

Re-imagining the Urban Greenway: An Alternative Transportation Strategy and Vacant Land  
Use Plan for the Woodbridge Neighborhood of Detroit

By

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## **Abstract**

The Woodbridge neighborhood lies two miles from downtown Detroit and is home to a diverse community of students, artists, young professionals, families, and empty nesters. In February 2008, participating Woodbridge residents completed a community design process led by the Detroit Collaborative Design Center (DCDC) that resulted in a master plan and development strategy to guide future growth in the neighborhood.

Our master's practicum was to further develop the design of a greenway through the Woodbridge neighborhood and plan a system of bike routes that connected the neighborhood to local and regional biking and greenway efforts. Research strategies included a literature review regarding greenway history and benefits, previous local attempts at greenways, design elements, site inventory and analysis, and a community meeting and survey tool. Observations conclude the neighborhood infrastructure emphasizes vehicular traffic and lacks pedestrian elements, and residents appreciate the naturalistic areas of the neighborhood but desired more recreational amenities.

The Woodbridge Neighborhood Greenway and Bike Plan Design Guide is a booklet that communicates the design intent, program and features to community members and to the client, Woodbridge Neighborhood Development Corporation. The Design Guide strives to improve and enhance the pedestrian and non-motorized transportation experience throughout the Woodbridge neighborhood, connecting it to local amenities and greenways, and identifying it as a unique community within the City of Detroit.

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Our Friends and Family

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## **Introduction**

The Woodbridge neighborhood lies two miles from downtown Detroit and is home to a diverse community of students, artists, young professionals, families, and empty nesters. The neighborhood's location, art scene, and amount of available historic housing are attracting new residents, resulting in the need for a master plan and development strategy. The master plan, produced by the Detroit Collaborative Design Center (DCDC), included a designated greenway route. For our master's practicum, we will further develop the proposed greenway into a design that includes streetscape improvements, programming for vacant lots along the greenway, and streetscape modifications to include bike lanes, vegetation, and pedestrian crosswalks.

Our objective is to create a greenway design and bike plan that strives to improve and enhance the pedestrian and non-motorized transportation experience throughout the Woodbridge neighborhood. The greenway design will identify Woodbridge as a unique community within the city, create opportunities for local ecology and wildlife habitat, and promote social interaction among residents. The bike plan routes will provide access to amenities within the neighborhood and the surrounding area including downtown, Detroit's cultural district, and the Corktown-Mexicantown Greenlink and Midtown Loop greenways.

The greenway will offer recreational and educational opportunities such as community gardening, an environmental education center, and both active and passive recreation areas. The reclamation of the vacant lots including planting native vegetation and implementing stormwater management techniques will improve the local ecology and wildlife habitat. These diverse uses encourage social interaction and will enhance both safety and the sense of community within the Woodbridge neighborhood (Kim and Kaplan, 2004).

To achieve the goal of designing a functional greenway for the community to enjoy, several methods were used. First, a literature review was completed to understand what a greenway is, its evolution over time, and its benefits for an urban area. Next, a site inventory was performed to identify important features of the project site such as existing architecture and land use, vegetation patterns, and pedestrian and vehicular movement. We analyzed the recorded information from the site inventory and began to determine the best use of land within the greenway. An important part of the site inventory and analysis phase was gathering community input to inform our design. We achieved this by holding a community meeting, preparing a

survey, interviewing residents, and meeting with our client, the Woodbridge Neighborhood Development Corporation (WNDC).

## **Background**

Woodbridge neighborhood is located in southwest Detroit, approximately two miles from downtown. Its borders are the Edsel Ford Freeway on the north, John Lodge Freeway on the east, and Grand River Avenue on the south, which serves as a primary connection to downtown Detroit. The neighborhood lies just west of Detroit’s cultural center and Wayne State University.

Woodbridge was named after William Woodbridge, who served terms as a State Supreme Court Justice, U.S. Senator and as Territorial Governor of Michigan from 1819 to 1820. His large farm provided the majority of land that Woodbridge is situated on. Woodbridge’s wife, Juliana Trumbull was the daughter of another wealthy landlord, John Trumbull, for whom a neighborhood street is named after (Scott, 2001).

Woodbridge was included in Detroit city limits in 1857. Development mainly took place between 1860 and 1920. A variety of architectural styles are represented in the housing including Victorian, Italianate, and Queen Anne. Many prominent Detroit families lived in the neighborhood. John Scripps, founder and publisher of the Detroit News, and Ty Cobb of the Detroit Tigers both resided in Woodbridge (Scott, 2001).



**Figure 1.** The Hunter House Historic Landmark located on Trumbull Street in Woodbridge. Photo courtesy of Andrew Jameson, taken from Wikipedia.com (2008)



**Figure 2.** The Eighth Precinct Police Station Historic Landmark located on Grand River Avenue in Woodbridge. Photo courtesy of Andrew Jameson, taken from Wikipedia.com (2008)

The neighborhood experienced an economic downturn during the time of post World War II urban renewal. The area of Woodbridge was declared an urban renewal site by the city and “rapidly changed from a residential area of old but sturdy homes to a blighted slum” (Darden et al., 1987, p. 172). During this time the John Lodge Freeway was built on the eastern border causing a physical disconnect from downtown Detroit.

Beginning in the 1960's, Wayne State University expanded their athletic fields into the neighborhood. Both events led to a decline in Woodbridge's population as residents moved to the suburbs (Scott, 2001). Detroit reporter Don Tschirhard wrote in 1970,

“For ten years residents in an eight block area near Wayne State University have been watching their neighbor's homes burn down.... They wanted the city to buy their homes.... so that they can move away from an area that was once a Detroit beauty spot, but which is now a habitat for thugs and vandals”  
(Darden et al.,1987, p. 172).

