attract tourism through a regional and local transportation system.
Our Goals

Create a GIS database

Produce a pilot analysis showing the capabilities of GIS

Supply long term strategies for maintenance and public accessibility of the database
The Brownfield team has developed an updated, integrated, and user-friendly GIS database and GIS mapping tools for the City of Freeport's brownfields program. The goal of the brownfield program is to make information about the City's brownfields program more accessible and able to be manipulated and translated into map and graphic form. This will benefit the City's brownfields team as well as stakeholders and the public at large. The brownfield project will also help the City comply with its obligations as a USEPA grantee by scipy the requirements for updating the USEPA ACRES database.

The specific goals of the project include:

- Assembling phase I brownfield assessment data into a user-friendly GIS database
- Providing an update of the ACRES database to the maximum extent possible and supplying documentation of additional requirements
- Creating visual aids that combine the GIS data with other important indicators for the accessibility of City, stakeholder and other user groups
- Creating long-term recommendations and steps for converting the database into an open-access online database.

Brownfield assessment and planning has occurred in three regions of the City - the Rawleigh corridor, characterized by its proximity and potential integration with redevelopment efforts in and around the Rawleigh Complex; Galena Avenue Corridor, serving as a gateway to Freeport but having many dilapidated residential and commercial structures; and the East Side Neighborhood, which presents unique challenges due to its location within the Pecatonica River floodway. While this report will provide a partial data assembly and analysis for all three regions, emphasis throughout will be placed on the Resource Corridor, serving as a gateway to Freeport but having many large, brownfields-related sites the City faces.

Inherent in the previously mentioned is that brownfields include properties that are potentially contaminated or perceived to be contaminated by a toxic substance. As such, the brownfield assessment and cleanup process is a multi-tiered approach requiring that cities identify potentially contaminated properties, determine whether they are in fact contaminated, and proceed to the cleanup and redevelopment process. The Brownfield Process section will outline in more detail how contaminants are identified, tested, and ultimately cleaned up.

Finally, with any brownfield project it is essential to understand the specific context of the place. The presence and density of brownfields in a locality has a profound impact on that place not just economically, but also on the psyche of the city. As the final background subsection – Brownfield Context of the Place – demonstrates, the current brownfield program run by the City is not required to determine the actual presence or potential presence of a hazardous substance, pollutant, or contaminant. While the SBLR represents an important clarification in what constitutes a Superfund site, the law provides a strategic approach to deal with the extensive list of contaminants identified by the mid-1970s environmental laws - the Clean Water Act, the Clean Air Act, and the Toxic Substances Control Act (1976). While these laws gave the EPA the power to regulate environmental pollutants, many sites remained highly polluted with no clear enforcement action to deal with the extensive and expensive cleanup required.

CERCLA gave the EPA the power to seek responsible parties and provide clean up for "uncontrolled or abandoned hazardous waste sites as well as accidents, spills, and other emergency release of pollutants and contaminants into the environment." The law also established the National Priority List (NPL), an assembly of "superfund" sites - the country's most contaminated sites. This gave the law its colloquial name – the Superfund Law. Only those listed on the NPL are eligible for funding through this law. Today, approximately 1,800 sites are on the NPL list across the country. The Brownfield Project in place today is a product of Public Law 117-118, introduced by President George W. Bush in September of 2001. The brownfield program began earlier, in 1995, to address the numerous properties with potential or real contamination that was not severe enough to constitute a place on the NPL but that limited local government's ability to redevelop without potentially harming the public and the environment. Between 1995 and 2001, a total of 480 pilot grants were awarded to various local, regional, tribal, and other governmental and quasi-governmental organizations to refine this emerging brownfield program. (See table 1 for an overview of the distinction between brownfield and superfund sites).

The law, as suggested by the title, contains two essential components:

- The Small Business Liability Relief and Brownfields Revitalization Act (SBLR) and
- The Brownfields Environmental Restoration Act (SBLR).

The SBLR exempts small businesses, individuals, and those contributing a De Micromis amount of hazardous material - too small to be financially viable for cleanup and enforcement activities. There are exemptions based on volume of the substance, severity of the substance, and procedural noncompliance, but the burden of proof falls on the party seeking funding from those qualifying for the SBLR, which can prevent frivolous suits.

Due to the both the long-standing federal oversight in brownfield programming and the human and environmental health risks inherent in the cleanup and redevelopment process, the assessment, remediation and cleanup process remains relatively uniform across states. This section will provide a brief overview of the process involved in the remediation activities. All site remediation activities in the State of Illinois are administered through the Illinois EPA as authorized by the US EPA through a Superfund Memorandum of Understanding. As such, the specific procedures outlined herein may undergo slight variations from state to state.

Phase I Site Assessment

The first stage in the remediation process is to identify sites with a potential contaminant presence, as well as potentially responsible parties (PRP) who may be financially liable in brownfield remediation activities. Because at this stage the municipality is not required to determine the actual presence of有毒 substances, assessors use a variety of sources to identify recognized environmental conditions, or RECs, that may indicate a Brownfield.

As mentioned before, the current brownfield program run by the US EPA is just the most recent iteration of a long history of attempts by the federal government to assist communities that are scarred by the lack of oversight long-term consequences of American industrial history and the lack of oversight over the environmental and economic impacts associated with their decline. While the current framework remains centered on the early legal frameworks, the Brownfield Process section will provide an overview of the project's activities.
Program Characteristics  | Brownfield Sites  | Superfund Sites  
--- | --- | ---  
Size  | Generally smaller parcels  | Much larger parcels (can be hundreds of acres)  
Contamination Level  | Less contaminated than superfund  | Country’s most contaminated sites  
National Priority List  | May or may not be listed on NPL to receive brownfield funding  | Always listed on NPL  
Focus of Program  | Focuses on cleanup and remediation  | Focuses on cleanup and redevelopment  
Level of Government Supervision  | Local government generally leads the effort  | Federal and state governments lead cleanup effort  
Cleanup Standards  | Based on state voluntary cleanup standard  | Based on federal standard for cleanup  
Cleanup Funding  | EPA funds cleanup, assessment, community outreach and education  | EPA or potentially responsible parties fund cleanup  
Table 1: Difference Between Brownfield Sites and Superfund Sites

The phase one site assessment procedure is as follows:  
- Interviews of current and past owners and occupants  
- In the case of abandoned properties, must interview one or more neighboring property owners  
- Review of historical records for a property on previous owners and use  
- Review government records concerning waste management practices  
- Conduct a visual on-site inspection of the property  
- Specialized knowledge or experience of property owner  
- Relationship of purchase price to value of the property, if not contaminated  
- Commonly known or reasonably ascertainable information about the property  
- Degree of obviousness of the presence or likely presence of contamination at the property  
- The ability to detect the contamination by appropriate investigation  
- The proposed rule includes no requirements to conduct sampling and analysis

Phase II Site Investigation

The next stage of the brownfield assessment process is to determine the actual presence and extent of pollutants on site. This process uses “sampling, analyses, and field screening measures to characterize the nature, concentration, and extent of contaminants of concern (if any) at the remediation site and the significant physical features of the site and vicinity that may affect contaminant fate and transport and risk to human health and the environment.” Methods commonly employed in this analysis include soil boring and groundwater monitoring and analysis.  

Remedial Objective, Remedial Action Plan and Clean-up

Once RECs have been identified and the type, concentration and transport potential has been evaluated, the next step is to develop a plan to address the contaminants. In Illinois, remedial objectives are first decided based on future use, extent and type of data available, and the extent of the pollutants of concern. With these objectives, the remedial action plan uses environmental response measures to clean up pollutants of concern and minimize risk to human and environmental health in the process.

Freeport, Illinois Brownfield Remediation and Redevelopment History

The City of Freeport has been actively engaged in brownfield assessment and cleanup since receiving its first grants in 1999 for site assessment of the Rawleigh Complex and Burgess Battery (now Tutt’s crossing). Since then, the City has leveraged over three million dollars in assessment and cleanup grants and has performed phase I site assessment on over 300 properties. Progress in cleanup and redevelopment of brownfield sites has continued through the most recent round of EPA Brownfield Grants, in which the City leveraged an additional $600,000 for cleanup at the CMHC Heartland site and a $200,000 Area Wide Planning Grant, which targets community and stakeholder involvement in the brownfield process.

Some milestones are as follows:  
- 2001–2004 – Completion of Phase I site assessment on Rawleigh complex; Phase I site assessment and limited phase II site analysis on CMHC heartland site  
- 2003 – Tutt’s Crossing site receives a No Further Remediation Notice (Note: Tutt’s was a superfund site so its remediation fell under the jurisdiction of CERCLA)  
- 2006 – Rawleigh corridor Phase I site assessment, East side Phase I area-wide site assessment; cleanup of CMHC heartland site  
- 2007 – Rawleigh Corridor Master Plan and Implementation Strategy completed  
- 2012 – Fehe Graham completes phase I site assessment in the Galena Avenue Corridor on 45 sites, emphasis in this study was on identifying possible petroleum contamination, though additional RECs were identified  
- 2013 – City of Freeport receives a no further remediation letter on the Rawleigh Complex site. Negations are underway as of 11/8/13 to transfer ownership of one of the buildings.

ANALYSIS

Throughout the history of both federal involvement in brownfield remediation activities and Freeport’s brownfield program, much of the challenge has been simply managing the amount of data required to identify potentially responsible parties, track potential pollutant vectors, and effectively achieve funding objectives. The process of gathering, organizing, and analyzing the data from extensive fieldwork carried out by Fehr-Graham and Associates along with the City of Freeport and Vandewalle and Associates into a GIS system is the first step in greatly improving the capacity of the City to manage this data and thereby more readily and effectively apply the information towards additional cleanup and/or redevelopment activities. While a GIS database has now been generated for all three of the brownfield assessment areas; due to time and space constraints we present below only results from the Rawleigh Corridor neighborhood. However, it should be known that with the work of the brownfield project team similar analysis can be carried out for each of the assessment areas.

GIS Applications in Brownfield Site Assessment

Municipalities are increasingly using Geographic Information Systems to organize and display data across multiple themes and indicators. Esri, a primary distributor of GIS software, has been expanding its services to include publicly accessible web platforms that meet a variety of data needs. When evaluating the use of GIS for brownfield evaluation and remediation, the system serves two primary goals. First, GIS can assist communities in organizing data on assessment and remediation activities. Secondly, GIS can combine the location and assessment data with other pertinent indicators such as community health, development goals, and environmental resources in order to utilize the data toward specific end goals. Examples of effective applications of GIS can be found across the country serving a variety of different community sizes, types, and development stages. These examples can be used as powerful tools to both identify effective database organization and to help illustrate how cities can translate their goals into data-driven systems.

Examples include:  
- IndianaMap, a state-wide GIS mapping application that combines brownfield data with numerous other data sets including demographics, environmental indicators, and public institutions. Without detailed parcel-based information, the site allows users to get a general picture of the type and extent of Brownfields in Indiana.  
- Elkhart County, Indiana’s web mapping service places special emphasis on health impacts and relationship with brownfield sites. The GIS application is designed to provide information on NPL sites and sites of immediate health risk. Furthermore, each site supplies links to an external website storing all assessment data for the site in question.  
- Fort Worth, TX has catered its GIS system toward another essential aspect of Brownfield assessment and remediation: the redevelopment process. It focuses its publicly accessible database on financial incentives for redevelopment such as TIF districts, enterprise zones, and community block grants. This provides potential developers easy access to infill opportunities.

The use of GIS for organization, presentation, and synthesis of brownfield data is becoming increasingly widespread in communities applying multiple spatial scales. The more clearly defined the goals of the system, the more useful the system will be in long term improvements in information synthesis and sharing. While in earlier versions of GIS the conversion of data into an interactive system would have been a long-term goal requiring investment in personnel and operation costs, the newest Esri platform makes web-based systems readily accessible for all software licensees. This initial process of data assembly and organization will be a first step towards a system that will support data driven decision making towards specific community goals and open accessibility for the community at large.

Brownfield Database Assembly

The Assessment, Cleanup and Redevelopment Exchange System (ACRES)  

Unfortunately, completing an update of the ACRES system was not feasible given the time constraints of the project and limited scope of information the brownfield project group could access. Because the ACRES platform is designed to specifically track the remediation activities achieved with each EPA grant awarded, it would require a more complete history of specific brownfield activities within the City and the timeline of those activities. The amount of data entry required is outside of the scope of the learning objectives of this project. As a require- ment of EPA grant recipients, it is essential that the database be brought up to date as soon as possible. From our observations of the site it seems that grants up until 2006 have been entered
GIS is fundamentally a tool to visualize and analyze data in space. While in many cases this requires aggregating the data or otherwise manipulating it to fit within the database structure, the brownfield assessment format lends itself readily to GIS analysis. In a GIS system, each spatial feature – a point, line, or polygon – has associated with it certain “attributes” that give meaning to the points beyond their geographic reference information. These attributes then represent all the information that can be displayed or accessed for a given geographic feature. For each brownfield site, the attributes included are:

<table>
<thead>
<tr>
<th>PIN</th>
<th>A numerical code signifying the parcel and allowing the data to easily combine with other parcel based datasets, including city assessor data tables.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Address</td>
<td>Descriptive only – not used in official analysis in GIS because addresses change and parcels sometimes have more than one address</td>
</tr>
<tr>
<td>Property Value</td>
<td>From city assessor parcel data</td>
</tr>
<tr>
<td>Improvement Value</td>
<td>City assessor parcel data</td>
</tr>
<tr>
<td>Property Use</td>
<td>Descriptive use of the property</td>
</tr>
<tr>
<td>LU Code</td>
<td>Based on descriptive property use, the Brownfield team reclassified the property use to align with more standardized property descriptions (i.e. from “barber shop” to “commercial”)</td>
</tr>
<tr>
<td>RECs</td>
<td>Recognized environmental conditions. Not necessarily representing actual contamination but conditions that could contribute contaminants</td>
</tr>
<tr>
<td>Source (of RECs)</td>
<td>May be historical use from Sanborn maps and or presence of some historic structures or record of concern</td>
</tr>
<tr>
<td>Contaminants of Concern</td>
<td>Potential hazardous compounds based on both RECs and Source</td>
</tr>
</tbody>
</table>

**Assessment Results Overview**

In total, the Rawleigh Corridor study assessed 78 parcels with potential RECs. Contaminants of concern include VOCs (Volatile Organic Compounds), Lead, semi-volatiles, metals, and BTEX (pollutants associated with gasoline and diesel fuel). Common RECs in the area were auto services - including gas stations and auto repair, dry cleaners, and a variety of manufacturing services. Today, most are either dedicated parking or continue to be commercial, although there are several residential/commercial parcels.

**Map Presentation and Analysis**

The Rawleigh Corridor is an area of highly concentrated brownfield sites, many of which have undergone Phase I and Phase II contaminant assessments. Rawleigh has been identified as a high priority neighborhood for redevelopment. The brownfields team has been working to produce a comprehensive map of the area and incorporating important indicators. The map below shows the location of the Rawleigh Corridor and the sites which have undergone assessment. Not all assessed sites have RECs, as subsequent maps will display.

The Rawleigh Corridor has historically been a location of heavy industry. As Freeport and many other cities in the rust belt began to lose their industry to locations of cheaper manufacturing this area went into disrepair. The land use map below shows the land uses in the Rawleigh Corridor. Note that although many of these are considered sites of manufacturing, many of them have not been active for some time.

The City should continue to track the remediation process on this site and use the GIS system to make cleanup status publicly available information for both developers and concerned citizens.

The following map will be instrumental for the redevelopment phase. This map categorizes the RECs found on each parcel that has been assessed. Cross-referencing the City owned parcels with the REC map, you will note that many of the parcels that are under private ownership have no RECs, while most of the City owned parcels have one or more contaminants on site. The City should continue to track the remediation process on this site and use the GIS system to make cleanup status publicly available information for both developers and concerned citizens.

The next map to enter the frame of view is the parcel ownership. As you will note, many of the parcels are owned by the City of Freeport. These properties had either become tax delinquent and were sold to the City or were acquired through some other method of City stewardship. Many of the properties have fallen into disrepair with lack of use. Some retain structures and many continue to have harmful RECs residing in the soil. The City owned properties present in unique opportunity in that they do not need to be acquired for redevelopment. These sites should be further vetted for redevelopment activities, although there should be some type of remediation efforts in place to address the RECs before any development takes place.
NEXT STEPS & RECOMMENDATIONS

The efforts of this brownfield project team represent the first step towards incorporating a digital access, geographic information system into the assessment and remediation process for Brownfields in the City of Freeport. Through this document and supplemental material, the City is being presented with an organizational tool that can streamline brownfield information from across the City and synthesize the information with additional spatial indicators. The ultimate utility of the system is in the City’s hands and depends on how completely they incorporate GIS into their programming. Some important steps in maintaining and expanding upon the functionality of this system are as follows.

Database Maintenance and Integration

The strongest determinant of the utility of this GIS database is how well maintained it is. Maintenance will include data entry within the brownfield layer itself, as new sites are assessed or as assessed sites are carried further along in the process. The data layers for brownfields have been equipped with attributes for Phase II and clean up information, however our project team lacked access to this data and the attributes have therefore been left blank. Commitment to completing this data entry will increase the utility of the database for the City.

Maintaining the brownfield GIS data will also require maintenance of the complete GIS database that has been included in the supplemental material to the City. This database includes numerous indicators such as environmental, demographic and economic indicators. This system should be treated and maintained as one large database to ensure all information remains as up to date as possible.

GIS Web Accessibility

Web accessibility for Geographic Information Systems once required a substantial financial expenditure and often required contracting with GIS specialists. However, ArcGIS, in its most recent iteration of ArcGIS, is working to make web access the standard for GIS licensees. A version of web-based mapping is available for free for all Arc 10 license holders. Capabilities of ArcGIS Online include:
• Open access to preloaded layers that include information such as geography, transportation networks, and demographics
• Cloud based storage for an organization’s personal data
• Ability to embed maps in existing web sites
• Apps for other devices that allow for easy fieldwork

Taking the GIS database the brownfield project team has assembled and entering it into the ArcGIS Online system will not only improve the usability of the interface but will also make the data accessible to a wider group of people. It is the strong recommendation of the brownfield project team that the city consider interfacing the GIS system with this web access platform.

REFERENCES

4 Ibid.
7 ICMA, 2002, 5.
8 Ibid.
Appendix: Maps
Our Goals

A Greener Future

Better Stormwater Infrastructure
The mission of this project is to help move the City of Freeport toward a more sustainable future in which the community can adapt and thrive in response to social, economic and environmental adversity. Achieving community resilience requires a unified vision of growth, supported by the collective ideals of what it means to be sustainable in the City of Freeport. The establishment of green stormwater infrastructure (GSI) guidelines will protect adjacent waterways and enhance streetscape aesthetics, revitalize the existing building stock and create jobs through the advancement of an innovative technological and green industrial sector. Use of green design techniques and materials in public right-of-way, open spaces, parking lots, and other undeveloped areas will establish a relationship between the Pecatonica Riverfront, Freeport’s downtown core and its surrounding region.

The City of Freeport, as an industrial rust belt city, has experienced deterioration of its downtown core in the past few decades. As part of a Housing and Urban Development (HUD) Community Challenge Planning Grant, the City of Freeport is brainstorming green stormwater infrastructure plans for the Rawleigh Corridor. In addition to the HUD grant, work has been supported by technical assistance provided through the USEPA Superfund Redevelopment Program. The City and its partners consulted with students from the University of Wisconsin-Madison Department of Urban and Regional Planning, seeking support to clearly define and deliver green stormwater infrastructure goals and guidelines.

The Green Stormwater Infrastructure Team, with the guidance of the City of Freeport, developed the following work plan to achieve project goals:

1. Research and Literature Review
   • Research and summarize relevant successful green stormwater infrastructure projects that incorporate design, education, and/or stormwater modeling
   • Densify potential green stormwater infrastructure funding sources for the City of Freeport

2. Stakeholder Input
   • Identify appropriate stakeholders from Freeport and surrounding communities, and engage them in the GSI project by holding a meeting in Freeport
   • Use input from those who attended the stakeholder meeting, including the City Water and Sewer Executive Director, representatives from the Freeport Downtown Development Foundation, engineers, private property owners, community groups and landscape architects to inform us on the concerns of the community and different industry sectors.

3. Data Collection and Analysis
   • Conduct green stormwater infrastructure modeling
   • Create GIS matrix to provide an easy format to compare different GSI strategies and their effectiveness

4. Green Stormwater Infrastructure Guidebook
   • Develop an easy to read and accessible GSI education and design manual for policy makers, developers, residents and community stakeholders that promotes GSI as an innovative stormwater management technique with environmental, economic, health, and social benefits

Figure 1. Stakeholder Matrix for Green Stormwater Infrastructure in Freeport, IL

Figure 2. Cover to Green Infrastructure Guidebook educational material

Outcomes
Short-term goals/Project Deliverables
• Stormwater Modeling: Demonstrate the ability of green stormwater infrastructure to cost effectively reduce the amount of impervious surface and subsequently reduce the amount of stormwater runoff entering the Pecatonica River in comparison to conventional stormwater management practices.
• Community Education: Develop an easy to read and accessible green stormwater infrastructure guidebook for policy makers, developers, residents and community stakeholders which promotes green infrastructure as an innovative stormwater management technique with associated social, environmental and economic benefits.

Long-term Green Stormwater Infrastructure Goals
• Flood Mitigation: Alleviate the social, environmental and economic impacts of major flood events along the Pecatonica River and adapt existing infrastructure to accommodate such events.
• Urban Revitalization: Replace existing impervious land surfaces over time and restore deteriorating urban infrastructure within the Rawleigh Corridor to better manage
stormwater runoff. Economic Development: Establish a thriving economic
district which supports industrial and technological inno-
vation, green job creation and tourism. Community Connectedness: Create a network of open
space as part of green infrastructure linking together the
City of Freeport which provides recreational opportuni-
ties with ease of access to workplaces, transit, shopping,
restaurants and other vital community resources. Healthy Environments: Support social and environmental
wellness by celebrating Freeport's cultural heritage, rec-
reational, regional landscape, natural aesthetic and wildlife
habitat.

BACKGROUND
Water quality is a concern at the national level, in particu-
lar as the Gulf of Mexico Dead Zone continues to grow (IL
EPA, 2004). Illinois and neighboring states located within the
Mississippi River Basin are major contributors to poor water
quality. This is largely due to the large amount of nitrogen
and phosphorous loads produced from expansive agricul-
tural lands (IL EPA, 2013). However, these nutrients can also
come from urban runoff, through fertilizer used on residential
lawns, parks and golf courses, and wastewater discharge from
industrial and sewage facilities. In addition, gasoline, motor
oil, heavy metals, and other pollutants from parking lots and
roads enter the waterways, directly effecting water quality. It is
important to consider the varying scales and sources of water
quality degradation, as each are related and what happens at
the local level ultimately contributes to issues downstream. For
these reasons, it is important to act that cities like Freeport begin to plan and implement Green Stormwater Infrastructure to miti-
gate the combined effects of stormwater runoff.

Pecatonica River Watershed

“What you really have to look at this geologically...this
(area) is the headwaters over a geological lake that
(once) sat here” - Mark, Community Member

Freeport is situated in Stephenson County, on the southeastern
edge of the Driftless Region, an un-glaciated hilly region of
Wisconsin and northwestern Illinois that is primarily used for
farmland. The Pecatonica River is the most prominent natural
(Vandewalle & Associates, 2008).

feature in this area, and is a tributary of the Rock River that
flows eventually to the Mississippi River. The Pecatonica River
Watershed contains 509,675 acres in Winnebago, Stephenson,
Jo Daviess, and Carroll counties, and is also part of the larger
Rock River and Mississippi Watersheds (IL EPA, 1996). The
landscape in Stephenson County is gently rolling hills with an
average slope of 2.3% and a total relief range of about 470 feet. Much of the flat upland areas have inadequate drainage, very
fine textured sediments, a relatively high water table and wet
soils.

Freeport & Local Issues
Freeport is the largest city located in the Pecatonica River
watershed. According to the EPA, 28% of the stream miles in the
watershed are in “fair” condition, primarily due to nutrients
and organic enrichment attributed to municipal point source
pollution and agriculture. Much of the area of Freeport has a
high water table and FEMA has designated a large floodplain
and floodway in the Freeport area. Because these areas are ex-
tremely prone to significant flooding, FEMA has strict regula-
tions that limit significant investment in the Freeport floodway
area, which has been frustrating for property owners, especially
in the East Side neighborhood.

The downtown area has a high percentage of impervious
surfaces at 80%. Much of this is due to an overabundance of
surface level parking lots and vacant land, some of which are, or
are perceived to be, brownfields.

This large amount of impervious surface and the need for
downtown redevelopment provide the perfect opportunity
to use green stormwater infrastructure to enhance the built
environment. However, the concept of “Green Infrastructure”
is new to the City and not widely used as a tool to enhance
aesthetics, revitalize the downtown area, and protect adjacent
waterways. The GSI project will inform the community on the
benefits and opportunities of implementing green stormwater
infrastructure.

The United States Environmental Protection Agency states that
Green Infrastructure is a way to “more effectively manage
urban stormwater and reduce receiving water impacts” and
explains that “by maintaining and restoring the hydrologic
function of urban areas, green infrastructure treats precipita-
tion as a resource rather than waste, and can play a critical role
in achieving community development as well as water quality
goals (US EPA, 2013).”

What is Green Infrastructure?
Green stormwater infrastructure can be defined as “an ap-
proach to wet weather management that uses natural sys-
tems-or engineered systems that mimic natural processes-to
enhance overall environmental quality and provide utility
services” (Odefey, 2012). GSI is a landscape and stormwater
management approach that relies largely on “soil and vegeta-
tion to infiltrate, evapotranspirate and/or harvest stormwater
runoff to reduce flows to drainage collection systems” (US
EPA, Terminology, 2012). Green stormwater infrastructure is an
emerging innovative stormwater management tool, recently
incorporated into municipal planning and development as evidence by numerous city initiatives, such as Milwaukee’s Fresh Coast,
Green Solutions Plan; Philadelphia’s Green Cities, Clean Water Plan; and Portland’s Grey to Green (G2G) Initiative.

The term green infrastructure is often used interchangeably with low impact development (LID), sustainable development or nat-
uralized landscaping. It means various things to different people, depending on their professional perspectives, backgrounds and
interests. Green infrastructure can include solar photovoltaic panels that generate electricity from the sun, wind powered turbines,
or LED lights illuminating a building’s façade. This project is focused specifically on green stormwater infrastructure (GSI), which
addresses site scale stormwater planning, design and management.

Principles
In comparison to conventional stormwater infrastructure, or grey infrastructure, which uses “hard, engineered systems to cap-
ture and convey runoff, such as gutters, storm sewers, tunnels, culverts and detention basins” (Odefey, 2012), green stormwater
infrastructure mitigates the impacts of stormwater runoff by slowing stormwater surface flows and treating pollutants on-site.
This planning and design approach aims to improve stormwater quality and reduce stormwater quantity.

Stormwater permits often require property owners and/or municipalities to meet particular stormwater quality standards, mea-
sured by percent total suspended solids (TSS), percent total nitrogen (TN) and percent total phosphorous (TP). Green infrastruc-
ture, such as rain gardens and bio-swales, collect stormwater runoff and filter out pollutants using a combination of engineered
soils and vegetation, which remove a significant amount of pollution including fertilizers, pesticides, petroleum products, and
heavy metals (MMSD, Fresh Coast Green Solutions). Furthermore, green stormwater infrastructure slows runoff, reduces water
volumes and mitigates major flood events or combined sewer system overflows after an intense rainfall.

Green stormwater infrastructure also transforms water into a resource and provides “a range of design possibilities that take ad-
vantange of the benefits of water for beautification, irrigation, groundwater recharge, wildlife habitat, and other uses” (WERF, 2013).
Green stormwater infrastructure is a site design amenity, one which improves community aesthetics, increases property values and creates healthier environments. Philadelphia’s Green Cities Clean Waters Plan explains, “By investing in green stormwater infrastructure and other innovative, cost-saving strategies to manage stormwater, we are not only ensuring the rebirth of our ecological resources but are also striving to provide a host of other environmental, social and economic benefits that will catalyze our success in achieving the sought after reality of the “Greenest City in America” (PWD, 2011).”

Benefits

The benefits associated with green stormwater infrastructure are numerous. Most notably are impacts on reduced stormwater runoff volumes and pollutant loads. However, improved water quality and reduced water quantity are accompanied by many environmental, social and economic benefits. Listed below are six identified benefits of green stormwater infrastructure:

Flood Mitigation: Green infrastructure replaces urban impervious surface with natural vegetation, reducing the volume of stormwater runoff and surface sheet-flow. Less flooding leads to minimized infrastructure improvement costs associated with flood damage and property insurance pay-outs (U.S. HR, 2010). Other impacts include: reduced threat to human health, and safety; reduced need for emergency services during flood events; and reduced impact to the built environment.

Energy Savings: Street trees, green roofs and natural vegetation provide shade and insulation for building, reduce urban impervious surface, mitigate urban heat island effect and subsequently decrease energy consumption and payments. Harvested rainwater can also be collected and reused for landscape irrigation or process water building systems (Odefey, 2012; U.S. HR, 2010; Carter-Fowler, 2008).

Pollution Abatement: Street trees, green roofs and natural vegetation transfix urban pollutants from the air and water, thereby reducing groundwater, soil and air contamination. Absorption of gaseous pollutants and particulates by green stormwater infrastructure improves air quality and overall environmental health (CNT, 2010; U.S. HR, 2010).

Real Estate Values: The reduction of negative flood impacts, as well as the addition of natural vegetation, wildlife and water features, increases real estate property values and attract land investors. Streetscape improvements and infrastructural investments along community corridors also increase aesthetic appeal and revive the downtown urban image from deteriorating hardscape to naturalized greenscape (Green4All, 2011; U.S. HR, 2010).

Quality of Life: Green stormwater infrastructure and open space provides healthier surroundings for urban inhabitants, creates recreational opportunities, increases air and water quality, decreases crime rates, and creates a general sense of well being (U.S. HR, 2010; WEERE, 2013).

Long Term Economic Impact: Installing green stormwater infrastructure can reduce long term financial costs by mitigating the need to continuously replace existing stormwater facilities. The reduction in flood costs, improved streetscape aesthetics, increased quality of life, pollution abatement and real estate values, contribute to community and regional economic development (Green4All, 2011).

Long Term Economic Impact:

Installing green stormwater infrastructure can reduce long term financial costs by mitigating the need to continuously replace existing stormwater facilities. The reduction in flood costs, improved streetscape aesthetics, increased quality of life, pollution abatement and real estate values, contribute to community and regional economic development (Green4All, 2011).

Features of Green Stormwater Infrastructure: Green Stormwater BMP

Pervious Paving/Asphalt/Concrete

Any surface comprised of material which provides partial voids, allowing the infiltration of water.

- Reduces the amount of impervious surface
- Reduces stormwater runoff and sheetflow
- Allows stormwater infiltration into the soil
- During the winter, increases snow melt and reduces the need for salt usage

Location: parking lots, driveways, sidewalks, streets, alleys, plazas, patios

Filter Strips/Riparian Buffer

A planted partition which slows stormwater runoff and filters collected sediment.

- Reduces stormwater runoff/volume
- Increases water quality by filtering stormwater runoff before it enters nearby bodies of water

Location: downslope of areas which generate large amounts of stormwater runoff, such as parking lots or roads, but can also be placed adjacent to bodies of water as a last line of defense

Green Roofs

Any roof-like surface which incorporates vegetation as opposed to traditional roofing materials.

- Collects/absorbs stormwater/snow melt
- Traps urban air pollutants
- Increases building energy efficiency
- Reduces urban heat island effect
- Provides aesthetically pleasing environment

Locations: buildings, underground structures, parking garages.

Carb-Bump Outs

Designed vegetated swales which collect and filter stormwater runoff while also acting as a traffic calming device.

- Reduces stormwater runoff/increases water quality
- Provides pedestrian safety, traffic calming
- Increases landscape aesthetics

Location: Streets, parking lots and intersections.
Why Green Stormwater Infrastructure?

At the Stakeholder meeting in Freeport on October 11, 2013 it became clear that there is an interest and a need for Green Stormwater Infrastructure both in the downtown and in the East Side neighborhood. Those who attended the stakeholder meeting included the City Water and Sewer Executive Director, representatives from the Freeport Downtown Development Foundation, Blackhawk Hills Regional Council, CAPS community group, Pecatonica River Foundation, engineers, Downtown property owners, and landscape architects. Their input informed us on the concerns of the community and different industry sectors.

Freeport Water and Sewer Commission

"Any gallon is a good thing for me...for every gallon we get, no matter where it is at...it's really hugely important to us" - Tom Glendenning, Freeport Water and Sewer Executive Director

The first sewer system in Freeport dumped untreated sewage directly into the Pecatonica River, until 1934 when the City was forced by the state to build a treatment plant (City of Freeport, Freeport Sewer and Water Commission). The city updated the treatment plant in 1968 and 1999, and is currently in the process of planning for another update. The Freeport Water and Sewer Commission is concerned not only with the quantity of water flowing through its system, but also with the quality of that water. The executive director agreed that GSI could be used to reduce peak flow and total volume, as well as to improve the quality of the water. In the downtown area, heavy metals from vehicle pollution can be treated by different GSI features such as bioretention, rain gardens, and filter strips. GSI will help "reduce treatment costs upward of $5,000 a day" if Freeport can get the low limit on gallons entering the system. Mr. Glendenning explained that every gallon that enters his system comes with a cost, and states, "that's why this initiative is so important, no matter what percentage it is."

East Side Flooding Issues

"Flooding is a serious issue on the east side that affects the quality of life and the property values of the residents." – Joy Sellers, East Side resident and CAPS representative

Flood mitigation on the East Side is a concern for the community members; in many places, the flooding has become worse in the past few years. Even though the primary project area is the downtown, the East Side flooding issues are directly connected to what happens on the other side of the river in the downtown area. After a heavy rain event, the runoff from impervious surfaces Downtown enters the Pecatonica River and contributes to the amount of flooding on the East Side. It is important to understand that increasing GSI in any part of the City of Freeport, and any City for that matter, positively affects other surrounding areas, too.

Bioretention/Rain Gardens/Swales

Vegetated land depressions planted which collect and store stormwater runoff.

- Reduce stormwater runoff/volume
- Collect stormwater sediment and absorb pollutants
- Can be designed to allow stormwater infiltration, providing groundwater recharge

Locations: at the end of building downspouts, adjacent to areas of impervious surface such as parking lots and roads (i.e. public right of ways, terraces)

Water Harvesting (rain barrels, underground cisterns, water reuse)

The collection, treatment and reuse of stormwater.

- Reduces stormwater volume and increases water quality
- Reduces water utility bills by reusing water for irrigation and/or other non-potable and process water needs

Location: can be small rain barrels connected to downspouts or large underground/aboveground cisterns depending on runoff surface area

Tree Trenches

Channelized depressions planted with larger trees and other vegetation which collect, filter and infiltrate stormwater runoff.

- Reduces runoff volume and increases water quality
- Trees reduce urban heat island effect and increase aesthetic beauty
- Can be designed to allow or prohibited water infiltration

Location: adjacent to roads, parking lots and sidewalks; in plazas and parks; designed as street medians
ANALYSIS

Stormwater Modeling

Stormwater modeling was undertaken for the City of Freeport's Downtown, the Rawleigh Redevelopment Corridor, and the East Side Neighborhood to determine benefits to runoff reduction through the implementation of green stormwater infrastructure (GSI). The values used for the stormwater modeling should only be considered an estimation of the actual land cover. Due to time constraints, the digitized land cover could not be ground-truthed through site visits, and not all fine details could be digitized and verified. The following results could not be ground-truthed through site visits, and not all fine details could be digitized and verified. The following results

Due to time constraints, the digitized land cover could not be ground-truthed through site visits, and not all fine details could be digitized and verified. The following results

Methods

Freeport's impervious land area was determined through heads-up digitization of the land cover in the Downtown, Rawleigh Redevelopment Corridor, and East Side Neighborhood in ArcMap 10. Digital imagery from the Illinois Department of Transportation's 2011 Orthophotos was cross-referenced with Google Maps aerial imagery captured on September 27, 2012 to determine land cover. In addition to aerial imagery, an Illinois Department of Transportation road layer was used to determine boundaries.

Land uses categories are detailed in Table X.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>All roads, including parking lanes</td>
<td>Downtown, Rawleigh, East Side</td>
</tr>
<tr>
<td>Tracks</td>
<td>Railroad tracks</td>
<td>Downtown</td>
</tr>
<tr>
<td>Parking</td>
<td>All off-street parking</td>
<td>Downtown, Rawleigh, East Side</td>
</tr>
<tr>
<td>Pervious</td>
<td>Any non-developed surface, regardless of quality and vegetated state</td>
<td>Downtown, Rawleigh, East Side</td>
</tr>
<tr>
<td>Brownfield</td>
<td>Unpaved sites known to be brownfields</td>
<td>Downtown, Rawleigh</td>
</tr>
<tr>
<td>Sport</td>
<td>Tennis courts, Baseball fields</td>
<td>Downtown, East Side</td>
</tr>
<tr>
<td>Building</td>
<td>Any structure</td>
<td>Downtown, Rawleigh, East Side</td>
</tr>
<tr>
<td>Residential</td>
<td>Lots with single family homes, whether inhabited or not. Average percent impervious area was determined using TR-55 Urban Hydrology for Small Watersheds Manual and averaged across total acres of all residential lots</td>
<td>East Side</td>
</tr>
<tr>
<td>Water</td>
<td>Excluded from total area and calculations since rainfall entering waterways is considered runoff in stormwater modeling calculations</td>
<td>Downtown, East Side</td>
</tr>
</tbody>
</table>

Test: The Rawleigh Redevelopment Corridor boundary was determined using the Rawleigh Corridor Redevelopment Phasing Plan maps found in the City of Freeport Rawleigh Corridor Master Plan & Implementation Strategy adopted June 11, 2007. The digitized area used to represent Freeport's Downtown was determined by looking at the change in land use apparent from the aerial imagery. When a block appeared to be made up primarily of residential use it was no longer considered to be part of the Downtown.