In the mid 1970's, Woodbridge began attracting families and experienced the start of a revival mainly attributed to the original quality of the housing. It was difficult to obtain a mortgage in Woodbridge at this time so the revival is “primarily came about through the hard work and sweat equity of individual homeowners” (Potas, 2008, p.1). Institutional support came through a Federal program where homeowners could rehab homes at a 3% interest rate, but this program was dissolved after a change in administration.

In 1980, a portion of Woodbridge, known as Woodbridge Farms, was designated a National and State Historic District. The district has an active citizen's group known as the Woodbridge Farms Association. The association was organized to promote preservation and stop demolition of historic homes. The larger Woodbridge Citizen's Council received funding from the city's block grant program for preservation and housing repair. Today, Woodbridge is home to several art galleries, festivals, and a diverse mix of residents. It is located west of Midtown, an area of Detroit that is seeing a lot of redevelopment (Scott, 2001 and Wasacz, 2006).

This renewal has spurred the need for a master plan and development strategy for the neighborhood. The Woodbridge neighborhood recently participated in a community design process led by the Detroit Collaborative Design Center (DCDC), a multi-disciplinary non-profit organization located within the School of Architecture at the University of Detroit Mercy. DCDC works with students, local design professionals and community-based development organizations, and is dedicated to:

“...renewing the city by revitalizing its neighborhoods. The design center seeks to promote collaboration among community

organizations, local governments and private developers to confront the social, economic and political realities which have for years contributed to the physical deterioration of urban Detroit” (Detroit Collaborative Design Center website).

The master planning and development strategy process included three meetings with community members and the Woodbridge Neighborhood Development Corporation (WNDC) board, which encouraged residents to articulate their vision for the future of Woodbridge. The result was a development plan with a focus on organic development driven by such forces as the proximity of the area to Wayne State and Detroit’s Cultural district, as well as existing commercial and residential areas. The neighborhood development corporation intends to revisit the plan every five years to readjust the vision as needed.

Within the master plan, shown in Figure 3, a greenway corridor was identified based on city plans for a new greenway in the neighboring Core City community (Personal Interview, Dan Pitera, 2008). DCDC extended the greenway path from Poplar Street through Woodbridge to Rosa Parks Boulevard and along Merrick Street where it intersects with Wayne State University’s campus. The corridor traverses different uses within the neighborhood including residential, commercial, and green space, but does not specify design guidelines or functions.



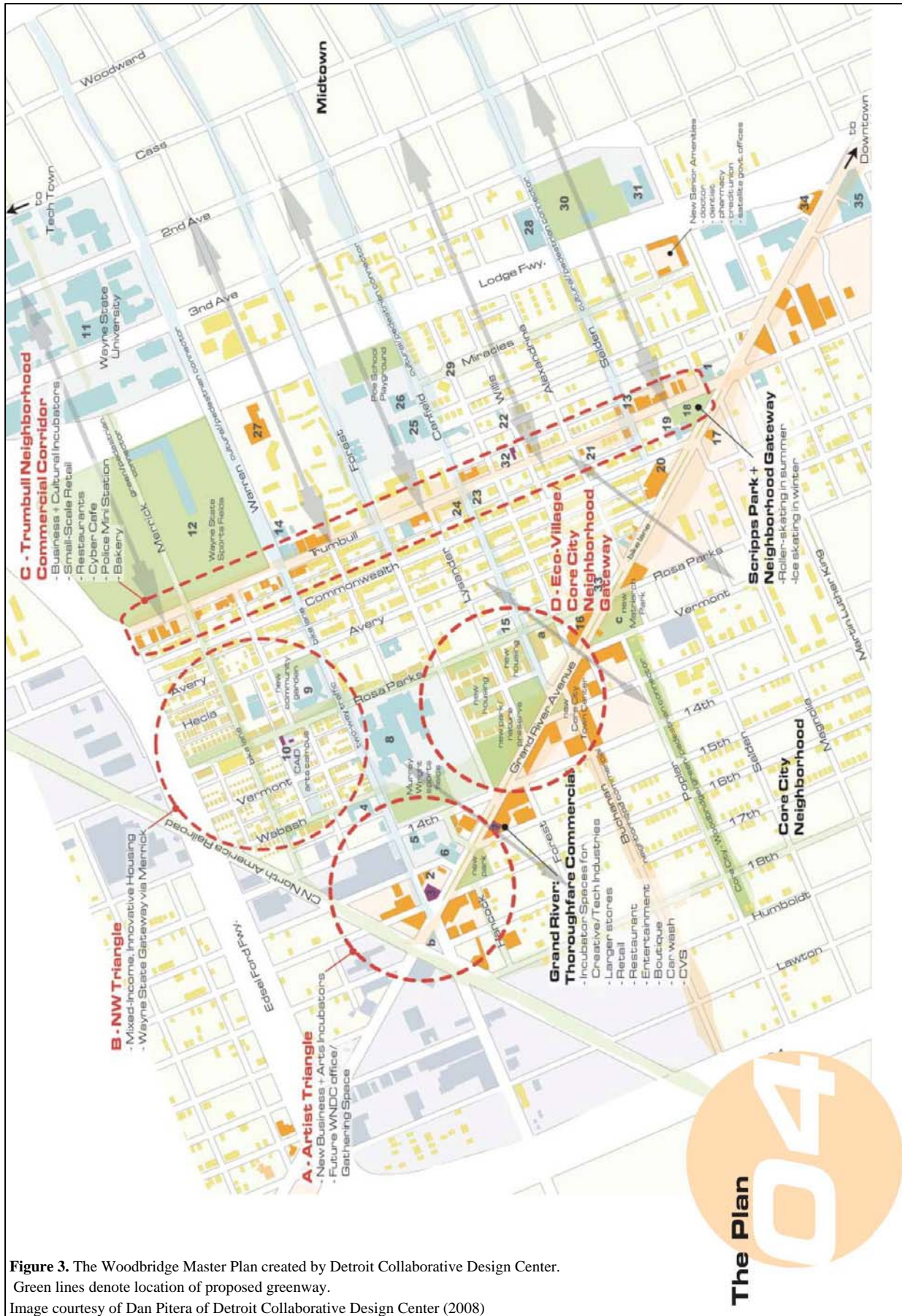


Figure 3. The Woodbridge Master Plan created by Detroit Collaborative Design Center. Green lines denote location of proposed greenway. Image courtesy of Dan Pitera of Detroit Collaborative Design Center (2008)

### Current Greenway Movement in Detroit

The city of Detroit has recently released a Non-Motorized Transportation Master Plan (June 2006) that guides the design and construction of bike lanes and walkways throughout the city. The plan addresses the city's "lack of continuous, connected and maintained bikeways ...and some walkways", and serves to "help improve the ability to take functional trips to destinations like shops, work and school" (Giffels-Webster Engineers et al, 2006).