The East Side Neighborhood was generally any developed area east of the Pecatonica River. Detailed stormwater modeling boundary descriptions are available in Appendix 1.

Once boundaries were determined and the land cover was digitized, the EPA National Stormwater Calculator was used to determine changes in the runoff amounts. The National Stormwater Calculator estimates runoff using soil survey data to determine soil type, drainage, and typography; historic rainfall records; and user entered information about the percent impervious land cover. The user then defines what percent of the site's impervious area will be treated using low impact development (LID) techniques. For this analysis, only rain harvesting, rain gardens, and infiltration basins were considered; however, disconnection, green roofs, street planters, and porous pavement were additional options within the calculator left out due to minimal changes in runoff between combination of additional LID practices.

The Calculator analyzed ten years of rainfall events with an event threshold of 0.10 inches, both default values. All defaults were used for the various combinations of LID Controls.

Modeling was performed for Downtown and Rawleigh Redevelopment Corridors at the current impervious surface coverage and at reduced impervious surface coverage of 70%. The same LID controls have been applied to both scenarios to demonstrate the importance of reducing unnecessary impervious surface. Modeling was performed for the East Side Neighborhood at current impervious coverage. Six alternatives were performed for each of these five scenarios:

- 90% Retention Combined: Rain Harvesting at 30%, Rain Gardens at 30%, Infiltration Basins at 30%
- 75% Retention Combined: Rain Harvesting at 25%, Rain Gardens at 25%, Infiltration Basins at 25%
- 30% Retention Combined: Rain Harvesting at 10%, Rain Gardens at 10%, Infiltration Basins at 10%
- 30% Retention Rain Harvesting
- 30% Retention Rain Gardens
- 30% Retention Infiltration Basins

In addition, the WERF (Water Environment Research Foundation) Impervious Model was used to calculate approximate values for impervious coverage for the entirety of Freeport.

Results

Freeport's Downtown is 80% impervious surface coverage. The Rawleigh Redevelopment Corridor is 86% impervious surface coverage. The East Side Neighborhood is 34% impervious coverage. These values are shown visually in Figure 5. The WERF Impervious Model estimates 2,076 impervious acres in the city, for a total impervious coverage of about 24%. In Freeport, there is approximately 80 acres of impervious surface per 1,000 residents.

The modeling indicates that rain harvesting retains the largest amount of runoff; however this method does not filter and return what is captured to the water supply, though captured runoff could be used for other applications. Otherwise, the model indicates that combining several LID technologies returns better results than relying on a single method. In addition, like many things diversifying green stormwater infrastructure is important in case of failure of a single feature.

Figures 6, 7 and 8 show that increasing the amount of impervious surface treated by LID technologies increases the amount of total rainfall that can be retained. At the current rate of impervious surface and treating 90% of runoff from impervious surfaces nearly 55% of total rainfall in the Rawleigh Redevelopment Corridor can be retained; nearly 65% of total rainfall Downtown can be retained; and in the East Side Neighborhood almost 80% of total rainfall can be retained.

Detailed stormwater modeling output tables are available in Appendix 2.
NEXT STEP & RECOMMENDATIONS

Green Infrastructure Opportunities in Freeport

Tremendous opportunity exists for the implementation of various green stormwater infrastructure features in Freeport, Illinois. Specifically, the City’s downtown and immediate East Side Neighborhood present a chance for the City and Developers to work together in public/private partnership and ensure responsible community growth and development.

Implementation Recommendations

Even though runoff can be captured and treated using green infrastructure, the best and most effective way to reduce runoff is to remove unnecessary of the impervious surfaces. The current road network in Freeport’s Downtown covers 29% of the total land surface. Given the overabundance of parking in the area, both on-street and surface lot, it would be reasonable to reduce road widths on most roads to accommodate street parking on only one side. Given that an average parking lane is ten feet wide, if half Downtown streets removed one lane of parking, approximately three acres of impervious surface could be replaced with green infrastructure.

Brownfield Redevelopment and Downtown Economic Growth

The Rawleigh Corridor Plan (2007) defines one of its goals as “eliminating blight proximate to Rawleigh to improve the success of efforts to recruit tenants to the Complex.” Furthermore, the Plan proposes “to implement streetscape enhancements and other public improvements to improve the aesthetic and function of the Corridor.” These streetscape enhancements were listed to include “the installation of new sidewalks, street trees, street lights, and striping for parallel parking on one-block section of Liberty, Main and Spring Streets.” Using green infrastructure in place of conventional infrastructure during these capital improvement projects will enhance downtown aesthetics, provide natural vegetation and encourage real estate investment and development.

Flood Mitigation and East Side Neighborhood Empowerment

The East Side Neighborhood will also greatly benefit from investment in green stormwater infrastructure. Surface water runoff from Downtown Freeport contributes to the extreme flood events experienced by East Side residents. Houses situated in this neighborhood have become increasingly dilapidated due to annual flooding and disinvestment. Implementation
of best management practices downtown will mitigate some of the impacts associated with these floods. However, a more realistic approach to mitigating the impacts of flooding would be to implement green stormwater management on a large scale. One example includes the installation of a constructed wetland adjacent to properties which are no longer inhabitable. As vacancies by attrition slowly occur, acquired properties can be converted into a more naturalized wetland, sedge meadow or bog.

Policy Recommendations

Green stormwater infrastructure has recently been addressed as an appropriate development standard by federal and state policy makers. Legislation H.R. 2030 (112th), also known as the Green Infrastructure for Clean Water Act (2011), established a process through the U.S. EPA to research green infrastructure, develop manuals and set industry standards, provide information to the national electronic clearing house center, provide technical assistance and training, and evaluate regulatory and policy issues regarding green infrastructure. Furthermore, Legislation H.R. 2222 (111th), a.k.a. the Green Communities Act (2009) established a grant program for 80 municipalities to support communicaitninitiatives (U.S. H.R. 2010).

Most recently, Illinois Municipal Code Public Act 098-0330 (effective January 1, 2014) amended sections of its stormwater design standards to read: The corporate limits, by special assessment upon the property benefited thereby, or by general taxation, or a combination thereof, and in this manner may provide for draining or otherwise managing the runoff, such as by infiltration, evapotranspiration, or collection, on any portion of the land within their corporate limits, by special assessment upon the property benefited thereby, or by general taxation, or a combination of both. No lock, block, tract, or parcel of land, however, shall be assessed more than once in any one year by a municipality for maintenance. This amendment is critical for the implementation of green stormwater infrastructure best management practices at the municipal level, because it sets a defined standard of green infrastructure alongside conventional infrastructure. Municipal Code Public Act 098-0330 sets the legal precedence and justification needed by municipalities to require the use of green stormwater infrastructure in new and redevelopment situations.

The City of Freeport Comprehensive Plan (2010) clearly supports the use of green stormwater infrastructure and should be referenced when evidence of such support is necessary. Specific language taken from the Comprehensive Plan includes:

- Encourage new development to utilize “green technology” and best management practices (BMPs) such as green roofs, rooftop solar energy, bioswales, and green paver parking lots to reduce stormwater runoff and improve water quality.
- Explore potential land use or policy decisions to mitigate future flooding.
- Investigate options for implementing Best Management Practices (BMPs) to the City to limit the amount of runoff entering the Pecatonica River and Yellow Creek.

Thus, integration of green stormwater infrastructure into Capital Improvement Projects (CIPs) throughout the City to the limit the amount of runoff entering the Pecatonica River and Yellow Creek. This amendment is critical for the implementation of green stormwater planning, implementation and management.

Specific areas of codified ordinance where green infrastructure policy may be appropriate include:

- Part Ten, Title Two, Chapter 1025 and Chapter 1028 (Streets, Utilities and Public Services Code; Construction of Utility Facilities in the Rights-Of-Way and Local Improvements).

- Part Ten, Title Four, Chapter 1050 (Streets, Utilities and Public Services Code; Storm Sewers and Storm Water Design)

Rewrite ordinance using language to read “As used in this chapter, “storm water design” shall include the design requirements of all public and private storm water conveyances including but not limited to ditches, storm sewers, detention facilities and other “green infrastructure” facilities, such as green roofs, rain gardens, bioswales, tree boxes, porous pavement, porous pipe systems, native plantings, constructed wetlands, and cisterns, ditches, levees, dykes, pumping works, and machinery; and may acquire the necessary land and machinery therefor, and in this manner may provide for draining or otherwise managing the runoff, such as by infiltration, evapotranspiration, or collection, on any portion of the land within their corporate limits, or as the City, Water and Sewer Commission, the Planning Commission, Board of Water and Sewer Commissioners, and Building Commission all serve as potential stakeholders in green infrastructure planning, implementation and management.

Specific funding sources include:

- Wells Fargo/National Fish and Wildlife Foundation Environmental Solution for Communities Initiative
- Waterways grants in green infrastructure, renewable energy and energy efficiency
- Innovations in prevention and management of stormwater and environmental well-being
- National Science Foundation Environmental Sustainability Grant
- United States Environmental Protection Agency Brownfield and Land Revitalization Grants
- Local government assistance programs including: assessment, cleanup, revolving loans, and environmental job training.

Funding Sources

Many critics of green stormwater infrastructure argue that its associated construction costs far exceed that of traditional stormwater infrastructure. This is not always the case and in fact, when you compare the cycle costs of green stormwater infrastructure versus conventional infrastructure, green practices will generate a significant return on investment. This is in large part due to reduced maintenance costs as well as a drastic reduction in environmental externalities. However, any capital improvement project requires a substantial amount funding and resources to be implemented. Green stormwater infrastructure is similar in this sense, yet because it is considered a new and innovative approach to stormwater management, many funding opportunities exist for planning and implementation.

Specific funding sources include:

- Wells Fargo/National Fish and Wildlife Foundation Environmental Solution for Communities Initiative
- Waterways grants in green infrastructure, renewable energy and energy efficiency
- Innovations in prevention and management of stormwater and environmental well-being
- National Science Foundation Environmental Sustainability Grant
- United States Environmental Protection Agency Brownfield and Land Revitalization Grants
- Local government assistance programs including: assessment, cleanup, revolving loans, and environmental job training.

- Illinois EPA Nonpoint Source Pollution Grants
- Multi-Purpose Pilot Grants
- Training, Research and Technical Assistance Grants
- Targeted Brownfields Assessments

- Illinois EPA Green Infrastructure Grant Program for Stormwater Management (IGG)
- Illinois Department of Commerce & Economic Opportunity Community Development Assistance Program (CDAP)
- United States Environmental Protection Agency Brownfield and Land Revitalization Grants
- Targeted Brownfields Assessments
- Illinois EPA Nonpoint Source Pollution Grants
- Projects address water quality issues relating directly to nonpoint source pollution
- Funds can be used to implement watershed management practices that showcase innovative, cost-effective and environmentally friendly approaches to improve environmental conditions within urban communities by ‘greening’ traditional infrastructure public projects such as stormwater management and flood control, public park en hancements and renovations to public facilities.

- Illinois EPA Green Infrastructure Grant Program for Stormwater Management (IGG)
- Illinois Department of Commerce & Economic Opportunity Community Development Assistance Program (CDAP)
- United States Environmental Protection Agency Brownfield and Land Revitalization Grants
- Targeted Brownfields Assessments
- Illinois EPA Nonpoint Source Pollution Grants
- Projects address water quality issues relating directly to nonpoint source pollution
- Funds can be used to implement watershed management practices that showcase innovative, cost-effective and environmentally friendly approaches to improve environmental conditions within urban communities by ‘greening’ traditional infrastructure public projects such as stormwater management and flood control, public park en hancements and renovations to public facilities.

- Illinois EPA Green Infrastructure Grant Program for Stormwater Management (IGG)
- Illinois Department of Commerce & Economic Opportunity Community Development Assistance Program (CDAP)
- United States Environmental Protection Agency Brownfield and Land Revitalization Grants
- Targeted Brownfields Assessments
- Illinois EPA Nonpoint Source Pollution Grants
- Projects address water quality issues relating directly to nonpoint source pollution
- Funds can be used to implement watershed management practices that showcase innovative, cost-effective and environmentally friendly approaches to improve environmental conditions within urban communities by ‘greening’ traditional infrastructure public projects such as stormwater management and flood control, public park en hancements and renovations to public facilities.


Green, J. American Society of Landscape Architects. Green Infrastructure is Becoming Mainstream. 2013 http://drt.asla.org/2013/06/12/green-infrastructure-is-becoming-mainstream/


The Rawleigh Redevelopment Corridor boundary is Stephenson Street from the rail tracks near Benton Avenue southwest to State Avenue; State Avenue from Stephenson Street southeast to Spring Street; Spring Street from State Avenue northeast to Adams Avenue; Adams Avenue from Spring Street southeast to Jackson Street; and Jackson Street from Adams Avenue northeast to the rail tracks.

The Downtown boundary is from the Pecatonica River at Tully's Crossing southwest on Linden Street to Chicago Avenue; Chicago Avenue southeast from Linden Street to Clark Street; Clark Street southwest from Chicago Avenue to Walnut Avenue; Walnut Avenue southeast from Clark Street to Douglas Street; Douglas Street southwest from Walnut Avenue to Cherry Avenue; Cherry Avenue southeast from Douglas Street to Spring Street; Spring Street northeast from Cherry Avenue to Walnut Avenue; Walnut Avenue southeast from Spring Street to Iroquois Street; Iroquois Street east from Walnut Avenue to State Avenue; State Avenue north from Iroquois Street to Winfield Street; and Winfield Street northeast from State Avenue past the rail tracks to the Pecatonica River.

The East Side Neighborhood is bound on the northeast by Currier Creek to the Pecatonica River on the south and southwest to Tully's Crossing; northeast from Tully's Crossing at an approximate forty-five degree trajectory to Henderson Avenue; and east from the intersection of Henderson Avenue and McClurg Avenue through Taylor Park to Currier Creek.

### Appendix I: Stormwater Modeling Boundary Descriptions

The Rawleigh Redevelopment Corridor boundary is Stephenson Street from the rail tracks near Benton Avenue southwest to State Avenue; State Avenue from Stephenson Street southeast to Spring Street; Spring Street from State Avenue northeast to Adams Avenue; Adams Avenue from Spring Street southeast to Jackson Street; and Jackson Street from Adams Avenue northeast to the rail tracks.

The Downtown boundary is from the Pecatonica River at Tully's Crossing southwest on Linden Street to Chicago Avenue; Chicago Avenue southeast from Linden Street to Clark Street; Clark Street southwest from Chicago Avenue to Walnut Avenue; Walnut Avenue southeast from Clark Street to Douglas Street; Douglas Street southwest from Walnut Avenue to Cherry Avenue; Cherry Avenue southeast from Douglas Street to Spring Street; Spring Street northeast from Cherry Avenue to Walnut Avenue; Walnut Avenue southeast from Spring Street to Iroquois Street; Iroquois Street east from Walnut Avenue to State Avenue; State Avenue north from Iroquois Street to Winfield Street; and Winfield Street northeast from State Avenue past the rail tracks to the Pecatonica River.

The East Side Neighborhood is bound on the northeast by Currier Creek to the Pecatonica River on the south and southwest to Tully's Crossing; northeast from Tully's Crossing at an approximate forty-five degree trajectory to Henderson Avenue; and east from the intersection of Henderson Avenue and McClurg Avenue through Taylor Park to Currier Creek.

### Appendix II: Stormwater Modeling Output

### Table A1: Downtown Fireproof stormwater modeling output.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Averages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Average Rainfall (inches)</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
</tr>
<tr>
<td>Percent of All Rainfall Retained</td>
<td>63.71</td>
<td>67.12</td>
<td>57.67</td>
<td>61.85</td>
<td>38.46</td>
<td>45.95</td>
<td>42.24</td>
</tr>
<tr>
<td>Daily Event Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smallest Rainfall with Runoff (inches)</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Largest rainfall without Runoff (inches)</td>
<td>0.67</td>
<td>0.70</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Max volume retention</td>
<td>1.18</td>
<td>1.35</td>
<td>1.18</td>
<td>0.85</td>
<td>1.02</td>
<td>0.97</td>
<td>1.09</td>
</tr>
</tbody>
</table>

### Table B1: Rawleigh Redevelopment Corridor stormwater modeling output.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% Retention Combined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Averages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Average Rainfall (inches)</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
<td>34.06</td>
</tr>
<tr>
<td>Average Annual Rainfall (inches)</td>
<td>6.94</td>
<td>7.84</td>
<td>10.50</td>
<td>10.11</td>
<td>10.58</td>
<td>10.58</td>
<td>10.82</td>
</tr>
<tr>
<td>Percent of All Rainfall Retained</td>
<td>79.61</td>
<td>76.95</td>
<td>69.15</td>
<td>70.32</td>
<td>68.94</td>
<td>68.22</td>
<td>63.94</td>
</tr>
<tr>
<td>Daily Event Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smallest Rainfall with Runoff (inches)</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Largest rainfall without Runoff (inches)</td>
<td>0.30</td>
<td>0.30</td>
<td>0.30</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Max volume retention</td>
<td>1.09</td>
<td>1.81</td>
<td>1.82</td>
<td>1.81</td>
<td>1.81</td>
<td>1.81</td>
<td>1.81</td>
</tr>
</tbody>
</table>
Our Goals

Identify broad problem areas and specific residential structural issues

Conduct in depth inventory of existing housing stock

Provide community organizing and flood mitigation recommendations
PROJECT SCOPE AND GOALS

The City of Freeport has experienced economic and population declines in the East Side resulting from an exodus of manufacturing jobs, flooding, flood regulations, and lack of financial capital available for investment. As a result of these declines, the community has concerns about the East Side’s existing housing stock. The Community, Activities, Partnership, Support (CAPS) housing initiative has expressed desire for the implementation of a strategic housing plan. Our aim is to provide information to support the city and CAPS in this effort, as well as recommendations for revitalization strategies.

The goal of the following project is to provide the City of Freeport and the organization CAPS with the information and resources that can allow for problem area identification and concepts for potential solutions. Included in our project is a brief description of neighborhood context, and demographics analyses of the target neighborhood.

The following document contains two different housing inventory criteria, one from Flint, Michigan, and one which we developed. We provide general and detailed observations from our preliminary inventory of the eastside neighborhood, and recommendations for future inventories. In addition, a geographic analysis of property values in the neighborhood is included.

In addition, the project seeks to provide strategies for more effective strategies of community organizing, and coalition building. In addition, we explore tactics to mitigate flooding through the use of green infrastructure and provide recommendations for future inventories. For this area, a geographic analysis of property values in the neighborhood is included.