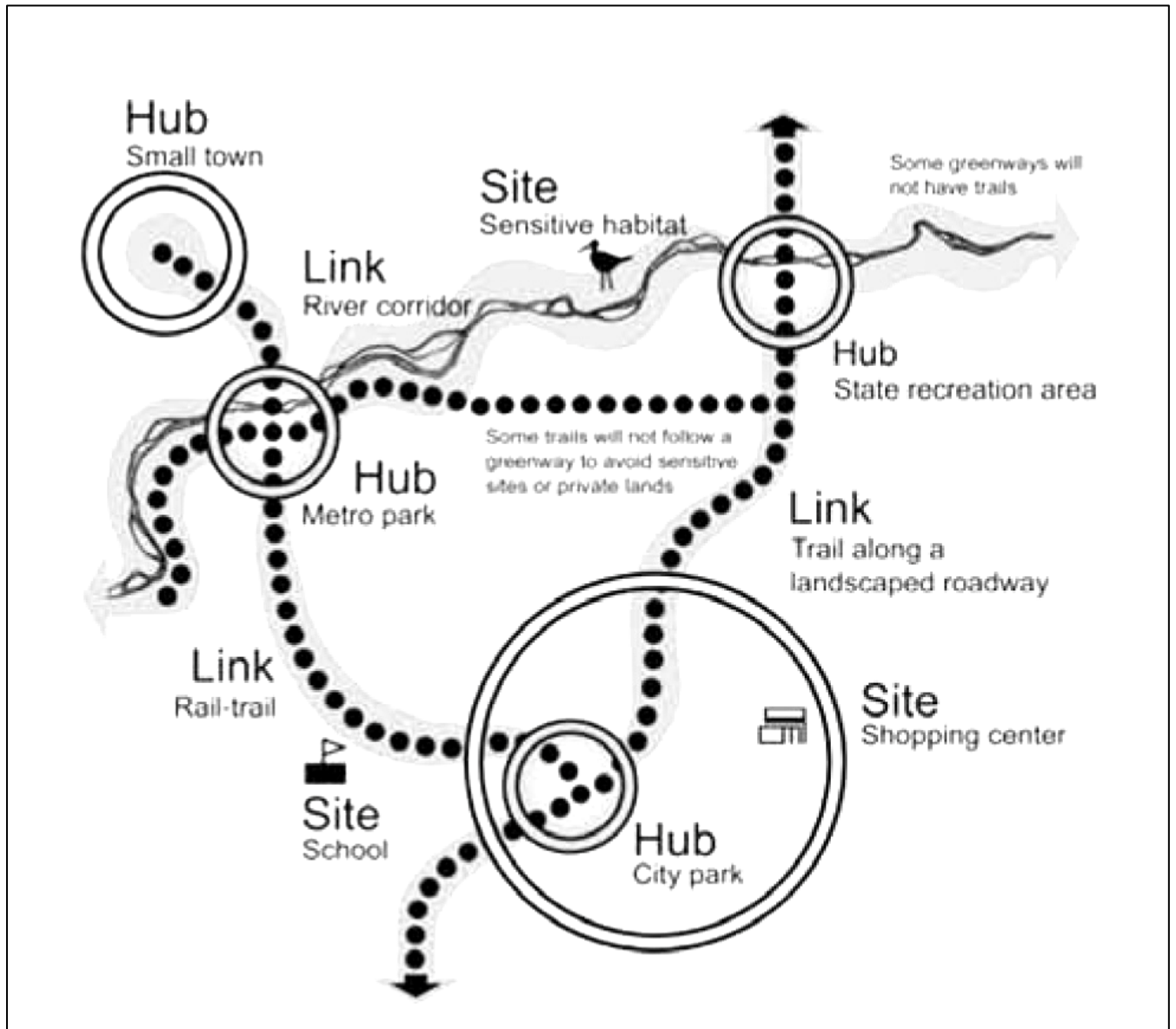
With the rise in popularity of greenways and bikeways throughout the country, Detroit is using this plan to address current transportation difficulties and the potential health benefits, but and to keep pace with cities such as Chicago, Boston and Portland where non-motorized facilities are in place (Giffels-Webster Engineers et al, 2006).

The Michigan Trails and Greenways Alliance (MTGA) has also stimulated interest in non-motorized transportation opportunities. Their website illustrates both urban and regional greenways throughout Michigan and includes a greenway plan for the city of Detroit (Michigan Trails and Greenway Alliance). The focus in Detroit, stated Greenways Director Todd Scott, is to "encourage cyclists" and connect the city's neighborhoods with 8 miles of "distinctive bike lanes" (Personal Interview, Todd Scott, 2008).

Community development groups are taking initiative and producing greenway designs and bike plans that highlight the character, important features and amenities of the different neighborhoods. One such plan is the Corktown-Mexicantown Greenlink in southwest Detroit. This greenway project started as, "a community-based participatory research project designed to examine and address factors in the built environment that contribute to socioeconomic disparities in risk of cardiovascular disease" (Healthy Environments Partnership, 2007, p. 9). The product is a greenways and bike plan that connects the area's open space and amenities.

The Corktown-Mexicantown Greenlink takes a different approach to greenways than what is typically found. The location of the Greenlink within an urban core makes it impossible to focus the path on a natural feature, such as the greenways along the Detroit River walk. Instead, "The focus is on the streets and the social institutions they connect." (Healthy Environments Partnership, 2007, p. 42). The planning of the Corktown-Mexicantown Greenlink took into consideration neighborhoods, churches, schools, amenities and open space within the neighborhood and laid out the path of the greenway so that these important features of the

neighborhood would be connected. Two major Greenlink bike routes are located on roads that pass through Woodbridge as well. If these routes are continued northward, the communities will be connected by bike routes.



**Figure 4.** An illustration of the hubs, links, and sites method used to develop the Corktown-Mexicantown Greenlink. Healthy Environments Partnership (2007).

The Corktown-Mexicantown Greenlink follows a method of planning a green infrastructure network through the use of hubs, links and sites illustrated in Figure 4. This method is also outlined in *Green Infrastructure: Linking Landscapes and Communities* by Mark

Benedict and Edward McMahon, 2006. Hubs anchor a green infrastructure network and often serve as an origin or destination for people or wildlife. A hub can range in size and can be anything from a neighborhood to a metro park or wildlife reserve. Links are the pathways that connect the hubs, and provide for the movement of species. In addition to facilitating movement, links may contain opportunities for recreation and can be used as protective buffers for historic or sensitive sites. In an urban setting, the primary species to move are humans and the links are designed to meet the needs of the pedestrian. Sites are smaller than hubs and not necessarily connected to a larger ecological or community system. They contribute ecological and social values to the network. Examples of sites range from a school to a shopping center.

To the east of Woodbridge lies the Midtown area of downtown Detroit, which encompasses the cultural district. A greenway plan was recently proposed for this area and is known as the Midtown Loop. The Loop consists of bike lanes and pedestrian friendly streetscape improvements along the major roads in Midtown. The Detroit Institute of Art, The Detroit Public Library, and Wayne State University are a few of the institutions that will be connected once the Midtown Loop is constructed. The bike lanes of the Midtown Loop will also provide connections to the future Detroit River Connector and recently opened Dequindre Cut Bike Trail, an eastside recreational corridor, created from a former railroad line.

The Woodbridge greenway can be designed to connect with a growing system of pedestrian and bicycle routes including the Midtown Loop, the Corktown-Mexicantown Greenlink, the Detroit River Connector and the Dequindre Cut. From the vantage point of the Woodbridge community, this connectivity will benefit commuters and university students working in the area.

### History of Greenways

Greenways have typically been defined as a linear corridor, often following a natural or manmade feature. Robert Searns (1995), studied the history of greenways and found that due to the changes in the way Americans live and perceive issues of urbanization and environmental protection, the greenway has undergone three generational shifts. He explains that a description of a greenway is difficult to express because they often take so many forms and have changed

throughout history. The greenway, according to Searns, is a human adaptation to the physical and physiological pressures of urbanization (1995).

The first generation of greenways, the “ancestral” greenways, are the boulevards, axes, and parkways created during the 1700s-1960s. These routes were built linking key destinations, but more importantly, they provided a pleasurable experience to those who traveled on them (Searns, 1995). Examples of these types of corridors are found as far back as ancient Rome, where axes linked important buildings. The pedestrian oriented walkways, parks and promenades that were built along the Seine River in Paris have been evolving since Roman times when the idea of linking key elements in the city was originated. In addition to the use of formal axes to unify cityscapes, they also developed along natural features. During the Renaissance era, walkways and spaces were created along rivers to allow sun and air into urban settlements (Searns, 1995).

In the United States, Fredrick Law Olmstead and others utilized the idea of a green axis to reintroduce nature into the industrial-era cities. Olmstead especially, was known to use the greenway or axis as a way to provide a bucolic park character in the urban environment (Searns, 1995). The purpose of these corridors continued to include movement, use, experience and linkage. Boston, Denver, Chicago, and Portland all have examples of Olmstead’s greenway design. Boston’s Emerald Necklace is one of the oldest systems of linked public parks and parkways. It continues to support a variety of wildlife and provides stormwater management for the surrounding urban areas (Searns, 1995).

The second generation of trails was developed between the 1960’s and the mid 1980’s, as the car became the dominant form of travel, trumping public transportation. According to Searns, people’s response to the noise and fumes was to seek out non-motorized routes of travel (1995). The second generation of greenways also included the Rails to Trails movement, where abandoned rail lines were converted to bike and walking paths (Searns, 1995). During this period the American Greenways Program



**Figure 5.** Platte River Greenway in Denver Colorado. Image courtesy of Project for Public Spaces, [www.pps.org](http://www.pps.org) (2008).

was established by the Conservation Association to promote greenways and greenway systems across the United States (Benedict & McMahon, 2006).

William Whyte coined the term “greenway” during the 1960’s while describing possibilities for creating alternative, non-motorized travel routes. In his book, *The Last Landscape*, he wrote, “Our metropolitan areas are crisscrossed with connective strips. Many are no longer in use...but they are there if we only look.” (1968, p.163). Throughout this time period, many of the larger scale, amenity based, urban trail projects that include walking and bike paths along rivers became popular. Searns uses the Platt River Greenway in Denver as an example of the types of uses that urban greenway users preferred. This greenway employs off-street bike paths that were becoming popular in Europe at that time and could also be used for hiking. Today, the greenway links over 160 miles and weaves through almost the entire city of Denver (Searns, 1995).

Greenways have evolved over time as the built environment and human needs have changed. The first and second generations of greenways existed primarily to serve the human needs of movement, recreation, and open space. Although the third generation of greenway design maintains this emphasis, but the purpose has been expanded to include meeting regional environmental needs such as habitat and biodiversity loss, water quality, and flood damage (Searns, 1995). For planners and designers, greenway planning now has to be viewed as a “multi-objective process that allocates greenways as a resource to satisfy the public’s demands for recreation, environmental protection, and alternative transportation” (Conine, 2004). The Maryland Greenways Commission gives a more contemporary definition befitting the third generation of greenways:

“Greenways are natural corridors set aside to connect larger areas of open space and to provide for the conservation of natural resources, protection of habitat, movement of plants and animals, and to offer opportunities for linear recreation, alternative transportation, and nature study” (Bryant, 2006).