BACKGROUND

Ever since Tutty Baker founded what would become Freeport and throughout its rich history, the east side neighborhood across the Pecatonica River has always been a part of the “Pretzel City.” While the City’s east side consolidated rather than grew as the neighborhoods to the West, it has historically been described as nothing less than vibrant, healthy, safe, and by local accounts “bumpin’”

For years, the East side was indeed a community that exhibited all of the characteristics of a healthy neighborhood. These features are strong manufacturing and other jobs base, high walkability, convenient transportation, and easy access to the local school and Taylor Park highlighted the area. A significant reason the majority of the city developed across the river because of severe flooding. However, residents continued living in the flood plain and maintaining their neighborhood. As has often been the case with urban floodplains, the introduction of the Federal Emergency Management Agency (FEMA) floodway designation residents have frequently found themselves unable to meet the imposed requirements and has led to a decline in investment in the neighborhood.

Today, only a small glimpse remains of the modest but healthy neighborhood that was Freeport’s East side. There is very little of the housing stock left – vacant lots are widespread and sometimes encompass entire blocks. On the East side of the river, economic vitality has slowed significantly. While some East Sider’s have been able to maintain a collection of healthy properties – and there are some beautiful homes that dot the area – there are also many who have not been as able to acclimate to FEMA codes. In the face of hardships, large populations of residents have left the neighborhood, and many of the former homes and businesses have fallen into disrepair.

This has had an impact on current residents, as home values have suffered a steady decline - today, median home values for the area are less than $150,000. To stress the issue further, significant amounts of infrastructure on the East side have either degraded considerably or have disappeared entirely.

Where does it go from here? As it stands, the situation on the East side is far from perfect, but there is a positive to build on. The overall design of the neighborhood, for example, is extremely conducive to healthy development. Major neighborhood assets are all located within walking distance, and the neighborhood as a whole is highly navigable. Additionally, the remaining neighborhood has a diverse racial makeup. In addition the area has been extensively studied and surveyed, so data is available. Although there is considerable work to be done, the East Side of Freeport certainly has many obtainable forward-looking outcomes.

ANALYSIS

Target Neighborhood Demographics

The target neighborhood is consistently affected by flooding from the Pecatonica River and Currier Creek. All development in the target neighborhood is located within a floodway and as a result residents are forced to deal with recurring flood problems and the negative externalities, such as mold, structural degradation, impacting their property. The East Side has experienced fifteen major floods in the past 80 years on record, as well as several small floods. The floodway has contributed greatly to the trend of neighborhood disinvestment.

Flooding is viewed as one of the primary challenges faced by the community. Therefore, strategies for improvements to Freeport’s housing stock will necessarily lend some focus on flood mitigation techniques. Green infrastructure can provide a cost effective method of mitigating the impact of flooding on the neighborhood. We identify three specific contributors to the flooding which must be mitigated, they are overflow from nearby Currier Creek and the Pecatonica River, and storm drain overflow. Sewer realignment has helped to some extent, but the problem persists. The Freeport ‘Sidewalk Beatification Project’ failed to include storm drains in its design.

The Federal Emergency Management Agency’s revisions to existing flood zones and designated floodways has had significant impact on investments in the community. Since FEMA’s designation the community has declined rapidly. Methods of floodway mitigation are a critical component of larger issues in the housing stock.

Exploration of strategies for mitigation will be explored in the strategy recommendations portion of this text. For now, we will turn our attention to the housing conditions inventory and material useful for future inventories.

Borrowing Concepts from Flint, Michigan Inventory

Performing a citywide survey in Freeport may merit borrowing concepts from the criteria develop in Flint, Michigan. In the fall of 2012 the city of Flint, Michigan conducted an inventory of all residential structures within their municipal boundaries. We view Flint’s inventory as worthy model because the city utilized community members to conduct the survey and developed a simple criteria. However, the criteria may be viewed as overly simplistic; if so, the inventory criteria our group developed may be a better option for Freeport.

The Flint, Michigan inventory featured a four point rating system. 1 being good, 2 beingfair, 3 being poor, 4 being substandard, and a category for vacant lots. Defined below are the specific conditions which define each scoring category.

The Flooding Issue

Via 2010 U.S. Census Block Group data, there are approximately 588 people living within the target neighborhood. Income levels are a major concern in the neighborhood. The median individual income for neighborhood residents is approximately $13,438 which is well under half of the state of Illinois at $31,179. The median income of families in the neighborhood is $21,411, which also less well under half of the state median at $68,236.

2010 U.S. Census Block Group 00700:1 data shows that approximately 25% of families are below the poverty line.

Figure2. The targeted neighborhood & the neighbors.

Figure3. The median family income.

The racial makeup of the neighborhood is striking when compared to the city of Freeport as a whole. Approximately 52% of individuals in the target neighborhood identify as Black compared to 16% in the city of Freeport. Nearly 40% of neighborhood residents identify as White compared to 77% in the city of Freeport. It is clear that the neighborhood consists of a concentration of African-American as 7% of all of Freeport’s African-American population lives within our target neighborhood.

The target group population is somewhat younger then the city of Freeport and state of Illinois. Approximately 33% of the target neighborhood is under the age of 18 compared to 23% in the city of Freeport and 24% in the state. A little over half of the population under the age of 18 is located in two blocks. The 100 and 200 blocks of N. Adelbert Ave is home to the neighborhood public housing property according to U.S. Census Block Data. From 2010 is home to 105 of the estimated 194 minors in the community.

Figure1. The targeted neighborhood aerial photo.
Our inventory attempts to break apart those structural conditions that lump together issues like foundations, roofs, windows. The Flint, Michigan criteria contains four scoring categories that further quantify specific structural characteristics. Our inventory was created by performing research into best practices in pilot housing reinvestment, NSP grants and design survey data, and incorporating concepts from the housing inventory methods used in Flint, Michigan. Our inventory attempts to further quantify specific structural characteristics. The Flint, Michigan criteria contains four scoring categories that lump together issues like foundations, roofs, windows. Our inventory attempts to break apart those structural conditions into specific scoring categories, placing windows, roofs, and foundations into separate categories. It is our belief that our inventory criteria better portraits the structural issues which are specific to each residential structure. Displayed below is the criteria we developed:

- A score of 1 means the building is structurally sound, the roof is good condition, the foundation has no cracking and no leaning, the porch is attached and is straight, no broken or boarded windows, siding is intact and aligned, and there is no fire damage.
- A score of 2 means the building is structurally sound but minor repairs may be necessary; roof may have damaged shingles, the foundation is in good shape, the porch may be leaning or crooked but is attached, windows may be boarded but none are broken that are not boarded, siding, trim, and gutters may need repair or replacement, painting may be boarded but none are broken that are not boarded, siding, trim, and gutters may need repair or replacement, painting may be boarded, and there is no fire damage.
- A score of 3 means the structure may not be sound, the roof may be sagging and a tarp may be visible, foundation cracks are present, the house may be leaning, the porch may be detached from house, windows may be broken without boards, siding is need of repairs, painting may is needed, and there is no fire damage.
- A score of 4 means the structure is unsafe and repair is not feasible. The roof may have openings or is collapsed, walls may possess holes, porches are detached or collapsed, more than minor fire damage is present, or only a basement is present.

The Flint city staff assessed roughly 35% of residential properties and 27% of vacant properties to assess the remaining 65%. The city of Flint provided Neighborhood Inventory Mini-Grant. The mini-grant amount was only $500 provided to each participating group. Given Freeport is a smaller community, the number of groups that may be utilized may also be smaller. $500 dollar’s may be incentives that can be used attract community groups to participate.

Creating Our Inventory Criteria

The intent of our inventory was to gather information on the current structural conditions in the targeted neighborhood so as to allow us to define critical issues. The information gathered may allow for the creation of a strategic plan that can pin point’s structural issues such as a broken window, and poor roof conditions. Our findings may also provide benchmarks that can be used to assess qualitative and quantitative progression.

Our inventory was created by performing research into best practices in pilot housing reinvestment, NSP grants and design survey data, and incorporating concepts from the housing inventory methods used in Flint, Michigan. Our inventory attempts to further quantify specific structural characteristics. The Flint, Michigan criteria contains four scoring categories that lump together issues like foundations, roofs, windows. Our inventory attempts to break apart those structural conditions into specific scoring categories, placing windows, roofs, and foundations into separate categories. It is our belief that our inventory criteria better portraits the structural issues which are specific to each residential structure. Displayed below is the criteria we developed:

As expected, the overwhelming majority of residential structures were single family homes. Approximately 80% of the occupied residential structures appear to be over 50 years old. Despite the age of the occupied housing stock, the majority of the structures possessed good foundations. However, the majority of the homes need painting and siding repair. Porch and window conditions are also a concern. If the observation were tabulated using the Flint, Michigan criteria, it would be fair to say the majority of homes would score 2.

Performing the Inventory

On October 10th, three members of Studio 912’s Housing team conducted a preliminary housing inventory. The aim of the housing inventory was to gather data of the specific housing conditions present in the neighborhood and to test the inventory criteria we developed. We chose to concentrate our inventory in the portion of the neighborhood South of US Highway 75 as we found this portion to be most affected by the housing conditions present in the neighborhood and to test the inventory criteria we developed. We chose to concentrate our inventory in the portion of the neighborhood South of US Highway 75 as we found this portion to be most affected by flooding. The streets covered by our inventory are displayed in the map below.

Creating Our Inventory Criteria

The intent of our inventory was to gather information on the current structural conditions in the targeted neighborhood so as to allow us to define critical issues. The information gathered may allow for the creation of a strategic plan that can pin point’s structural issues such as a broken window, and poor roof conditions. Our findings may also provide benchmarks that can be used to assess qualitative and quantitative progression.

Our inventory was created by performing research into best practices in pilot housing reinvestment, NSP grants and design survey data, and incorporating concepts from the housing inventory methods used in Flint, Michigan. Our inventory attempts to further quantify specific structural characteristics. The Flint, Michigan criteria contains four scoring categories that lump together issues like foundations, roofs, windows. Our inventory attempts to break apart those structural conditions into specific scoring categories, placing windows, roofs, and foundations into separate categories. It is our belief that our inventory criteria better portraits the structural issues which are specific to each residential structure. Displayed below is the criteria we developed:

As expected, the overwhelming majority of residential structures were single family homes. Approximately 80% of the occupied residential structures appear to be over 50 years old. Despite the age of the occupied housing stock, the majority of the structures possessed good foundations. However, the majority of the homes need painting and siding repair. Porch and window conditions are also a concern. If the observation were tabulated using the Flint, Michigan criteria, it would be fair to say the majority of homes would score 2.

Performing the Inventory

On October 10th, three members of Studio 912’s Housing team conducted a preliminary housing inventory. The aim of the housing inventory was to gather data of the specific housing conditions present in the neighborhood and to test the inventory criteria we developed. We chose to concentrate our inventory in the portion of the neighborhood South of US Highway 75 as we found this portion to be most affected by the housing conditions present in the neighborhood and to test the inventory criteria we developed. We chose to concentrate our inventory in the portion of the neighborhood South of US Highway 75 as we found this portion to be most affected by flooding. The streets covered by our inventory are displayed in the map below.

General Observations

There are approximately 70 residential structures in the inventory area, of which 15% appear abandoned. Approximately 44 of the occupied homes are located on S. Hooker Ave, S. Johanna Ave, S. Rose Ave, and N. Louis Ave, while only 15 of the apparent occupied homes are located throughout the rest of the neighborhood. Most of the surveyed area consists of vacant lots many of which feature heavy overgrowth. Some properties did not have a displayed address which made documenting addresses on inventory criteria worksheets difficult.

Response from Residents

While performing the inventory, our group had the opportunity to interact with members of the community. We spoke with an individual who owned property on S. Louis Ave. They said they enjoyed the quiet aspects of the neighborhood and had no problem with our being here. Most of the residents we came across paid little attention to us and those who did made sure to say hello and had favorable opinions.

However, this was not the case with all residents. We did receive hostility from residents. Some felt we were violating their privacy and residents who felt our efforts would do little to improve their community. The negative reactions reaffirmed the community’s negative perception of the past efforts carried out by the city. The negative reactions also affirmed the need for further social cohesion and organization efforts; in addition the city must build a better relationship with the Eastside side community.

GIS Data Analysis

Through the use of Geographic Information Systems, we furthered our data analysis to account for the values of each individual parcel of property in the target neighborhood. We attained this information through data used by the Stephenson County Assessor.

As expected, property values in the neighborhood are extremely low. The large majority of property values of parcels fell between the $50 to $8,998 ranges. Approximately 63% properties have value below $2,999, while 18 out of 469 property values are over $12,000. 92% of all parcels in the target neighborhood had values below $9,000. The mean property value for taxable properties is $8,226. The median property value for all properties was $912.

Ownership was another factor explored through GIS. There were 469 total of parcels of which 120 appear to be privately held. 102 of the parcels appear to be owned by some form of government, as no property tax was charged to these parcels and no owner was listed. 47 parcels were owned by ‘other institutions’. These other institutions include neighborhood churches, Freeport Housing Authority, and the school district.

Given our status as outsiders, it is not surprising that we should face hostility from community members. Going forward, future surveys should be performed by members of the community and community organizations who have built relationships with residents in the community.
The above graphic displays the value of tax bills issued in 2013 to property owners in the target neighborhood. Complementing the previous maps, the highest tax bills are all non-residential parcels to the west of the neighborhood. The majority of residential property owners were billed between the $0 to $400.00 range. The largest concentrations of low taxed properties are found along the most southern portions of S. Louis Ave and S. Mary Ave’s. Another low concentration is found on S. Sheridan Ave and S. Sherman Ave.

Revitalization Recommendations

For our revitalization recommendations, we chose to take three pronged approach that provides methods of flood mitigation used in other cities, green infrastructure recommendations, and community development recommendations. Our group took a look at various case studies where similar cities and neighborhoods used different means to put an end to the flooding situation.

Furthermore, we have provided green infrastructure implementation recommendations that serve as ideal generators for future initiatives. We end our recommendation session with strategies for effective community organizing. The recommendations are based from academia and real world techniques utilized by community organizations in Chicago.

It is our sincere hope that these case studies and recommendations will provide CAPS and the City of Freeport with useful ideas for future efforts.

Urban Flood Mitigation Case Studies

To better articulate our own approach on how to alleviate or reverse the symptoms of urban floodway restrictions imposed on the residents of Freeport’s east side, we analyzed successful initiatives undertaken in communities dealing with similar difficulties. To our optimism, we found several projects across the country that mirror problems found within the target neighborhood. Of the case studies, acquisition, green infrastructure, and floodwalls (some being "invisible") were the most frequent approaches. Per the expressed municipal interests of Freeport, property acquisition - the most frequent and studied method of the three aforementioned - will not be considered as a potential strategy.

Greenbelts and Green Infrastructure: Scottsdale, AZ

Due to topography and an arid climate, Scottsdale was subject to frequent flash floods and flooding, especially as development in and around Phoenix boomed. After major flooding incidents in the ’70s left some homeless and claimed one life, the city took initiative. The city council called a flood control bond election in 1973 to approve the sale of $10 million in bonds for the purpose of funding flood control and drainage funds approved, the project was completed in 1999 – it become known as the Indian Bend Wash Greenbelt.

Today, Scottsdale’s greenbelt attracts “high-end apartment complexes, attractive shopping centers and resorts.” The achieved concept of a linear park system rather than a concrete channel or other invasive measures has both been beneficial to the neighboring areas and functionally successful. The Wash maintains effective protection against floods by providing a capacity of 30,000 cubic feet of water per second, while the most significant historical flood for the area recorded 22,000 cubic feet per second. Additionally, the Wash is also greatly utilized as a walking/recreational area by local residents.

Floodwalls – Invisible and Permanent: Columbus, OH and East Grand Forks, MN

1. Columbus, OH

As opposed to trying to deal with flooding mitigation by way of environmental infrastructure improvements, floodwalls offer a man-made barrier that prevent floodwater from spilling over into the communities protected. In this section, both permanent and invisible floodwalls are examined – invisible floodwalls being temporary, removable, and reusable barriers erected for the same purpose as their permanent counterparts.

Columbus, OH – The Franklin neighborhood of Columbus, the oldest neighborhood of the city, faced occasional devastating floods (most notably the flood of 1913) and, similar to east Freeport, firm FEMA restrictions regarding development and upkeep. While always a working-class neighborhood, Franklin faced sharp economic and social decline in the wake of these restrictions. In an attempt to have FEMA remove the floodplain designation (and, thus, the restrictions), the City of Columbus sought and was approved over $90 million by the Energy and Water Development Appropriations Conference (EWADC) in the House of Representatives for the construction of a floodwall. The rest of the projects funding, approximately $42 million dollars, was funded by the city and further successful efforts to procure dollars from the EWADC.

Completed in 2003, the Franklin floodwall was successful in lifting the floodplain restrictions that had burdened the neighborhood for decades. Taking just over 10 years to complete, the floodwall now seemingly lines 7.5 miles of the Scioto River, including the area adjacent to downtown Columbus. Though revitalization of the Franklin neighborhood community has been slow-moving, the floodwall has finally stagnated some of the difficulties that plagued the area and has also promoted some development; the city has recently released a large scale plan for near-complete redevelopment of the East Franklin neighborhood.

2. East Grand Forks, MN

After levees and sandbags failed to contain the devastating 1997 flood, city officials in East Grand Forks, MN decided to invest in relatively new flood-control technology – the ‘invisible flood control wall (IFCW). IFCW is the product of Flood Control America, whose mission is “Harmony with Nature.” The ‘invisible’ aspect of the IFCW is the relative ease of labor required to erect and remove the wall. The East Grand Forks IFCW is made up of aluminum siding and provides 980 linear feet of flooding protection with a height of up to 14 feet.

Construction of the IFCW in East Grand Forks took only a little over 6 months – from late 1998 to early 1999 – with the total project cost being $1.2 million. Providing much needed flooding protection, the floodwall has been the spark for over $20 million dollars of reinvestment in the area, including job-creating retail developments. Residents also comment on the attractiveness of the riverfront view, which, while still providing for flooding protection, the IFCW does not affect. The IFCW also does not carry the same negative environmental externalities as a permanent floodwall might incur, and is obviously much cheaper (compare to the Franklin example).

Green Infrastructure Recommendations

Improving storm water infrastructure in Freeport can be performed most effectively by incorporating principals of Green Infrastructure. A green infrastructure approach to storm water management can make use of the natural waterways and existing green space which makes the approach far more economical than a grey infrastructure alternative. We advise the city use the natural environment rather than build expensive artificial structures like levees.
The leadership capacities of current CAP's participants must be enhanced in developing leadership training as workshops can provide members the leadership skills and confidence needed for an effective organization. Community organizing workshops are offered regularly in the Chicagoland area.

Unengaged community leaders should be recognized and recruited for participation in CAPS. Unengaged leadership can be found in the schools, the churches, and other spaces of community activity. Engaging these community members and encouraging their active participation in community affairs will provide for a stronger organization.

As leadership development should be a top priority in community organizing, it is important to remember that effective initiatives are always a group effort. In addition to focusing on elevating individual leaders, CAPS members must seek to model and develop group centered leadership which embraces the active participation of many members as opposed to a few.

Hosting a Workshop and Other Community Events

Gaining further involvement will be a necessity for CAPS to become a successful organization. The first step in generating more involvement should be to host a workshop that provides community members the opportunity to provide input on the neighborhood improvements they would prefer to see.

For the workshop, the city should develop a committee that represents a wide range of interests that will present their suggestions for improvement to the community members. After the presentations, time should be provided for community members to be broken into small groups. Each group should then be provided a large notebook for brain storming, and a large map which can be used for problem area identification. Each group should then present their ideas to the other groups. This cost effective activity can provide problem identification, and community networking opportunities.

Community activities performed by CAPS should go beyond addressing issues and should be used to build stronger relationships between community members. Block parties and family fun events can be successful in reaching community members who may be wary of community politics and can provide community members a sense of pride and belonging. Strong community relationships are often better built through recreational events then through traditional political events.

Building Coalitions

A fundamental concept of community organizing and political power building is smaller organizations becoming stronger and more effective when they work together. Stakeholder comment's suggested a lack of networking between different institutional actors. Building a coalition should have an objective as further emphasis on coalition building will provide more effective implementation of future initiatives.

CAPs will benefit tremendously by focusing on building alliances with other institutions in the city. Building the alliances between themselves and churches, parent teacher organizations, and other community organizations will build CAPS’s influence. Institutions such as the Freeport Housing Authority, Home-Start, and Habitat for Humanity can become far more effective through working together; these organizations can no longer exist in silos. Building coalitions on the East Side will provide the community and these organizations with more influence over future development decisions.

NEXT STEPS & RECOMMENDATIONS

The problems faced by the East Side neighborhood today are the product of decades of decline. The conditions of the neighborhood’s housing stock will take decades to improve. Though the current situation appears overwhelming, it is critical decision makers focus their efforts on attaining small victories. Small victories, such as vacant lot clean-up and minor structural improvements, will do a lot to improve the mentality of residents in the neighborhood. Listed below are next steps which should be undertaken by the city:

- CAPS should hold a neighborhood meeting that will allow community members to brain storm and express their views on where improvements can occur.
- The city of Freeport should nurture the leadership of CAPS by sending current CAPS members to community organizing leadership workshops.
- CAPS should work with Home-Start to build its community development capacities. Funding sources for home rehabilitation efforts, such as the HOME program through HUD, should be explored.
- A green infrastructure chapter which focuses on methods and implementation should be added to the city of Freeport’s comprehensive plan.
- The city should apply for Illinois green infrastructure grant funding through the Illinois EPA and explore other funding sources for green infrastructure improvements.

REFERENCES

4. Vandewalle & Associates. ‘City of Freeport: East Side Revi-
Our Goals

Strengthen and support existing minority-owned business

Foster and support new minority-owned businesses

Build and maintain a strong entrepreneur community inclusive of minority entrepreneurs
BACKGROUND

The framework is based on input and research conducted with focus groups from two groups of stakeholders from (or serving) the Freeport community, and input from experienced professionals in minority enterprises.

The first stakeholder group included service providers and organizations that support entrepreneurial ventures within Freeport. That stakeholder group will be referred to as the Resources Group. The second group was made up of minority enterprise owners and community members from the Third Ward in Freeport. This group will be referred to as the Stakeholders Group.

The two groups were invited to attend a meeting in July 2013. Each group was asked questions to help frame and assess current needs, concerns, and direction for a minority enterprise program for the Freeport.

The Resources Group included representatives from the Freeport Chamber of Commerce, Stephenson County, Rock Valley College Small Business Development Center, NIDA, the Freeport High School Entrepreneur Program, Freeport Housing Authority, and Freeport Community Development.

The Stakeholders Group included invited individuals that were invited as a result of known ownership and/or connections to minority business ventures within the Third Ward and/or affiliation with a sub-group of the CAPS group.

For the purpose of this minority enterprise program, the terms venture, entrepreneur (sail and ship), startup, and business will refer to minority companies and/or owners that are considered potential members of the Stakeholders Group. Also for the purpose of this project, the terms community (including Freeport community) should refer to the broad sense of stakeholders, citizens, business owners, and customers in the Freeport region. When referring to the City of Freeport it should include the neighboring municipals, public staff, and services of the municipal government.

PROJECT SCOPE AND GOALS

The City of Freeport is planning to create a program that increases the number of minority-owned entrepreneurial ventures in the City of Freeport, and strengthens existing minority-owned businesses.

This project's process included holding listening sessions and interviews with stakeholders, creating the framework for such a program, and providing an outline of recommendations for creating a minority entrepreneurship program, including a plan for implementation.

The goal of the project is to create a program that fosters new minority-owned entrepreneurial ventures, and supports and strengthens existing ones. Thereby creating a business community where the minority entrepreneurs are a targeted part of the economic development plan and entrepreneurship community in the City of Freeport.

The project principle was Shelly Griswold, Director of Community Development for the City of Freeport. The student support for the project was Cynthia Switt, a Masters candidate studying economic development and urban and regional planning at University of Wisconsin-Madison.

The City of Freeport has minimal additional/new resources available for management and implementation of the minority enterprise program. Therefore, the program will have to maximize existing resources, while creating a coordinated environment of collaboration and enhancement of the existing services, while implementing additional resources that require minimal input from City of Freeport staff or budget.

RESEARCH BRIEF

The City of Freeport's size and demographic makeup make it a difficult community to find comparable communities as it relates to this specific marketplace of minority enterprise.

However, minority entrepreneurship programs are not uncommon in several communities. For the purpose of this project research was done by examining minority entrepreneurship programs - not necessarily programs administered by similar city governments or public entities.

Wisconsin Women's Business Initiative Corporation (WWBBC)

The Wisconsin Women's Business Initiative Corporation (WWBBC) is a non-profit micro-lending and educational organization that specifically caters to entrepreneurial ventures by minority and underserved populations in Wisconsin. WWBBC works with programs that focus on capacity building, community building, business planning, and operations. The majority of their clients are African American enterprises in the Milwaukee, Wisconsin region. WWBBC's vice president of Impact Initiatives, Julann Jatczak commented on the structure of minority enterprise programs she is familiar with, and what components might go into successful programs. Julann's comments included a finding that most minority enterprise programs that have lasting communities tend to share the features of grassroots origination by minority enterprise stakeholders directly, and require limited ongoing support of time and finances. Occasional success was recognized of programs that have outstanding leadership and driven by a passionate board, with little turnover. Lastly, most of the long-lasting ongoing programs have expanded their targeted service populations to include all businesses based on need, with preference of minority ownership, but not required.

American Family Insurance Business Accelerator Program

The American Family Insurance Business Accelerator is a national minority entrepreneurship support program founded by a for-profit company, American Family Insurance in Madison, Wisconsin. The program is free, and while it was originally designed to support minority enterprises, it now supports all businesses based on an individual’s interest to self-select into the program. The program features continuous hours a day through coaching, training workshops, and community building. The topics featured focus on three primary areas of business need: finance and cash flow, sales, marketing and client retention, and business operations (including growth, business planning, and facilities management). Companies are not restricted by financial need or size. The program has grown to include international businesses.

EIGER VentureLab and Rock Valley College Small Business Development Center

EIGER VentureLab and Rock Valley College Small Business Development Center are two related resources available to the Freeport community. The EIGER VentureLab is an incubator facility that provides services to small businesses. The program was the total accumulation of 65 organizations and departments that provided services to the entrepreneur community. The services were centrally coordinated on a website and an advisory forum, survey of minority community groups serving minority business owners in the region. That information is available for the City of Freeport in what is called the 5-2-1 Initiative. The project was started when national statistics reported a 17 percent increase in minority owned and operated businesses across the country; however Winnebago County, Illinois, is only experiencing a 1.3 percent increase in minority owned and operated businesses. Additionally, EIGER recognized that African American and Latino birth rates are the highest birth rates in the county, which equates to a future imbalance in supply and demand for new entrepreneur ventures and jobs, and available economic support resources. The 5-2-1 Initiative report will be made available to the City of Freeport once it is approved by the advisory board.

Lake Mills Community Foundation

The City of Lake Mills, Wisconsin has a community foundation that focuses on economic and community development programming. The foundation was created by community members, and received initial funding from a large private benefactor. The board dedicated time to outlining specific goals and designing their grant programs. The current chair is from a financial institution in the community, and has significant fund management experience.

Dane Buy Local and Local First Milwaukee

The City of Topeka, Kansas, has created a program called Go Topkea that includes a minority and woman owned business development program for small businesses in Topeka. The program focuses on creating economic development through job creation and entrepreneurship for minorities and low-income individuals. The video for the program is: http://www.youtube.com/watch?v=yqovrfvijIcE

New York: Launching Low-Income Entrepreneurs

The Center for an Urban Future conducted a study in New York for low-income entrepreneurship. In the five boroughs studied, nine out of ten were African American or Latino. The study has similar parallels to Winnebago County’s study of
minority growth populations, but low entrepreneurship
the research identifies why living in poverty makes it
difficult to start a business (little exposure to entrepreneurial
type roles, limited financial literacy, limited access to capital -
family and friends with available investment money, and
poor credit history). (Laney et al 2013) The study talked about
the Entrepreneurial Ecosystem, and quoted Trish Truitt from
the National Association for Community College Entrepre-
nurship saying “it is good to raise an entrepreneur and
“The biggest thing for the entrepreneurs with no capital is
they need community and they need infrastructure.”

ANALYSIS

The listening sessions were the first phase of the project, and
offered considerable insight and direction for analysis.

Resources Group Findings

The program should include Third Ward and the City of Free-
port minority entrepreneurs in economic development plans,
and specifically provide additional resources to access for their
entrepreneurial ventures. For this project entrepreneurs should
include all parties, no matter the type of business or industry.
However, the group discerned between hobbies and businesses
by identifying a business as a source of income that has at least
one full time employee. The group discussed the definition of
minority to be more inclusive than exclusive.

A discussion of resources needed included training, one-on-
one business assistance (help with business plans and cash
management), help for second stage companies, facilities for
incubator space, information for startups, communication and
coordination between resources (eg SBDC might be able to
help a company that a different agency is also working to help),
provide information on how to access low- (or extremely low-) income, information on how to move from ideation to starting a business, and information on developing
business leaders (many skilled people at their profession, but
not all have business operation experience).

The group discussed how to identify this program as a success:
• An ecosystem that creates more opportunities to the people
including inquiries about starting new business
• A program that fills in the gaps (micro loans, credit build-
ing programs and loans, education)
• Entrepreneurial paradigm shift where it’s seen as valuable
to invest in oneself and education, entrepreneurship is
seen as valuable, and there is support and care in commu-
nity along with positive reputations for the new business-
• A reduction in risk aversion or sense of failure and defeat
(accepting defeat as ok)
• Increase the number of people that go through education
programs to start a business
• Develop a quality of workforce
• More business plans of higher quality
• More services up front to avoid failure later
• Organized structure to education (chamber pulls together
seminars of local attorneys, bankers, insurance, etc)

The group talked about a few barriers to minority entrepre-
nurship in Freeport. A few of those barriers include a lack of
education, and missing skills for business structure, finance/
cash and management (business owners often don’t know what
they don’t know). The group discussed the stagna-
tion of investing in agri-business. There are some retired
The Freeport area is a strong agri-base economy with a tra-
dition of investing in agri-business. This group did not know of
an existing program that offered that education/mentorship. Ad-
ditionally, it was suggested to connect to the annual career tech
for high school students. There is an entrepreneurship course
that provides training on needs assessments, business planning,
making, marketing and more. The SBDC also offered a connection to
online courses and education.

The group talked about a few barriers to minority entrepre-
nurship in Freeport. A few of those barriers include a lack of
education, and missing skills for business structure, finance/
cash and management (business owners often don’t know what
they don’t know). Also, the group discussed removing the stigma
of failure, and replacing it with a sentiment that supports
new businesses and the opportunity for redemption if a
business fails. Some entrepreneurs need better understanding
of marketing place and physical locations (eg demographics of
their clientele versus the physical location of their store being
away from heavy traffic commercial districts). Also, some of
the landlords in the area might need some help to work with
new businesses and negotiate more business friendly affordable
rental costs.

Additional barriers included: transportation for some of the
workforce, workers compensation costs, and facilities access.

The group liked the idea of adding a mentor/coach/concept/
program. Someone that could guide business owners through
things and help them understand things like cheapest isn’t
always best, marketing, networking, social media, customer
service, etc. They also supported the idea of building commu-
nity and leadership that support new business.

The group discussed ways to identify this program as a success:
• An ecosystem that creates more opportunities to the people
including inquiries about starting new business
• A program that fills in the gaps (micro loans, credit build-
ing programs and loans, education)
• Entrepreneurial paradigm shift where it’s seen as valuable
to invest in oneself and education, entrepreneurship is
seen as valuable, and there is support and care in commu-
nity along with positive reputations for the new business-
• A reduction in risk aversion or sense of failure and defeat
(accepting defeat as ok)
• Increase the number of people that go through education
programs to start a business
• Develop a quality of workforce
• More business plans of higher quality
• More services up front to avoid failure later
• Organized structure to education (chamber pulls together
seminars of local attorneys, bankers, insurance, etc)

The Third Ward Riverfront area primarily includes African
American businesses and entrepreneurs. A few commenta-
ries from some of this project the audience suggested all entrepreneurs should be
supported regardless of their race or background.

There was some discussion regarding a sense of being chal-
gen to succeed, rather than being supported by others to succeed. Some discussion ensued regarding develop-
ing a sense of community and working to support each other. Additionally, there was some discussion about the public
perception of risk and failure as it relates to entrepreneurial
ventures and how it’s a perceived barrier.

It was also noted that it’s difficult for some small businesses to
access capital (loans, grants, investors). And that some small
businesses have additional challenges based on their person-
all credit issues. A few people also said they’ve experienced
situations in which the banks and/or loan programs seemed like
they were paranoid about lending to minorities; thereby making accessing credit even more difficult for minority entre-
preneurs. A few comments were made related to working to
develop a stronger sense of community with the banks/lending
institutions and minority entrepreneurs.

The group thought it would be helpful to have information on
where people should go if they have business ideas. It seems
that currently people aren’t always sure, but better notice of
which resources exist and how to access them might be useful.

Some of the education and training entrepreneurs might need includes how to write a business plan, and how to get a
business started. Perhaps funding might require entrepreneurs
to access education programs like that. However, some of
the group suggested the best information and education they
received was from their family/personal network and/or self
education.

A few people commented they tried to go through existing
programs advertised through the SBDC, but they either weren’t
helpful, or they weren’t appropriately matched to the business
needs at the time. The resulting sentiment was that working
with the SBDC wasn’t a positive experience.

The physical space and community of the Third Ward was
discussed with some ideas as to which improvements might be
made, and that might be real or perceived barriers to the
success of businesses located in there. There were many com-
ments about accessibility, parking, and attractiveness of space.
Perhaps zoning and redevelopment changes in the Third Ward
might help that. Additionally, a comment was made that the
location of the Third Ward is an inherent barrier from access
to from the West Side of Freeport. A few suggestions to address
the problem were to tear down an old building, to expand
and create more attractive commercial corridors. Additionally,
the group suggested some kind of program to help build a sense of
supportive community and promotion for the businesses in
One of the final thoughts from the group was that some self-improvement, education and support would be helpful and welcomed in the area. And examples of how they thought that success could be identified:
- people acknowledging that starting and operating a business is hard work
- financial security (moving from red to black)
- people willing to sacrifice it all to survive having support services
- people acknowledge it'll be strenuous
- see businesses grow
- have three or four new businesses start up and succeed
- have a booklet and/or a person and/or events to mentor and supply resources
- possibly a touring group
- when people say they understand and know how to get started
- when Third Ward businesses receive mutual support by the professional services (e.g., marketing companies buy and frequent the companies they sell advertising to)
- people will know success when they achieve their dreams
- there are more facilities in the Third Ward (strip mall)
- there's an angel group and/or entrepreneurial group and it meets regularly

Additional discussion with two individuals identified concerns regarding the specificity of the minority enterprise definition and serving the primarily African American citizenship and business owners of the Third Ward. The individual conversations further identified the geographic boundary of the Third Ward also being a specific concern. The history of the Third Ward community includes significant economic hardship and re-development focus. However, there was some public sentiment that program focus has leaked beyond the Third Ward boundaries to include populations of less economic hardship and needs. To counter the negative sentiments about the past the minority enterprise program needs to explicitly provide access and inclusivity with a focus on minority enterprises. That should include hosting meetings at minority owned businesses when possible, spotlighting minority communities within the Third Ward, there's an angel group and/or entrepreneurial group and it meets regularly.

Inventories
Based on the listening sessions, the City of Freeport has a number of minority owned businesses, and a number of services provider resources available, but neither stakeholder group has a collective list of services or entrepreneurs. The lack of list of resource providers makes it difficult to ensure each entrepreneur gets a consistent level of service and access to all opportunities for assistance. And the lack of list of minority entrepreneurs, results in the service providers being unable to clearly and consistently communicate with the entrepreneurs about the available resources.

NEXT STEPS & RECOMMENDATIONS

1. Inventory

The City of Freeport (and other interested entrepreneurial service provider partners) should connect with local community leaders, and create an inventory of minority-owned business ventures in Freeport. The inventory should be more inclusive than exclusive, and help identify which stage a business might be in (idea stage, operating as a sole proprietor, as a small business, as a social enterprise, community organization, non-profit, social enterprise, etc). Given the level of success, the inventory should be able to consistently communicate with a large group of interested minority entrepreneurs, rather than just a small group.

The inventory questionnaire should be flexible to be conducted in informal and informal settings, and should include multiple formats (paper, email, interview, etc.) to collect contact information as well as areas of interests and need(s), and stage of business (representatives from the City of Freeport (and/or interested service provider partners) should connect with community leaders, elected officials, church leaders, NAACP local chapter, and other professional or personal organizations that might have interested citizens and/or community members.

The results of the questionnaire should be collected into a digital database for future entrepreneurship support and resource community communications.

2. Capacity Building

The Freeport community has a lot of interest in entrepreneurship, and a lot of entrepreneurial resources. However, it’s unclear if the would be entrepreneurial ideas are ready for a viable business plan, or if the entrepreneurs have the right type of training, available finances or financiers, marketing information and experience with managing investments and operating a business. In particular, the Third Ward Stakeholder group expressed an interest and need to understand available finance programs and have access to credit. They also expressed a concern that traveling to Rockford for the SBDC is too far, and often times not applicable to their needs. One strategy to increase the access to capital and management capacity is to build business training and personal and business finance knowledge through partnerships with banks and private non-profit organizations. Perhaps the Resource Group or City of Freeport (freeport city leaders) might want to work with area credit unions and banks to seek a partnership offering of personal financial management training that results in an improved credit score for future loans. The organization WWBIC offers programming similar to this in Wisconsin with a great deal of success. In the absence of a micro lending organization like WWBIC, the private partners might know of available resources or offer training.