In many cases, greenway planning is used to protect the natural environment as development expands (Conine, 2004). Escalating urban populations and increasing rates of land consumption are requiring cities to intervene as never before (Bryant, 2006). As in the case of

Concord, North Carolina, a population can double in the expanse of as little as a decade forcing planners to control and guide sprawling development. Greenways have been designed to preserve open space while providing connections between people and places (Conine, 2004).

In Detroit, one of the most rapidly shrinking cities in the nation, the population has been decreasing, leaving the city overwhelmed by the number of vacant parcels left after decades of population decline (Salazar, 2005). In the early 1970's, Detroit began using greenways planning as a tool for urban revitalization and increased public access to the Detroit River. This was part of a social and economic development strategy led by conservation and recreation professionals, and included an institutional driven initiative to protect the Detroit River and "promote the idea of linked green spaces" (Salazar, 2005, p. 60).

In the late 1990's, the Green Ways Initiative was started and funded by the Community Foundation of Southwest Detroit (CFSEM). This move is considered by Salazar (2005), a PhD student at Michigan State University studying greenways in Detroit, to be the most important catalyst for greenways development in the region.

The issue of equality plagued the program from the start. CFSEM had a very specific idea of the types of greenway projects it wanted to fund and those were more like the generation two greenways, biking and hiking trails, described above. These are seen as a more "white suburban" greenway ideals and generally contribute to a landscape scale impact that is very ecologically oriented (Salazar 2005, pg. 92).

The CFSEM was specifically interested in projects that had an impact larger than the local neighborhood and offered environmental protection for a larger area by daylighting creeks, closing streets, and connecting large tracts of land. In addition to ecological considerations, the foundation "felt that the degree of devastation to the city was so great, that only projects with an impact at larger scales could make a difference in the city's infrastructure" (Salazar 2005, p. 93).

These larger scale projects faced opposition because they lacked the attention to social issues that inner city residents expected to be addressed through their greenways. Salazar's interviewees explained that the Green Ways Initiative, "tended to exclude Detroit projects" and they felt that the projects the foundation chose to fund were "the types of environments one would find in a suburban or rural community" (Salazar 2005, p. 92). In addition to being

impractical, Detroit community members felt that the city was “years away” from having the resources to sustain this type of greenway project. Based on Salazar’s interviews with community members, many were interested in very basic improvements that at the very least, “get people to take steps out of their cars and start walking around” (2005, p. 94).

Salazar quoted Anthony Walmsley of Tourbier & Walmsley, Inc., a planning and design firm based in Philadelphia, PA, who has suggested, that “many of the greenways precursors were laid out in advance of urbanization...and must be superimposed on an existing urban grid” (p. 97, 2005 ). Narratives from Detroit residents emphasize the importance of the city street, and that greenways need to respond to the ideas and values of inner city residents (Salazar, 2005). One interviewee identified improvements that would be successful in Detroit as, “basic streetscaping and enhancements that would include public art, heritage interpretation programs...” (Salazar, p. 94, 2005). Another city resident explained,

“I wanted to do trails in our parks because that’s where people come. And they keep talking about you’ve got to link this to that. Yeah, but in the first place we’ve got a population, which is obese, and we’ve got a high obesity rate, unfit kids. So, you’ve got to make it real easy or people are not going to take advantage of what’s out there. And you may have to do programs that bring people there” (Salazar, 2005, p. 95-96).

Salazar states that, “The dramatic environmental and infrastructure conditions of the urban landscape together with the social consequences of suburbanization constrain and at the same time provide new possibilities for greenways” (2005, p.148). In her experience she notes that greenways are often included in the discussion on how to “rebuild”, “revitalize” and/or “redevelop” the city. Neighborhood groups, such as Woodbridge and Corktown-Mexicantown, are defining greenways as part of their redevelopment strategy. At this level, the focus is often, “on opportunities for residents, which include elements such as green and safe community spaces, access to better transportation, beautification of city streets, and access to jobs and housing



opportunities arising from greenways, among others.” (Salazar 2005, p.149).

Previous greenway projects in Detroit have suffered due to misunderstandings of inner city community needs and realities (Salazar, 2005). The opportunity for a greenway to positively influence a community’s well being and be considered successful, lies in the relevance of the project objectives to the community’s perceived or stated needs. Our design for the Woodbridge Greenway and how it could address the needs of the neighborhood is based on this history of greenways and the response of community members to the idea of greenways. The primary objectives of our design recommendations for the Woodbridge Greenway and Bike Plan are to:

1. **Improve Environmental Quality:**  
Enhance and/or restore local ecology and wildlife habitat where possible, or where the modification will benefit the community and non-human users.
2. **Promote Human Health:**  
Define best routes for pedestrian and bike lanes to encourage physical activity through non-motorized transportation while connecting to nearby greenways and designated bike lanes.
3. **Encourage Social Interaction:**  
Provide opportunities for gathering in diverse settings ranging from outdoor education, constructed park settings and passive outdoor space.
4. **Stimulate Economic Growth:**  
Attract local businesses and potential homeowners to the neighborhood by providing recreational opportunities and a positive quality of life.
5. **Implementing Community Input:**  
Address the lack of usable green space through programming that takes into account observed or stated activities and interests.

The following sections of this paper contain background information on these specific benefits of greenways.