The Freeport entrepreneurship community might benefit from a partnership with the Freeport Community Foundation to investigate the potential for the creation of an economic development tool especially for minority entrepreneurship ventures in Freeport. The tool could be a micro loan guarantor/banking program to help economically disadvantaged minority entrepreneurs secure collateral for conventional loans through private lending institutions. While Freeport lacks a large grocery store that can provide fresh food, as well as a community building experience. This project could promote a minority entrepreneur/s to open a grocery store within their own community of minority enterprise owners, thereby solving a sorely needed consumer need, as well as adding to the strength and vibrancy of a consumer district.

The need to foster community building should be explicit and purposeful. The capacity building efforts, the training, all of it can lead to community building. As more informal interactions happen during the program (and supporting the library, it can help the single person operators stay motivated, foster innovation, and continue the sense of community network and support. It's
4. Traditional Entrepreneurial and Business Operational and Development Support

Freeport entrepreneurs have access to a plethora of resources, but not all entrepreneurs will have the same experience accessing the resources because the resources are not coordinated and centrally marketed by organizations. Therefore, one entrepreneur might find their way to Shelly Griswold at the City of Freeport’s Community Development office, but others might call the Chamber of Commerce and miss out on programming. Therefore, the recommendation is to create an informal body to manage the coordination and communication of centralized entrepreneur resources - not programming.

The committee will be an Advisory Committee for Entrepreneurial Resources. Members on the committee should be from representative Resource Group members and additional service providers as discovered. The Committee should meet on a regular basis in the beginning to inventory existing services and decide the best management approach for the information. Thereafter the committee will meet on an ad hoc basis and at least once annually. The individual Resource Group members will be responsible for their information and programming, but will also have the means to communicate programming to other Resource Group members. The Advisory Committee members will serve as a virtual centralized entity, and each member should agree to also serve as a point of contact if an entrepreneur is unsure which place to start. The Advisory Committee work should make it clear enough for each resource to know someone to contact and facilitate the personal connection for the entrepreneur.

The Advisory Committee should also include at least one representative/liaison from the Third Ward minority enterprise Stakeholders Group. That representative can serve as a resource as well as a minority enterprise owner/Stakeholder liaison. The liaison should be appointed to ensure the focus of the minority entrepreneurship is not lost, and is always considered in the planning purposes and accessibility of resources. The liaison can work with the Advisory Committee members informally to resolve concerns or suggest improvements, but can also request the Committee Chair to call a full committee meeting for larger inclusive conversations.

During the listening sessions identifying which resources are available and providing an open offering to them was identified as a potential barrier to minority entrepreneurs. This recommendation is to create an inventory and hosted website where the Resource Group and Advisory Committee can access the site to update their online contact information. The inventory should list a service directory of types of services offered (best in class – not every conceivable service), a website with more information (accessing information online provides 24/7 accessibility for limited schedules of entrepreneurs) and contact information of an individual (whenever possible) and/or a telephone or email address that is answered on a regular basis. The website and contact information need to stay updated and responsive or the inventory/directory will lose credibility with the enterprise user community.

The next recommendation is for each of the Resource Group members to commit to organizing/hosting an entrepreneurial capacity building event at least once a quarter. The event does not have to be educational. It could also focus on community building within the entrepreneurial community, specifically to build capacity within the minority enterprise community. These programs do not require a lot of money. They could include some networking, as well as some programming. Perhaps there could be a rotation of different resources available, or sharing of entrepreneurial success stories. The topics of programming should be chosen by the Stakeholders community as identified in listening sessions and ongoing conversations during meetings and community building events.

Brian McIntyre from Rock Valley College SBDC has offered programming resources for two- to four-hour workshops on-site in the Third Ward in Freeport, a few months each year. Those programs are specific educational pieces designed to increase knowledge, bridge skill gaps, and build credit/financial capacity. It is recommended to not charge (or nominal - very small fee) for Third Ward residents or business owners. However, there are fees associated for the programs. The Advisory Committee could discuss the necessary funding and either seek sponsorship, or design appropriately with available funding from the Resource Group.

Additionally, the SBDC and other specialists from the Resource Group, offer entrepreneurial counseling and other entrepreneurial expertise services. The services are available to all populations in all geographic districts of Freeport. However, scheduling meetings with Resource Group service providers at the Freeport Public Library will offer a central and easily accessible location for the Third Ward residents and minority enterprise owners. The Resource Group service providers are encouraged to hold regular available hours of engagement with the minority enterprise Stakeholders. If possible, a regular schedule of drop-in office hours somewhere in the Third Ward will help promote participation and build credibility for the commitment to the minority enterprise program.
Our Goals

Analyze present transit system
Create surveys to gauge future demand
Develop potential new route
PROJECT SCOPE AND GOALS
The City of Freeport is currently served by a demand-response system, contracted through a third party named Pretzel City Transit, where riders must schedule trips by making advanced reservations. This type of service has the advantage of providing door-to-door service from a rider’s home to one’s exact destinations. For this reason, many residents of Freeport find this system very convenient for their transportation needs.

Despite this convenience, there are a couple of ways in which the introduction of a fixed-route system, in concurrence with a demand response system, could benefit both the residents and the City of Freeport. One such benefit is cost. Estimates provided by Freeport staff during the initial meetings between Studio 912 and the City place the current system at a cost of approximately $12 per ride. Comparatively, the City of Freeport’s estimates for a fixed-route service are roughly one third of this price. These estimates were obtained by the City prior to the involvement of Studio 912, and were the springboard for the City’s interest in pursuing a feasibility study. Additionally, the cost to residents could be reduced. The current demand response service charges $3 for advanced reservations ($2 for residents 60 and over), with same day reservations costing $5 per ride. Although exact fares for Freeport’s fixed-route system have not yet been determined, research has shown that fares can range anywhere from $1.25 in Concord, New Hampshire (a city with a similar population size to Freeport)1 to $2.50 in Allegheny County, South Carolina (a smaller multi-jurisdictional system).2

Another benefit to introducing a fixed-route system in Freeport would be increased flexibility in allowing for spur-of-the-moment trips, including trips to Freeport’s downtown, employment centers, parks, and senior centers. Since the City is focused on increasing tourism and downtown development, a fixed-route bus service would also allow for Freeport visitors to travel throughout the city without advanced reservations. In addition, the fixed-route system could be incorporated into the Amtrak station that has been proposed at the Ralpheigh Complex, allowing for Freeport to create a truly multi-modal system.

BACKGROUND
Studio 912 examined a variety of research publications to gauge the best methods of analyzing potential demand for a fixed-route system in a small, rural community like Freeport. Studio 912 also looked at several existing municipal studies in communities such as Concord, NH, Springfield, IL, and Rock Island, IL for inspiration in developing our maps and surveys. This exercise was beneficial to Studio 912 in identifying potential transit demand, modeling transit demand and developing a survey methodology as outlined further in this report.

Aim 1: Identifying potential transit demand: Three most outstanding elements when providing transit for rural poor (Rural Public Transportation, 2002):
• Hours of Service Needs
• Existing Route Limitations
• Distance to employment opportunities

Important locations to include in GIS maps (Rural Public Transportation, 2002):
• Employment Centers
• Training Centers
• Childcare Facilities
• Schools
• Medical/Health Care Populations Using Welfare

When analyzing data from demand response system, there is “high priority” data to focus on (Chisholm-Smith, 2012):
• Passenger trips per capita
• Vehicle revenue miles per capita

“Medium Priority” data should also be considered (Chisholm-Smith, 2012):
• Average weekly period of service
• Response time for demand response systems

Aim 2: Modeling transit demand:
Transit Need and Suitability Analysis (TNSI) consists of the following data collected and weighted at Census Tract level (Texas Transportation Institute, 2012):
• Demographic Need (40%)
• Household income (20%)
• Auto availability (20%)
• Educational enrollment (15%)
• Employment (5%)

TNSI created in each block group combining five weighted categories + population density. The total population of county served for area-wide demand analysis is measured potential transit demand in particular geographic regions of Freeport. This information was derived exclusively from the previously mentioned American Community Survey. The variables on which the group focused included household size, vehicle ownership, population density, age, average time of day commuting to work, and poverty level.3 4 These statistics would contribute greatly in helping to determine where the citizens of Freeport who would most likely utilize a fixed-route service reside.

Using this demographic data, Studio 912 created a series of choropleth and graduated symbol maps to visualize populations that are in most need of public transit (see Appendix for maps). Studio 912 found the area directly southeast of downtown (the Indian Heights neighborhood) has high poverty levels along with low vehicle ownership (levels of between 12 – 20 people per 100 persons without a vehicle) in its three Census block groups. Conversely, large senior populations (individuals age 65 and older) were found on the southwest and southeast portions of the city, and population density was highest in the central west and east portions of Freeport.

To determine travel routes of most use by the current demand-response system, GPS points were collected and then mapped to create an output of a heat map. Data was collected from Pretzel City Transit in which over 65,000 GPS coordinates were recorded at one-minute intervals over a period of 138 days. To minimize data irregularities, transit routes traveling outside city limits and points located at the same location on the same route were excluded. This brought the total to 53,000 points to be mapped. Using the kernel density tool in ArcMap, a heat map was generated to depict the relative frequency of transit routes.

Not only does this map serve to visually demonstrate where current transit users are located within Freeport that currently experience little service in the demand response system. However, this data does not depict trip origin and destination. With these concepts in mind, the heat map was then used to create a preliminary map of a route for the new system in which about 60% of Freeport’s population is served, assuming users are willing to walk a quarter of a mile to the route.

Next, Studio 912 utilized 2012 data from Business Analyst to depict the location of Freeport’s largest employers. Through this mapping exercise, it was discovered that the majority of large employers were actually within the boundaries of the previously found hotspots that were derived from Pretzel City Transit’s data (particularly in the downtown area). This could suggest that current transit users are actually being transported to work and are accustomed to utilizing a transit system. Results from the Pretzel City survey (described below) could provide a clearer picture of whether this is the case, and if these current riders and employers would be willing to also use and support a fixed-route system.

DATA COLLECTED AND ANALYSIS
As highlighted in the previous section, two of the primary aims of the background research were to determine the best methods of identifying potential transit demand and to establish how to model this demand for a largely rural municipality. Based on these research findings, the transit team began focusing on collecting data from multiple sources, with the objective to create a series of maps using ArcMap software that would assist the city of Freeport in determining the best corridors for a fixed-route transit system. This data included:
• Demographic variables from the 2007-11 American Community Survey Desk Study Estimates (census block group and tract levels)
• Employment numbers from ESRI Business Analyst 2012
• Population density
• Number of working vehicles in household
• Frequency of existing system ridership
• Mode of transportation to/from bus stop
• Satisfaction of quality of current service

Sample questions from Nelson-Nygaard survey of Concord, NH residents (Nelson-Nygaard, 2010):
• Frequency of service
• Bus stop amenities
• Fares and shelters

Sample surveys obtained from Quad Cities MetroLink General Manager, Jeff Nelson:
• Augustana Campus Survey
• Rock Island Survey
• MetroLink Total Quality Service Initiative

Sangamon County, IL transportation survey asks questions regarding (Sangamon County, 2010):
• If household has missed specific activities due to lack of transportation
• Specific time periods household may need public transportation service
• Potential amount of money willing to spend on transit fare

Agency Survey included questions such as estimating what type of transportation clients would need (Sangamon County, 2010):

DATA COLLECTED AND ANALYSIS
As highlighted in the previous section, two of the primary aims of the background research were to determine the best methods of identifying potential transit demand and to establish how to model this demand for a largely rural municipality. Based on these research findings, the transit team began focusing on collecting data from multiple sources, with the objective to create a series of maps using ArcMap software that would assist the city of Freeport in determining the best corridors for a fixed-route transit system. This data included:

• Demographic variables from the 2007-11 American Community Survey Desk Study Estimates (census block group and tract levels)
• Employment numbers from ESRI Business Analyst 2012
• Population density
• Number of working vehicles in household
• Frequency of existing system ridership
• Mode of transportation to/from bus stop
• Satisfaction of quality of current service

Sample questions from Nelson-Nygaard survey of Concord, NH residents (Nelson-Nygaard, 2010):
• Frequency of service
• Bus stop amenities
• Fares and shelters

Sample surveys obtained from Quad Cities MetroLink General Manager, Jeff Nelson:
• Augustana Campus Survey
• Rock Island Survey
• MetroLink Total Quality Service Initiative

Sangamon County, IL transportation survey asks questions regarding (Sangamon County, 2010):
• If household has missed specific activities due to lack of transportation
• Specific time periods household may need public transportation service
• Potential amount of money willing to spend on transit fare

Agency Survey included questions such as estimating what type of transportation clients would need (Sangamon County, 2010):

DATA COLLECTED AND ANALYSIS
As highlighted in the previous section, two of the primary aims of the background research were to determine the best methods of identifying potential transit demand and to establish how to model this demand for a largely rural municipality. Based on these research findings, the transit team began focusing on collecting data from multiple sources, with the objective to create a series of maps using ArcMap software that would assist the city of Freeport in determining the best corridors for a fixed-route transit system. This data included:

• Demographic variables from the 2007-11 American Community Survey Desk Study Estimates (census block group and tract levels)
• Employment numbers from ESRI Business Analyst 2012
• Population density
• Number of working vehicles in household
• Frequency of existing system ridership
• Mode of transportation to/from bus stop
• Satisfaction of quality of current service

Sample questions from Nelson-Nygaard survey of Concord, NH residents (Nelson-Nygaard, 2010):
• Frequency of service
• Bus stop amenities
• Fares and shelters

Sample surveys obtained from Quad Cities MetroLink General Manager, Jeff Nelson:
• Augustana Campus Survey
• Rock Island Survey
• MetroLink Total Quality Service Initiative

Sangamon County, IL transportation survey asks questions regarding (Sangamon County, 2010):
• If household has missed specific activities due to lack of transportation
• Specific time periods household may need public transportation service
• Potential amount of money willing to spend on transit fare

Agency Survey included questions such as estimating what type of transportation clients would need (Sangamon County, 2010):
Studio 912 also created a map that depicts Freeport's highly traveled roads with heat map and traffic count data from the Illinois Department of Transportation (IDOT). This map will provide a good indication of which streets in Freeport could handle the high vehicle capacity trips that fixed-route transit systems generate. This data could be further used to provide the City of Freeport with differences in scheduling that could handle the high capacity vehicle trips that fixed-route transit systems generate.

A second intent of the stakeholder meeting was to gauge the willingness of stakeholders to disseminate, and to receive feedback on, a map that utilizes demographic and other data to rank transit service need geographies for relative need. TNSI is a composition of two separate analyses: the Demographic Transit Need Index (TNI) and the Fixed and Flexible Transit Suitability Analysis with the former utilizing demographic and other data and the latter utilizing population and household density. For our analysis, data was collected from the 2007 – 2011 American Community Survey from the thirteen census tracts in Stephenson County which included data of demographic need, poverty, auto availability, educational enrollment, and employment. Each variable was given as assigned weight outputting a sum of these number for each tract. A series of maps were created to visualize which areas are in need of public transit. For further information about the TNSI process see the Appendix.

Taken together, these maps will assist the City to discover which areas buses should travel in order to maximize ridership. Visualized key locations and areas that should be served which areas buses should travel in order to maximize ridership.11 For further information about the TNSI process see the Appendix.

Stakeholder Meeting

Following the creation of these maps, a public information meeting was held in the City of Freeport for stakeholders that would be interested in reviewing one of these maps and the general plans for the creation of a fixed-route system. The transit team reached out to over twenty local businesses, community groups, and local institutions, which were identified as organizations that are associated with current or potential transit users. Actual turnout was substantially lower, necessitating both the transit and passenger rail groups to present condensed programs in tandem. Despite these slight setbacks, the stakeholder engagement efforts were successful in providing fresh insight into the needs of the community.

As previously stated, one intent of the meeting was to expose stakeholders to a map of the preliminary fixed-transit route in order to spark discussion and solicit feedback. The meeting was a success in this regard, as stakeholders were quick to point out locations absent from the route (parks, businesses, health facilities) as well as to suggest what times these locations required service. 6

A second intent of the stakeholder meeting was both to gauge the willingness of stakeholders to disseminate, and to receive feedback on, a map that utilizes demographic and other data to rank transit service need geographies for relative need. TNSI is a composition of two separate analyses: the Demographic Transit Need Index (TNI) and the Fixed and Flexible Transit Suitability Analysis with the former utilizing demographic and other data and the latter utilizing population and household density. For our analysis, data was collected from the 2007 – 2011 American Community Survey from the thirteen census tracts in Stephenson County which included data of demographic need, poverty, auto availability, educational enrollment, and employment. Each variable was given as assigned weight outputting a sum of these number for each tract. A series of maps were created to visualize which areas are in need of public transit. For further information about the TNSI process see the Appendix.

Next Steps & Recommendations

Following the submission of this final deliverable, the City of Freeport will need to tabulate survey responses and analyze the data in order to determine the routes, locations, times, bus stops, and actual hours and days of operation of the service. There will be several factors in planning for a new fixed-route system that the City of Freeport will examine to move forward in establishing the service. First, survey responses of trip origins and destinations will need to be incorporated into the maps that Studio 912 has produced to ensure that high demand areas that were highlighted by survey results will be covered by transit service. Next, Freeport should follow up with businesses and social organizations to ensure that they are distributing surveys to their employees and members. Once the City of Freeport has received a sufficient amount of completed surveys and analyzed the data in a sufficient manner, they will move forward in making their recommendation for the best geographic corridors for the new fixed-route buses. This will be based on the results of the surveys, Studio 912’s previously created maps of recommended areas to be served, and any personal input from the City of Freeport or Van dewalle employees. While the Rawleigh Complex will serve as the transit hub, the City must determine the length, frequency and number of bus routes. They must take in account traffic congestion and suitability and safety of roads to handle a frequently stopped bus. We recommend bus routes should have equal run times so buses meet at the hub during similar times in order to minimize waiting times for transferring riders.

Simultaneously with planning bus routes, exact locations of stops must be determined. Using Studio 912’s recommendations and responses of the survey for desirable stops, the City can plan areas of most need/demand. Stops should be at least ¼ miles apart since this is the maximum distance one is typically willing to walk to a bus stop. Finally, the City would also need to determine the specific times of day that the week the new fixed-route system would be best suited to operate, which can be gauged via the results of the employer and citizen surveys. The City may also wish to determine how many new vehicles to purchase in order to specifically serve the fixed route system. This will depend on the amount of revenue available and the level of demand measured. Although Studio 912 will not be involved in this phase of the project, our findings will assist in its ultimate completion.

Reference

15. ESRI Business Analyst 2012 Business Summary Attributes, Stephenson County IL.
Appendix: Maps
EXECUTIVE SUMMARY

Passenger rail service can provide numerous economic benefits to a region by providing efficient and reliable regional transportation. With congested highways, raising gas prices, and increasing environmental concerns, communities can no longer rely on automobile connections alone. By developing the Rawleigh Complex into a multimodal transportation hub, the City of Freeport is looking to capitalize on the planned Amtrak Blackhawk line, which will connect Chicago and Dubuque.

The passenger rail portion of the Freeport Revitalization Project is focused on assisting the City in realizing the full benefits of the passenger rail service. In order to ensure speedy implementation of the Amtrak service, support will need to be created within the community to provide political pressure and raise funds for the project. To assist in support for the project, this report will examine the anticipated economic impacts of the passenger rail service. The passenger rail team examined case studies of similar projects, met with area stakeholders, and reviewed existing quantitative benefit cost analysis to find the conclusions included in the report.
INTRODUCTION

Project Context

Despite being home to some of Illinois’ largest corporations, the City of Freeport has limited intercity transit options. Residents and businesses are largely reliant on cars to travel outside the city. Located about 115 miles to the east, the drive to Chicago includes some of the most congested highway corridors in the country, which can increase travel time dramatically. Travelers arriving at regional airports in Chicago or Rockford must arrange their own transportation to Freeport. By improving Freeport’s connectivity within the region, more intercity transit options will foster economic growth and improve the quality of life for the region’s residents.

Project Goals and History

The City of Freeport is planning to develop the Rawleigh complex into a dynamic, mixed-use, multimodal transportation hub serving northwest Illinois and southern Wisconsin. Slated to begin operation in 2015, Illinois’ planned passenger rail service between Chicago and Dubuque is central to achieving this vision.

Amtrak’s “Blackhawk” service will connect cities throughout northern Illinois and far eastern Iowa, including Chicago, South Elgin, Genoa, Rockford, Freeport, Galena, and Dubuque. A preliminary schedule created during a 2007 study of the route plans for one train, heading east from Dubuque in the morning, staying in Chicago during the day, and returning to Dubuque in the evening, where it will be housed overnight. The estimated travel time from Freeport to Chicago will be approximately 3 hours and 15 minutes. However, the Illinois Department of Transportation is currently negotiating with the companies to arrange their own transportation to Freeport. By improving Freeport’s connectivity within the region, more intercity transit options will foster economic growth and improve the quality of life for the region’s residents.

BEST PRACTICES & CASE STUDIES

Qualitative research can greatly benefit and supplement quantitative data. Through interviews, direct observations, and case studies a more holistic understanding can be ascertained from the research question at hand. Qualitative research can better illustrate how different stakeholders differ from one another in perception and attitudes and identify who will be affected and in what ways. This type of data can also show why certain impacts are happening and the potential interplay one has with another. Lastly, this data can show why policy needs to be changed and how it can be changed.

The most comparable case of passenger rail service provided to rural communities is the Amtrak Empire Builder line that runs through twelve communities in Northern Montana. The entire Empire Builder, which connects cities from Chicago to Seattle, was first inaugurated in 1929 then integrated Northern Montana services in 1978. This inclusion of Northern Montana into the Empire Builder eliminated the need for and discontinued the North Coast Hiawatha line, which initially operated through southern Montana.

A Transportation for America whitepaper honed in on the success stories of this line and cited the indicators of success identified by the Montana Department of Transportation in their economic impact assessment. While this EIA provided quantitative economic measures that expressed the high level of direct spending by nonresident Amtrak users, as well as the re-spending of this money resulting in the generation of additional jobs, it also provided far more reliable results. Among the qualitative benefits brought by passenger rail service were the justification of providing bus services at Amtrak transfer points and key tourism and recreational attractions throughout the region. This, in turn, brought in a significant influx of passengers from outside of the state, which contributed a stable tax base to the state of Montana from its transportation activity alone.

From a revitalization standpoint, the concept of regional transportation systems acting as economic boosters to cities is not new and in fact is a well-supported theory for urban and rural areas alike. The impact of such systems especially behooves downtown areas, as can be seen in towns like Brattleboro, Vermont. The addition of a passenger intermodal transportation hub, as well as improvements to its existing Amtrak station, appears to have caused domino effects on various transportation modes used in the region. Improved accessibility of Brattleboro’s local transit system boosted Amtrak ridership to and from the town, while presence of a revitalized Amtrak station enticed more modern development within the downtown area. According to Brattleboro’s Town Manager, the Transportation Center attracted popular retail tenants, a food co-op discount store and a thrift store, which has “expanded the downtown feel” and has generated more activity within the area.

Looking at the quantitative, but more notably the qualitative method in which these indicators of success were identified, this analysis is fitting as a model for this qualitative impact study for Freeport and the Blackhawk line. Framing the study to highlight broader benefits to the city and to the state as a whole, as well as analyzing more specific benefits to affected industries and resident and nonresident passengers, is the most effective way to share potential economic benefits to Freeport decision makers and citizens alike.
STAKEHOLDER INPUTS
During the Freeport Riverfront Initiative team-wide stakeholder meeting held in Freeport, Illinois, the Passenger Rail and Transit Groups paired up to conduct sessions for two separate focus groups. One session was tailored to human re-
sources personnel and other interested recruitment members of businesses in the greater Freeport area. The other session sought input from tourism and recreation-involved individuals.
Both sessions intended to host discussion about the anticipated frequency of use and overall utility of the proposed Blackhawk line. It was most crucial to learn of what the stakeholders be-
lieve to be the Amtrak service’s potential to attract more busi-
nesses, employees, top talent, and increased recreational activity, and inherently, residents to Freeport. A summary of the key discussion points covered in both sessions is provided below.

Area Businesses Focus Group
Among the area businesses focus group attendees were city and regional agency employees, including the Blackhawk Hills Regional Council, City of Freeport, Illinois, the Stephenson County Health Department, Senior Resource Center, and the Freeport Downtown Development Foundation.

The attendees were primarily concerned about travelers’ first impressions of Freeport upon arriving at the train station.

• The current state of the Rawleigh Complex, the proposed multimodal hub location, is severely underdeveloped.

• Attendees mentioned that newcomers may perceive the seemingly remote location as “unsalable.”

• Attendees expressed doubts that Freeport is ready for Amtrak service at this time because it lacks the capital and necessary infrastructure to support passenger rail.

Attendees shed light on the presence of the Metra commuter rail service, which already serves to some of the current intercity travel needs of Freeport residents. It was expressed that people may be reluctant to use Amtrak due to its compara-
tively high fares and its less frequent trip schedules.

• Harvard, Illinois is a frequented Metra origin stop for healthcare professionals needing transportation to Chi-
gago. The Metra offers several departure times within the hour in the morning, providing frequent return trips back in the evening. “Total Metra travel duration between these two stops is also less than two hours.”

• Despite this apparent convenience, the downside to this is that passengers from Rockford and Freeport still must face an approximately 90-minute commute by car to get to the Metra station, respectively.

• The Big Timber station in Elgin, Illinois is also a fre-
cuently Metra destination stop for the rural purposes.

• Just as in the case of the Harvard, Illinois stop, the hour-
and-a-half drive into Elgin may also prove inconvenient to oth-
ers.

The current employment base was another raised concern by attendees, who generally felt that it does not suffice to draw additional professionals into Freeport.

Tourism & Recreational Organizations Focus Group
Attendees from the tourism and recreational focus groups included representatives from the Freeport/Stephenson County Convention and Visitors Bureau, the Northwestern Illinois Trails Foundation, Friends of the Pecatonica River Foundation, the Freeport Park District, and the Freeport Downtown Develop-
ment Foundation.

A unanimous concern that also resonated with the area busi-
esses focus group was the importance of creating Freeport to look more appealing “from the tracks.”

• To elaborate, the debate came to whether or not (a) Freeport would need to establish a better economic, em-
ployment, and recreational base (i.e. engage in “placemaking”) before it could justify and sustain Amtrak implementation; or, (b) the presence of an Amtrak service would encourage travel to and from Freeport, thus generating activity from business and tourism/recreation.

Attendees emphasized that the goal of Amtrak implementation should not only be to attract Amtrak riders to Dubuque and to Chicago but also to draw riders to Freeport.

• The general sentiment was that Amtrak seemed to lack the “cool factor” that nearby Galena has to attract young professionals. Galena already has a dominant reputation for tourism and recreational activity.

In terms of marketing Freeport and Stephenson County for tourism and recreational purposes, the Freeport/Stephenson County Convention and Visitors Bureau shared that they often intend to present such opportunities as a conglomeration of tourism activity, rather than a site for one particular type of attraction.

• Tourists and recreational visitors come mostly from Chi-
gaco.

Young Professionals Focus Group
The young professional interviewed is an employee of United Professionals, is actually perceived as a “commuter campus” consisting of Freeport-born students and continuing education adults.

• However, “transplant” students to Highland College are not assured to have strong, long-term ties to the Free-
port community. The interviewer claims that due to the perceived challenges Freeport faces in job security, many students may aspire to secure opportunities outside Freeport upon graduating.

The interviewee expressed that many of the young Freeport resi-
dents know depend on entertainment from out of town.

• Travel to Chicago for them is about once a month for enter-
tainment.

• Galena is among one of the favorite destinations because of its rural atmosphere, historic emphasis, abundance of wineries and unique, small shops.

Dubuque is often visited for its Great River Museum

While she shared that Freeport offers many free tourism/ recriment events, she felt that they could be better marketed throughout the community.

• The annual Stephenson County Fair pulls in the most at-
tendees of all Freeport’s events, perhaps due to its infre-
quency, although attendees wish it were held more often.

• The most discussed, sought out community events accord-
• to the interviewee include music festivals, and farmers’ markets. One idea discussed was to hold the farmers’ market twice a month or arrange to be picked up by other employees. Passenger rail service would provide another option that doesn’t require traveling on congested highways. Once arriving in Freeport, the interviewee would be able to prepare for meetings instead of having to fight traffic.

ASSESSMENT OF ECONOMIC IMPACTS
Located in the northern Midwest, Freeport experiences winter snowstorms that bring sleet, snow, and ice. During these severe winter events travel on highways can be dangerous and difficult. Freeport’s one, two, and three-day record snowfall events are 14, 16, and 18 inches respectively. The average an-
ual snowfall is 34.43 inches compared to an Illinois average of just 21.75 inches. Freeport’s average days with 1 inch or more snow comes in at 53 days per year. These conditions can blow snow across highways making it difficult to navigate safely.
Rail service is a dependable all-weather mode choice for trans-
portation needs. This dependability will ensure that residents of the Freeport area will be able to reach destinations and ser-
ices that may otherwise be unreachable in inclement weath-
er. Other states such as Montana, which receives an average snowfall of 37.28 inches, have strongly supported passenger rail service as a vital transportation option for rural communities during inclement weather. The ability to conduct business in inclement weather keeps rural economies functioning instead of coming to a halt.

The Blackhawk line will offer an attractive alternative to travel-

• through car and dealing with the increasingly costly traffic. Am-
trak offers time competitive service for medium to short trips. Coupled with the large amount of traffic congestion Amtrak might even be quicker in cases of severe traffic congestion. The train also offers the safest mode choice to Freeport residents traveling into Chicago.

• The team’s research and meeting with stakeholders, we’ve identified several rider groups that are likely to utilize the passenger rail service. These groups will serve as a starting point for our analysis.

Business Travelers
Freeport is home to several national corporations that fre-
quently require travel to and from the Chicago area. This cat-
egory can be divided into two subgroups, passengers traveling out of Freeport and passengers traveling into Freeport.

Outbound
Freeport corporations frequently send personnel to Chicago to conduct business, some stakeholders indicated as often as once a week. This trip currently requires either navigating the congested traffic in downtown Chicago or expensive parking or driving to the western Metra station and traveling by rail into the city. The Blackhawk line would provide a direct connection between Freeport and Chicago and allow travelers to utilize the train travel reviews and prepare for meetings instead of having to fight traffic.

Inbound
The Freeport region houses many corporations with facilities throughout the country. Coming to Freeport from these outside facilities often requires travel by plane, typically to Chicago. After arriving in Chicago, travelers must rent a car or arrange to be picked up by other employees. Passenger rail service would provide another option that doesn’t require traveling on congested highways. Once arriving in Freeport,
getting to their final destination is less costly and difficult.

Young Professionals

The younger members of the Freeport workforce often seek entertainment options that are not available in smaller cities. Stakeholder interviews suggested that Freeport Young professionals travel to the destination cities of Chicago and Dubuque as frequently as once a month. The passenger rail service will provide an easy way to travel to these locations. Instead of fighting congestion and paying for parking for a weekend, entertainment seekers will be able to utilize the rail service and enjoy a weekend without worrying about their transportation.

Tourists

Freeport also has opportunities for outdoor recreation that are not available in the region’s largest cities. This includes the Pecatonica Prairie Trail and the Jane Addams Trail. The presence of Freeport on the Blackhawk line will increase its visibility to the region and provide additional transportation options for recreationalists from the Chicago area to utilize Freeport’s amenities.

Health Care Patients

Those requiring special health care attention must travel outside of the city to regional health care centers in Madison, Rockford, or Chicago. Those without access to a vehicle must rely on volunteers and charity groups to drive them to appointments. Passenger rail service will allow patients to receive the medical care they need while retaining a greater amount of independence.

ECONOMIC IMPACTS

Business Development

Many local employers conduct business in Chicago often, some on a weekly basis. This business can either be meetings in Chicago or picking up people to conduct visits to the Freeport business. Through stakeholder meetings people described that currently there is no effective way to get to Chicago without a car. Some travel to Harvard, Illinois and take Metra Commuter Rail to Chicago and others drive to Rockford, Illinois and get on intercity bus service. However most travel directly into Chicago via car.

When asked if rail service would help their businesses, stakeholders answered affirmatively. Some discussed how picking up regional suppliers and other business partners from Chicago every week represented a loss of one whole workday for them. Sometimes if a business has enough visitors a car can be rented at an affordable rate but this is not the case for one or two people. This loss of a workday has negative economic impacts on a business. Passenger rail will allow Freeport employers to disconnect the “double duty” they now provide. Rail will preserve that day of productivity and will also allow visitors to and from Chicago and Freeport to be productive while traveling.

“Stephenson County Prosper Together” stated the need to tie into larger financial markets to spur development and investment opportunities. Freeport belongs to the Midwest Megaregion, which is anchored by Chicago. The megaregion idea is gaining ground in planning and views them as a network of urban centers and their surrounding areas connected by existing economic, social and infrastructure relationships. Rail service will help strengthen the infrastructure relationship Freeport already shares with Chicago and the larger Midwest Megaregion. The Blackhawk service will also connect Freeport to other Amtrak service that will allow for rail travel to almost every major region in the United States.

Passenger rail service will also bolster the local economy by helping area business attract and retain top talent. In a survey of more than 1,000 CEOs, “access to, and retention of, key talent” was ranked the most important factor in sustaining long term growth by 97% of respondents. Talent retention is important because turnover can be expensive and top talent drives business performance.

The cost of replacing an employee has been estimated to be between 30% and 250% of annual salary. These estimates include the direct cost of the hiring process, the opportunity costs of vacant positions, and diminished business performers. Top talent has been estimated to outperform average employees by a wide margin. Top performers in operational roles are estimated to increase productivity by 40%. That number increases to 49% for top performers in management roles and to 67% for those in sales positions.

The passenger rail service can make it easier for area business to attract and retain top talent by improving the quality of life in the region. The Black Hawk line will make travel to popular entertainment destinations of Chicago and Dubuque easier and reliable. This will make Freeport more attractive to those top performers who desire the amenities only found in larger cities.

The human resources personnel from Freeport area businesses that were interviewed indicated that they believed improved connectivity to Chicago would make it easier for them to retain top performers, and would use the presence of passenger rail service as a selling point when trying to attract top talent.

By improving connections to major transportation and economic hubs and making the Freeport area more competitive in the market for top talent, the passenger rail service will help area business sustain growth and become more productive, strengthening the local economy.

Public Health

Travelling to and from Chicago also presents another challenge to businesses and residents alike. According to the Texas A&M Transportation Institute’s “Annual Mobility Report” Chicago ranks third in congestion cost in the United States, down from a ranking of one in 2007. This ranking presents a large disincentive to travel from Chicago to Freeport and vice versa. This congestion has also lead corridors such as I-90, one that connects Chicago with Freeport, to become increasingly plagued with vehicular crashes. The National Highway Traffic Safety Administration produced numbers calculating the total cost of motor crashes to be roughly $820 per person living in the United States. It also projected that the lifetime economic cost of fatal crashes to be $977,000 in the loss of workplace and household productivity.

Passenger rail is a much safer mode of transportation than personal automobile. From 1999 to 2008, railroad had a passenger death rate of 0.05 per 100 million passenger miles. By providing a safer transportation option, the Blackhawk rail service can avoid some of the economic as well as personal losses resulting from motor vehicle accidents.

Amtrak service will provide Freeport area residents who do not own automobiles an option to reach vital medical services not offered in Freeport. These locations are in Rockford and Chicago, Illinois as well as Milwaukee and Madison, Wisconsin that, at the moment, are difficult to reach for Freeport residents that lack access. This lack of access can leave economically disadvantaged and elderly populations with no way to receive much needed healthcare.

Freeport area volunteers have done their best to overcome the considerable barriers to healthcare options to these disadvantaged populations. Church and veterans groups have filled this necessary role for the most part. However, social barriers exist which sometimes leave patients without any transportation options. The Blackhawk Line will provide people who fall through the gaps a viable option to reach some of the top healthcare providers in the northern Midwest.

Downtown Development

Finally, as case studies have proven, rail service, with the right public and private capital in place, can actually act as a catalyst for business and recreational activity surrounding the Rawleigh Complex. Business, tourism, and recreation stakeholders providing feedback to this city revitalization effort posed the dilemma of depending either on basic city infrastructure or passenger rail service as its main driver for economic development. They also emphasized the need to beautify the complex to entice Freeport newcomers upon arrival. Placing initial investments in the multimodal station to provide basic amenities that can serve both visitors and greater Freeport area residents could help address these multifaceted concerns. Other strategically located amenities surrounding the station can also inherently encourage economic activity at the local level and bolster the need for greater transit accessibility to and from the Rawleigh Complex.


NEXT STEPS & RECOMMENDATIONS

Passenger rail service will provide Freeport with an effective and reliable transportation option. However, in order to realize the full benefits, the passenger rail group recommends several next steps:

• The development of a “rail coalition” consisting of local businesses and special interest groups to ensure the continuing funding and support of the project.
• The development of a marketing plan to market the train to potential riders. Focus should be given to the anticipated rider groups identified in this report.
• The development of a marketing plan to market the City of Freeport to potential visitors who live along the Black Hawk route and now have greater access to the city.
• Improving the area around the Freeport Station. Many stakeholders highlighted the need to make the area around the station a welcoming place for incoming travelers.