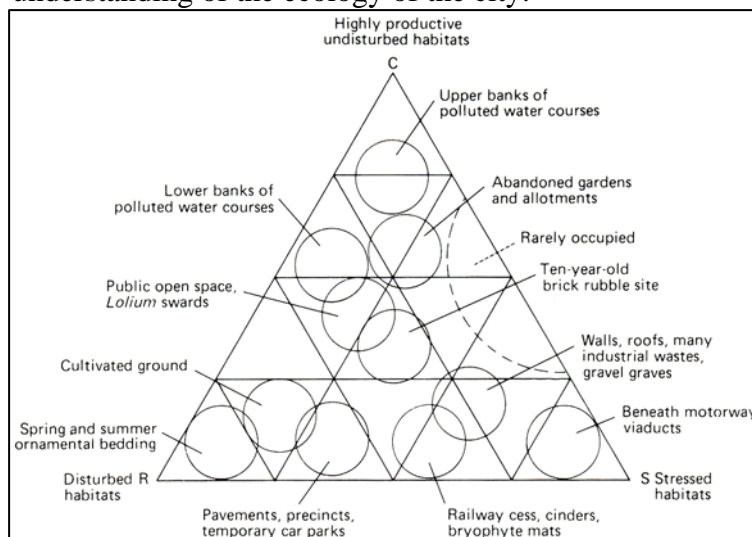
## Ecological Benefits

The ecological benefits of a greenway are numerous and varied depending on the design and scale of the project. Historically, greenways have been used for the purposes of stormwater management, erosion control, wildlife habitat and linkages, and protection of natural areas from development (Linehan et al., 1995 and Benedict & McMahon, 2006).

As previously stated, many urban greenway projects in the U.S. are large in scale and found along natural features such as rivers, or along man-made corridors like railroads. These types of greenways are most commonly associated with recreation but often act as wildlife habitat/linkage and serve as a stormwater management feature and water quality protector (Benedict & McMahon, 2006).

In an urban neighborhood environment, such as Woodbridge, the role of the greenway is adapted to the existing conditions of the community. Incorporating a greenway at this scale often involves reclaiming abandoned lots and right of ways as corridors (Benedict & McMahon, 2006). These spaces provide an opportunity to incorporate ecological benefits of a greenway at a neighborhood scale.

There are four major effects of urbanization on the environment: increased temperature, increased runoff due to impervious surfaces, lower levels of native species diversity, and increased production of carbon dioxide (Bryant, 2006). Urban areas account for only 2% of the world's land surface, but produce 78% of the greenhouse gases (Bryant, 2006). There is an opportunity for greenways to ameliorate the effects of these environmental problems. In order to design a suitable urban greenway that addresses environmental issues, it is necessary to have an understanding of the ecology of the city.



**Figure 6.** Diagram illustrating range of ecological niches found in urban environments. Image found in Gilbert (1989).

Anthropogenic impacts are the greatest drivers of urban ecological patterns, especially in the habitat niches found in a city. Figure 6 is an ecological model adapted by Gilbert to represent the range of habitats found in cities (1989). Any changes in the urban landscape

present changes for the plant and animal species as well (Bryant, 2006). Even small changes can influence the species composition of a site. The noted forms of transport for plants are: transport of topsoil and rubble containing seeds and vegetation fragments; banks of seeds buried in the soil transported by shoes or vehicle; horticulture practice and planting; dumping of refuse (Gilbert, 1989). Numerous possibilities for plant dispersal opens urban environments to a greater influx of invasive plant species. In a 60-year study of plant composition in Brussels, it was found that species distribution and abundance as well as disappearance and emergence of new species, was affected by human activities. Further, many of the new species were invasive, opportunistic species with a greater tolerance to tolerance of nitrogen, light, drought, heat and alkaline soils, all of which are more common in urban environments (Godefroid, 2001).

Invasive competitors do not always force native species out. Gilbert found that in a study of English towns, native species display a wider ecological distribution in disturbed urban areas than in the closed vegetation of the countryside. The frequency of plants growing outside of their normal habitat within cities also led to examples of special urban races of plants that have hybridized without being predisposed to do so (Gilbert, 1989).

The plant species composition of a city impacts the design of an urban greenway because the linkage that is produced will ultimately serve plants as well as people. Connecting fragmented habitat patches with a greenway corridor poses the risk of connecting higher quality habitats with lower quality habitats. The existing ecology of patches should be evaluated and managed for invasive species before a linkage is established; unfortunately, invasive species often do not need a corridor to be dispersed. The greenway can be emphasized as a habitat in itself by being designed as linear patches (Gilbert 1989).

Urban areas also host a variety of other organisms, besides plants. Animals such as birds and small mammals are filling the ecological niches that are created in cities. The most successful species are those that are omnivorous and nocturnal. Common species are house sparrows, crows, gulls, raccoons, opossum, and skunks (Gilbert, 1989). According to Gilbert (1989), these species are adapting to life in the city by obtaining an increased portion of their diet through scavenging, and decreasing their home range.

An urban greenway and habitat patches provide a natural setting where wildlife can coexist in a city with humans. Having areas devoted to native plant species and habitats can

provide space for native animal species to thrive, especially birds. Gilbert suggests incorporating smaller ecological sites, which are less threatening to larger ones but provide an opportunity for public education. The design and maintenance of these spaces are critical to their perception. A degree of maintenance is necessary for the public to accept ecological sites, but aside from trimming trees and shrubs should be left to succession. The value an ecological site brings to an urban community is the informal and dynamic nature; “sites change from season to season, and with succession from year to year” (Gilbert, 1989, p. 317).

The establishment of ecological sites in an urban setting can ameliorate the urban heat island effect that causes cities to have a mean temperature that is approximately .5-1.5°C warmer than surrounding rural areas (Gilbert, 1989). The cause of the temperature increase is the absorption of radiant heat by impervious surfaces such as roads, parking lots and buildings. These structures store up heat during the day and release it at night. Ecological sites and smaller areas of vegetation, soils and damp surfaces help to decrease the temperature by utilizing the heat for evaporation, and transpiration (Gilbert, 1989). Tree canopies, whether found in an urban forest or planted in the sidewalk, intercept rainfall which allows water to evaporate into the atmosphere and slowly drip into the soil, decreasing stormwater runoff (Girling et al., 2005).