REFERENCES

11. Ibid.

86 PASSANGER RAIL
Our Goals

Improve Tutty’s Crossing’s potential as a local and regional destination point through design features and public art

Infuse Tutty’s Crossing with elements that reflect the site’s manufacturing history

Accentuate the natural and environmental assets at Tutty’s Crossing
Tutty's Crossing began as a manmade island around 1850 (Fargher 1967). According to a history of the site written by a local citizen, Fargher, the stream surrounding this island was eventually filled in. The property's history of use consists many years as Manufacturer's Island (Fargher 1967). According to Fargher, the history of Tutty's Crossing includes a local citizen, Fargher, the stream surrounding this island (Fargher 1967). According to a history of the site written by

A coalition of local citizens formed in Freeport to address the revitalization of Tutty's – the Tutty's Crossing Coalition, and came up with a proposal for the site. The proposal includes a Freeport "Walk of Fame" on the site, a floating kayak and canoe launch, a visitor center and other amenities for locals and out-of-towners to enjoy. In order to supplement and provide a new perspective to this proposal, the City of Freeport chose to engage Studio 912 from UW – Madison.

Use of LED lights should also be explored because of their cost effectiveness. As an example, LED lighting on the San Francisco Bay Bridge costs only $30 to power per day (Kelly). LED lighting saves up to 75% in operation costs compared to conventional lighting (EnergyTrust). According to Lee, the Bay Bridge LED lights are affixed to suspension cables and are programmed to create a visual display that never repeats. If time and money exist, developing an artistic display of lighting on the bridge at Tutty's should be explored.

2. Trailhead Sign

Trailhead signs are placed at the beginning of trails and provide useful information to user groups. This is the first thing trail users will see and should catch their attention and welcome them to the trail in an interesting way (Mehaffey). At Tutty's the trailhead sign should be something beyond 'two-posts in the ground with a rectangular sign attached.' Alternative, artistic design elements for trailhead signage should be explored. Based on studies of best practices, the design principles that should guide the trailhead sign design are:

- Who the intended users of the trail are (Montroe).
- What the purpose of the signage is (City of Scottsdale).
- How detailed the design should be.
- What information will be included on the signage (City of Scottsdale).
- What the culture of the city is.
- What the natural scenery of the area is (City of Scottsdale).
- How easy the sign should be to find, read, and understand.
- How functionality and aesthetics will be balanced.

Stakeholder Input:

1. Survey Design

The Tutty's Crossing Art and Design Team created a visual preference survey and distributed it to stakeholders in order to take inventory of designs stakeholders felt were appropriate for the site. The stakeholders were given 3-4 photos in the following categories: bridge lighting, trailhead signage, and other types of art. Stakeholders were asked to rank each photo individually from 1 to 5 with 1 being not desirable and 5 being extremely desirable. Additionally, stakeholders were asked to write down comments on each photo and list any other ideas they had. At the end of the survey, stakeholders were asked to circle colors on a color wheel which they thought best represented colors that were appropriate at Tutty's Crossing (For survey, see Appendix A).

ANALYSIS

This analysis section will outline the research on design principles as well as the feedback received from stakeholders on the designs for Tutty's Crossing:

Research

1. Bridge Lighting

Based on a survey of literature (Nesseland Station, Lee, and Peace Bridge), there are two fundamental aspects of bridge lighting design that are important: the first is aesthetic appeal and the second is energy efficiency. The bridge at Tutty's should balance illumination of the bridge, energy consumption, and aesthetics (Hans Moor Architect). Instead of adding conventional lamppost lighting to the bridge, the bridge itself should be lit. Lighting the bridge not only provides adequate light but also accentuates the lines and contours of the bridge and retains its original character (Lee).

Project Scope and Goals

Scope of work for this project involves developing public art and design features at Tutty's Crossing in Freeport, Illinois. The goals of the project are to create signage for visitors using the site who desire access to the bicycle trail (under construction), boat launch (existing), and future river recreational amenities envisioned for the site. This project will help envision opportunities to improve the site's potential as a local and regional destination point through design features and public art.

The Art and Design Team has taken the following steps to meet the previously stated goals:

- Research design principles for bridge lighting, trailhead signage, and other public art and design features.
- Stakeholder engagement to gain input on design and visit the work site to get a sense of topography and landscape features.
- Develop preliminary designs and get stakeholder feedback.
- Finalize designs based on stakeholder feedback.

BACKGROUND

Tutty's Crossing began as a manmade island around 1850 (Fargher 1967). According to a history of the site written by a local citizen, Fargher, the stream surrounding this island was eventually filled in. The property's history of use consists of manufacturer's island (Fargher 1967). According to Fargher, the history of Tutty's Crossing includes

Based on preliminary image searches on the Internet, there are several common types of trail art that are functional, subtle and integrate well into surrounding environments (Americans for the Arts). Based on these findings, the art and design features that Freeport should consider include:

A) Status/Sculptures

a. These statues/sculptures could be a symbol of culture, the environment, a person, or historical incident. One thing that should be considered with sculptures and status is their harmony with the surrounding scenery (Americans for the Arts).

B) Graffiti Art

a. Graffiti art can make ordinary things look artistic such as asphalt, walls, or even circuit boxes. Graffiti art will attract attention and make cold and unwelcoming objects, like concrete, seats, more welcoming to everyone (Americans for the Arts).

C) Street Furniture

a. Street furniture should be functional as well as aesthetically pleasing (Siu and Wan). Instead of merely providing standard amenities such as benches, bike stands, and bus shelters, these common furniture items can be made to look more artistic and integrate better with the surrounding environment and enhance the lives of the people who use them (Siu and Wan).

Stakeholder Input:

1. Survey Design

The Tutty's Crossing Art and Design Team created a visual preference survey and distributed it to stakeholders in order to take inventory of designs stakeholders felt were appropriate for the site. The stakeholders were given 3-4 photos in the following categories: bridge lighting, trailhead signage, and other types of art. Stakeholders were asked to rank each photo individually from 1 to 5 with 1 being not desirable and 5 being extremely desirable. Additionally, stakeholders were asked to write down comments on each photo and list any other ideas they had. At the end of the survey, stakeholders were asked to circle colors on a color wheel which they thought best represented colors that were appropriate at Tutty's Crossing (For survey, see Appendix A).
Based on preliminary research, the results of the visual preference survey, and feedback from stakeholders, these are the ideas and designs that the Art and Design Team has created:

1. Bridge Lighting Design

The design concept for bridge lighting is iconic, functional and promotes safety. One of the most important objectives of the design is to make the bridge stand out in contrast with the dark environment at night. The design of the bridge should be able to be seen at relatively long distances; this was one of the most important elements to stakeholders. A current image of the bridge without lighting can be seen in Figure 3 and Figure 5. Aqua blue lights were chosen to decorate the structural frame of the bridge, reflecting the river that runs underneath it. The yellow ground lights were chosen to create a cozy vibe. Together, the blue rays and the yellow lights highlight the contours of the bridge. An image of this lighting design can be seen in Figure 4 and Figure 6. There should also be lights underneath the supporting parts of the bridge to create a safe place for people to walk or cycle during all hours of the day. LED lights should be used for the blue visual effect as well as the ground lighting. LED lighting is energy efficient and lowers operation costs. A complete conceptual design of this bridge lighting is shown in Figure 7.

2. Bridge Light Design

Stakeholders felt that handrail lighting was the most desirable style lighting as opposed to ground lighting and lamppost lighting. The results from the survey pointed out that stakeholders feel handrail lighting is easy to maintain and is more interesting, and would be the best way to accentuate and highlight the structural features of the bridge. Stakeholders also wanted to ensure that whatever lighting was designed for the bridge would take into consideration the industrial heritage of the site as well as be something that fits in with the site design at Tutty’s. Furthermore, stakeholders emphasized the importance of low cost and maintenance. The stakeholders were most interested in LED lighting as it lasts longer and is very cheap to operate, although initial installation costs may be high.

3. Trailhead Sign Design

Again, stakeholders emphasized that the trailhead sign should reflect the site’s industrial heritage. There was an overall consensus that the sign should be easy to read, however stakeholders disagreed as to whether the sign should be more artistic versus functional.

4. Other Art and Design Features

The visual preference survey asked stakeholders their opinions on design of statues, benches, garbage cans, picnic tables and bike racks. Overall participants felt that everything should be built sturdily in a traditional style. Stakeholders liked the idea of statues and graffiti art, but felt that whatever art is done needs to reflect the site’s industrial heritage. Vandalism is also a concern, so it is important to stakeholders that art is not easily destructible.

5. Color Scheme

Overall, stakeholders felt that oranges, reds, yellows, and greens were the most appropriate colors for Tutty’s. Stakeholders felt that colors that reflected thematic elements of Tutty’s were most appropriate; rusted metal, railroad, railroad ties, Raleigh Red, brick orange, and colors from the environment (green).

Overall Conclusions from Stakeholders

1. All art and design should draw people into the site and create interest.
2. Designs should reflect the industrial past of site.
3. Designs should be easy to maintain and maintenance costs should be low.
4. Designs should be sturdy and last over time.
5. Designs should draw attention to the Pecatonica River.

To view complete results from the visual preference survey, see Appendix B.
CONCEPTUAL LIGHTING DESIGN

Observations and Thoughts

1. Utilize the metal frame of the bridge for lighting.
2. The width of the bridge is estimated at 10 feet—lamp posts are ruled out so that there is enough space to accommodate a two-way bike path.
3. Handrail lighting is feasible.
4. To address safety concerns, add lighting underneath the bridge.

Frame Lighting
Use aqua blue LED light beams to outline the metal structural frames of the bridge.

Pier Lighting
Use yellow LED lights to light up the abutments, for aesthetics as well as safety.

Handrail Lighting
Fix blue LED lightbulbs to the handrail, connecting with the frame lighting, to highlight the contour of the bridge.

Ground Lighting
Use yellow LED lights to light up the ground of the bridge, to create a warm atmosphere.

Figure 5. Current image of bridge at Tutty’s Crossing
Source: Author

Figure 6. Conceptual design for bridge lighting at Tutty’s Crossing (the overall view of the bridge)
Source: Author

Figure 7. Conceptual design for bridge lighting at Tutty’s Crossing
Source: Author
2. Trailhead Sign Design

Design of the trailhead sign is important because the sign is one of the first things, if not the very first thing, visitors will see when entering Tuttys Crossing. The design in Figure 8 takes into account the fact that stakeholders want to see a design that is creative but simple, and reflects to the industrial history of Tuttys. Functionality and maintainability of the sign are also important to the stakeholders. The design proposed below takes all of this into consideration along with the image of the river, which is also an important feature of Tuttys. The signage design shown in Figures 8 and 9 will be placed near the main entrance at Tuttys and be perpendicular to the road so that people driving by in both directions will be able to see it.

The main concepts of the design are:

A) Industrial Heritage:
   a. Materials used to create the sign are industrial in nature to reflect the industrial history of Freeport at Tuttys. The sign will be rusty to reflect this history, and wording on the sign should be carved out to say “Tuttys Crossing Trailhead.” The wording will be illuminated with lighting from inside the signage box. Attached to the side of the rusted metal box will be a mesh metal box. This metal box will give space to put items inside that represent Freeport (explained below).

B) River Element:
   a. Since the Pecatonica River runs parallel to Tuttys Crossing, it is also important to include a river element into the trailhead sign. The mesh metal box mentioned above that will be attached to the side of the sign should contain stones from the Pecatonica River. This will be an easy way to infuse the element of the river into the design and also make the trailhead sign more interesting. If stones from the river are not available, rusted metal material could be included in the box as another way to commemorate the importance of industrial history at Tuttys Crossing.

3. Other Art and Design Elements

To meet stakeholder desires for other art and design elements that are functional, reflective of a manufacturing heritage, well integrated with the entire site, and are attractive and inviting to people, the Art and Design Team recommends the following designs:

A) Statues

The statues in Figures 9 and 10 tie back to the industrial heritage of the site as they are made of rusted industrial material. Due to the pieces being made of metal, they will be sturdy and more difficult to vandalize. Since the material is already rusted, the wear and tear from sitting outside in the elements will be hard to detect. The pieces below not only reflect the industrial heritage but also tie into the natural elements of the site. The Pecatonica River has many types of wildlife that can be reflected in these statues, according to stakeholders; fox, beaver, turtle, deer, otter, badger, groundhogs, possum, coyote, rabbit, wolf, bobcat, birds of prey, and blue heron.

B) Benches

Figure 11 is the bench that was most popular with stakeholders in the visual preference survey. The bench is sturdy (made of steel) and functional while also being artistic. The bench also has an industrial appearance which gives a nod to the history of the site. In order to make the bench appear less modern, it should be made to look more rusted.
4. Funding for Other Art and Design Features

The Art and Design Team has conducted research on grants that are appropriate to fund art and design features at Tutty's Crossing. Grant contacts, deadlines, and application type are listed in Table 1 below. (Note that exact deadlines are currently not available for some grants.) The 3 grants Freeport should consider include:

A) ArtPlace America Grant (ArtPlace)
B) Freeport Art Center – Illinois Art Council Communit Arts Access re-granting (Freeport Art Museum)
C) National Endowment for the Arts – Art Works Grant (National Endowment for the Arts)

These grants are appropriate for Freeport to pursue because of the types of projects they fund. The above fund grants projects which:
1) Promote tourism, economic development, and community revitalization;
2) Serve all community members, including underserved populations.

Important elements that need to be considered when Freeport is deciding which grants to apply for are found in Table 2 below.

NEXT STEPS & RECOMMENDATIONS

Freeport has recognized that Tutty’s Crossing provides an opportunity to be a local and regional destination point through enhancement with design features and public art. The Art and Design Team proposed elements that will aid Freeport in realizing this opportunity. In order to carry out the recommendations above, the City of Freeport should engage in these next steps:

1) Find person/company to carry out designs
   This should be a local artist or company who understands the history of Freeport and is able to reflect the history in their art and design. Working with a local company or artist will also better position Freeport to be a competitive applicant when applying for the ArtPlace America, IACCAA re-granting, or Art Works grants. Engaging the community as much as possible in this project is both beneficial to the city and provides work for local artists.
2) Calculate budget
   Calculating a budget is important to Freeport as resources are limited. Freeport does have potential to be a competitor for grants, which would help the city realize many of the above proposed options. In order to apply for these grants, Freeport needs to have a precise budget breakdown for the costs for which they are seeking funding.

3) Apply for grants to fund implementation of proposed art and design features
   Many of the artistic elements proposed will be costly – as art usually is. It will be important for the City of Freeport to investigate the three grants that the Art and Design Team has proposed.

Table 1. General information for art-related grants for Freeport

<table>
<thead>
<tr>
<th>Grants</th>
<th>Deadline</th>
<th>Type</th>
<th>Contact</th>
<th>Title</th>
<th>Email</th>
<th>Phone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArtPlace America</td>
<td>Fall 2014</td>
<td>LOI</td>
<td>n/a</td>
<td>n/a</td>
<td><a href="mailto:grants@artplaceamerica.org">grants@artplaceamerica.org</a></td>
<td>n/a</td>
<td><a href="http://www.artplaceamerica.org/">http://www.artplaceamerica.org/</a></td>
</tr>
<tr>
<td>Freeport Art</td>
<td>3/1/14</td>
<td>Full</td>
<td>Jessica</td>
<td>Museum Director</td>
<td><a href="mailto:email.director@freeportartmuseum.org">email.director@freeportartmuseum.org</a></td>
<td>815-235-9755</td>
<td><a href="http://www.freeportartmuseum.com/grants">http://www.freeportartmuseum.com/grants</a></td>
</tr>
<tr>
<td>Art Works</td>
<td>6/1/14</td>
<td>Full</td>
<td>Jen Hughes</td>
<td>Design Specialist</td>
<td><a href="mailto:hughes@arts.gov">hughes@arts.gov</a></td>
<td>202-682-5547</td>
<td><a href="http://www.nea.gov/grants/apply/GAP14/DesignAW.html">http://www.nea.gov/grants/apply/GAP14/DesignAW.html</a></td>
</tr>
</tbody>
</table>

Table 2. Important elements to consider for Tutty’s Crossing art-related grant applications

<table>
<thead>
<tr>
<th>Grants</th>
<th>Elements to consider</th>
</tr>
</thead>
</table>
| ArtPlace America                            | 1) Project should leverage other funds.  
2) Project needs leadership in place.     
3) Project needs a clear path as to what the city wants to accomplish at Tutty’s. |
| Freeport Art Center-IACCAA re-granting      | 1) Project must serve underserved population.                                      
2) Project needs a path to accomplishment. |
| Art Works                                   | 1) Project needs to utilize partnerships.                                           
2) Project needs to reach underserved population.                                    
3) Grant must be matched with federal funds.                                         |
REFERENCES


ArtPlace. “ArtPlace America Grants.” http://www.artplaceamerica.org/


Appendix A:
Visual Preference Survey
Appendix B: Survey Results

What is the best color that can represent Tutt's Crossing or City of Freeport?

Please choose a color from the color wheel and tell us why you think it is representative.
### Bridge Lighting

<table>
<thead>
<tr>
<th>Location</th>
<th>Ground Level</th>
<th>Ramp Exit</th>
<th>Pavilion</th>
<th>Train Tunnels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Desirable</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Desirable</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Undesirable</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not Desirable at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Other Ideas/Comments
- Footpath should attract attention and consider natural mountain contours - weld and away from bridge.
- Most lighting is easy to maintain, but would need to be taken from a distance. Ground lighting’s maintenance cost is high, but it looks great.
- Lighting that looks like the first church light downtown but are (2) and (2)少吃 not thrilled.

### Signage/Trailhead Traditional

<table>
<thead>
<tr>
<th>Location</th>
<th>Traditional</th>
<th>Artistic 1</th>
<th>Artistic 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Desirable</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Desirable</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Undesirable</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not Desirable at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Other Ideas/Comments
- Incorporate native American culture and colonial settlement heritage in signs that are easy to read. Choose the traditional signs for they both need more design.
- Use already high signs based on industrial age of site.

### Bench Traditional

<table>
<thead>
<tr>
<th>Location</th>
<th>Bench Traditional</th>
<th>Bench Artistic 1</th>
<th>Bench Artistic 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Desirable</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Desirable</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Undesirable</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not Desirable at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Other Ideas/Comments
- A traditional bench or activity area is not appropriate to heritage site.

### Bike Rack

<table>
<thead>
<tr>
<th>Location</th>
<th>Bike Rack Traditional</th>
<th>Bike Rack Artistic 1</th>
<th>Bike Rack Artistic 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Desirable</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Desirable</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Undesirable</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Not Desirable at all</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Other Ideas/Comments
- Simple is better because no one will leave a bike here!
- Traditional bike racks are functional and easy to maintain.
- Both artistic bike racks are too modern.

### Trash Can

<table>
<thead>
<tr>
<th>Location</th>
<th>Trash Can Traditional</th>
<th>Trash Can Artistic 1</th>
<th>Trash Can Artistic 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely Desirable</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Desirable</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Undesirable</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Not Desirable at all</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Other Ideas/Comments
- Traditional - I don’t think users are seeking art
- Like traditional, but more design is needed to it.
- An artistic trash can would need to fit with downtown area designs.

### Color Scheme
- Yellow/green
- Orange/red, yellow, green - bright colors would be best because people like looking at bright, vibrant colors. Freepoint doesn’t have any colors around it.
- Dark green/dark purple
- Dark yellow, green, orange; related to river, rusted metal from industrial past, railroad railcar ties
- Enamel red and old brick orange