The amount of impervious surfaces in urban environments is the root of increased stormwater runoff, which can have many deleterious effects on the environment even in urban settings. It is known to contribute to flooding and erosion, destroying habitat and polluting water bodies. The process of collecting stormwater in sewers and transporting it to treatment plants disrupts the natural process of infiltration, which cleanses water and restores water tables. Through the use of natural systems such as landscape planters, swales, rain gardens or green roofs, stormwater quantity is reduced and filtered through plant material and soil (portlandonline.com, 2009). The city of Portland, Oregon, a national leader in sustainable urban stormwater management offers excellent precedents for these design goals.

The Southeast Clay Street Green Street project is an example of how an urban greenway can be used to provide inner city residents green space that provides safe connections to important destinations. For the SE Clay Street project, the greenway objectives are to provide access from the local business district to the Willamette River, connect the outlying neighborhoods to the business district and the river through pedestrian and bicycle access, and to

provide sustainable stormwater management. The project's first constructed piece was completed in April 2007 and includes a pedestrian gateway, vegetated stormwater planters and swales (portlandonline.com, 2009).

### Public Health Benefits of Greenways

In the year 2000, 80 percent of Americans lived in metropolitan areas, a 32 percent increase from 1940 (Sherer, 2003). As the number of people in urban environments increased open space and parkland decreased. This is especially true of minority, immigrant, and low-income neighborhoods. In Los Angeles neighborhoods, where 75% of the population is white, there is 31.8 acres of park space for every 1,000 people. The amount of park space per 1,000 people in African American and Latino neighborhoods is 1.7 acres and 0.6 acres, respectively (Sherer, 2003). These numbers portray the lack of adequate park space for minorities in Los Angeles but are likely representative of cities across the United States.

In low-income and minority neighborhoods, what green space exists for recreation and community interaction is often neglected and unsafe (Sherer, 2003). Without sufficient recreation areas close to their home, residents are less likely to engage in any type of physical activity, which can lead to health problems and feelings of isolation (Srinivasan et al., 2003).

The lack of open space combined with a growing dependence on the automobile has shifted the focus from pedestrian and mass transit oriented neighborhoods to neighborhoods and cities designed for automobiles. Poor planning and a lack of sidewalks have resulted in an increasingly sedentary lifestyle for both children and adults. "Today only 10% of children walk or bicycle to school – a 40% reduction over the last 20 years." (Srinivasan et al., 2003, p.1447). According to Srinivasan et al. (2003), the physical and social infrastructure of urban areas promotes isolation.

"Higher rates of television viewing, increased computer usage, concern about crime, little contact with neighbors and geographic isolation have created communities that are not interconnected. This isolation may result in a lack of social networks and diminished social capital" (Srinivasan et al., 2003, p.1447).

As a result of the physical environment's influence on people's behavior, minority populations are less likely to engage in physical activity which can lead to negative health effects including obesity, diabetes, heart disease, respiratory disease, hypertension, and mental illness (Sherer, 2003).

Recent research has shown a “positive relationship between well-being, health, and green space” (Tzoulas et al., 2007). Older park users perceived themselves to be in better health, felt less stressed, were less likely to be over weight than non-park users, and required less physician visits (Payne, 1998). There is a positive association between levels of physical activity and closeness to green spaces in the neighborhood (Tzoulas et al., 2007). In addition to the evidence showing the relationship between green space and physical activity, other research shows that exposure to nature improves physical and psychological health. This phenomenon, which was hypothesized by Harvard biologist Edward O. Wilson, is referred to as *biophilia*, “the innate tendency to focus on life and lifelike processes.” (1984, p.1). Wilson (1984) theorizes that the better we understand other organisms, the more we will appreciate them and ourselves as well.

### Social Benefits of Greenways

Besides improving physical and emotional health, greenways or open space offer an opportunity for social interaction and provide a sense of community. Kim and Kaplan (2004) demonstrated that physical amenities such as natural features and open spaces play an important role in the sense of community that residents feel in a comparison between a traditional suburban development (Orchard Village) and a nearby new urbanist development (Kentlands) whose site design focused on walkability and social interaction. Four elements relating to sense of community were explored through survey responses and personal interviews. Each element was explored in terms of specific features of the communities' physical environments. These four elements, *community (or place) attachment, community identity, social interaction, and pedestrianism*, were positively influenced by the presence of green space. These elements will be described here because they were useful as a design premise for the Woodbridge greenway. *Community (or place) attachment* refers to residents' emotional ties to their neighborhood. Community culture, familiarity, sense of history, sense of ownership, and social ties all provide a sense of belonging.

*Community Identity* is the connection residents feel to the community as a result of the built and natural features of the neighborhood. Residents feel as if they can relate to the unique qualities or particular character of the neighborhood.

*Social Interaction* between neighbors and non-neighbors, participation in community groups and social support networks create a bond to others and the community itself.

*Pedestrianism* refers to a community's walkability and street side activities. Conduciveness to walking, reliance on the automobile, important amenities within walking distance, and human scale streetscape design are all important qualities of pedestrianism. "Walking in the community brings residents closer to the community providing opportunities for greater social contact, enhanced identity, and stronger attachment" (Kim & Kaplan, 2004, p.317).

The survey results determined that residents from both communities ranked the physical feature category entitled, "public greens, footpaths, tot lots, and either lakes (Kentlands) or wetlands (Orchard Village)" first or second in importance for each of the four elements, except with respect to social interaction at Orchard Village, where it ranked 3<sup>rd</sup>. The category, "street trees and street landscaping" was also ranked in the top six rankings for each community in all domains except social interaction (Kim & Kaplan, 2004, p.331).

Overall, the results of the research suggest that Kentlands residents have a stronger attachment and sense of identity leading to a greater sense of community, mainly due to the natural features and walkability of the neighborhood which lead to social interactions. However, both communities placed great importance on the natural features, proving that green space in communities does, in fact, promote social interaction and a sense of community.

### Economic Benefits of Greenways

Greenways can act as economic stimulants for neighborhoods and cities. A desire to live and work near parks and green space has led to an increase in private and commercial property values surrounding these amenities. Green space networks also attract and retain businesses by providing recreational opportunities and improving overall quality of life (Sherer, 2003). On a smaller scale, studies have shown that streetscape improvement projects such as the implementation of street trees in small town central business districts has led to increased sales (Wolf, 2005).

John Crompton (2000), a professor of recreation, park and tourism sciences, maintains that people are willing to pay more for a home located close to parks and open space than for a property that does not offer such amenities. After reviewing 25 studies investigating the relationship between parks and open space and nearby property values, Crompton found that in 20 of the 25 studies the properties nearest the green amenities were higher in value. The higher property value equates to higher property taxes which may be enough to finance the city's purchasing, development and maintenance of the park itself (Crompton, 2000).

Another study conducted in Boulder, Colorado regarding property values and their proximity to the greenbelt revealed that, "other things being equal, there was a \$4.20 decrease in the price of residential property for every foot one moved away from the greenbelt, and that the average value of homes next to the greenbelt was 32 percent higher than those 3,200 feet away." (Sherer, 2003, p.15). The study also discovered that the greenbelt added \$5.4 million to the total property values of one neighborhood. The additional property taxes generated as a result of the higher property values was enough to pay for the \$1.5 million greenbelt in only three years (Sherer, 2003).

The positive effect of green space on residential property values holds true in low-income urban areas where residents are mostly immigrants. In urban areas open space and parks are at a premium so even a small increase in green space results in higher property values. A University of Southern California study found that in a dense, low income neighborhood, "an 11 percent increase in the amount of green space within a radius of 200 to 500 feet from a house leads to an approximate increase of 1.5 percent in the expected sales price of the house, or an additional \$3,440 in the median price" (Sherer, 2003, p.16).

The trend between green space and rising property values occurs in the commercial real estate market as well. A prime example of this is Bryant Park in New York City. Once referred to as "Needle Park" for its reputation as a drug trafficking and usage spot, as well as its impressive crime rate with an average of 150 robberies a year, citizens avoided the site. Now, however, after a 12 year renovation which included adding more lighting and restrooms, food and beverage kiosks, the restoration of several monuments, two 300-foot perennial gardens and 2,000 movable chairs (Ravo, 1991) the park re-opened in 1992 to much fanfare. The new amenities attracted potential users while forcing the drug dealers and crime lords out. Bryant



Park is now famous world-wide for its annual hosting of New York Fashion Week. The park also boasts a jazz festival, outdoor movies, and an outdoor café. Within two years of the renovation, leasing activity on neighboring Sixth Avenue had increased 60 percent from the previous year (Sherer, 2003). Demand for office space in nearby buildings also increased. In a study conducted by Ernst & Young, “rents for commercial office space near Bryant Park increased between 115 percent and 225 percent, compared with increases of between 41 percent and 73 percent in the surrounding submarkets” (Sherer, 2003, p.17).

Greenways and open spaces contribute to quality of life by providing areas for recreation and social interaction as well as implementing important connections to local and neighboring amenities such as shopping districts, cultural areas, and restaurants. As previously discussed, these natural amenities promote a sense of community and comfort for residents. It is these opportunities and lifestyles which attract businesses looking to locate or relocate their headquarters, which in turn, brings jobs and taxpayer money to the local economy. If there is a demand to live in a certain area, the businesses, stores, restaurants, and amenities will follow (Sherer, 2003).

In May 2001, Boeing Co. chose Chicago for the location of its new corporate headquarters citing, among other reasons, “the city’s quality of life, including recreational opportunities, its downtown, and urban life” (Sherer, 2003, p.17). In recent decades Portland, Oregon has also become known as one of the country’s most livable cities due to its emphasis on sustainability and the lifestyle it offers its residents. Companies including Hewlett Packard, Intel, and Hyundai all have headquarters located there.

Wolf (2005) evaluated the “effects of the community forest on consumer response to retail districts” and found that the presence of street trees in retail districts in small urban areas attracts more shoppers than one without street trees (2005, p.390). Survey “respondents infer that the green streetscape has a more positive atmosphere, image, and comfort level, and would be a more favorable place to visit and dine out” (Wolf, 2005, p.391). Additionally, respondents were willing to pay more for both parking and goods and services in the tree canopied retail districts (Wolf, 2005).

## **Methods**

Planning and design for the Woodbridge greenway was based on scholarly research (as reported in the previous section), visiting the project site, meeting with the client and other stakeholders, conducting a community meeting, producing a survey tool, analysis, and finally design development.

### *Scholarly Research*

A traditional literature review was completed using the University of Michigan's Library catalogue and collection of databases. The research focused on the following topics:

- The definition of a greenway and its evolution over time
- Greenway programming and implementation
- Case studies of existing urban greenways
- The ecological, public health, social, and economic benefits of greenways in urban environments, and
- The local history of Woodbridge

Much of the scholarly research on greenways, specifically urban greenways, can be found in the journal *Landscape and Urban Planning*. Other journals used in this research include the *American Journal of Public Health, Environment and Behavior, BioScience* and the *Journal of Forestry*.

Due to the practical nature of the project, established greenway and bike plans and professional websites such as the Trust for Public Land and the City of Portland were also consulted. These sources were necessary to determine the specific design features of the greenway including spatial dimensions, current implementation methods, and material suggestions for projects requiring infrastructure adjustments, as well as the overall benefits of green space in urban environments.

### **Site Inventory**

The project required multiple visits to the site and surrounding area to conduct a thorough site inventory. During these visits, all notable information regarding the site and community, specifically elements that pertained to ecology, community culture, and alternative

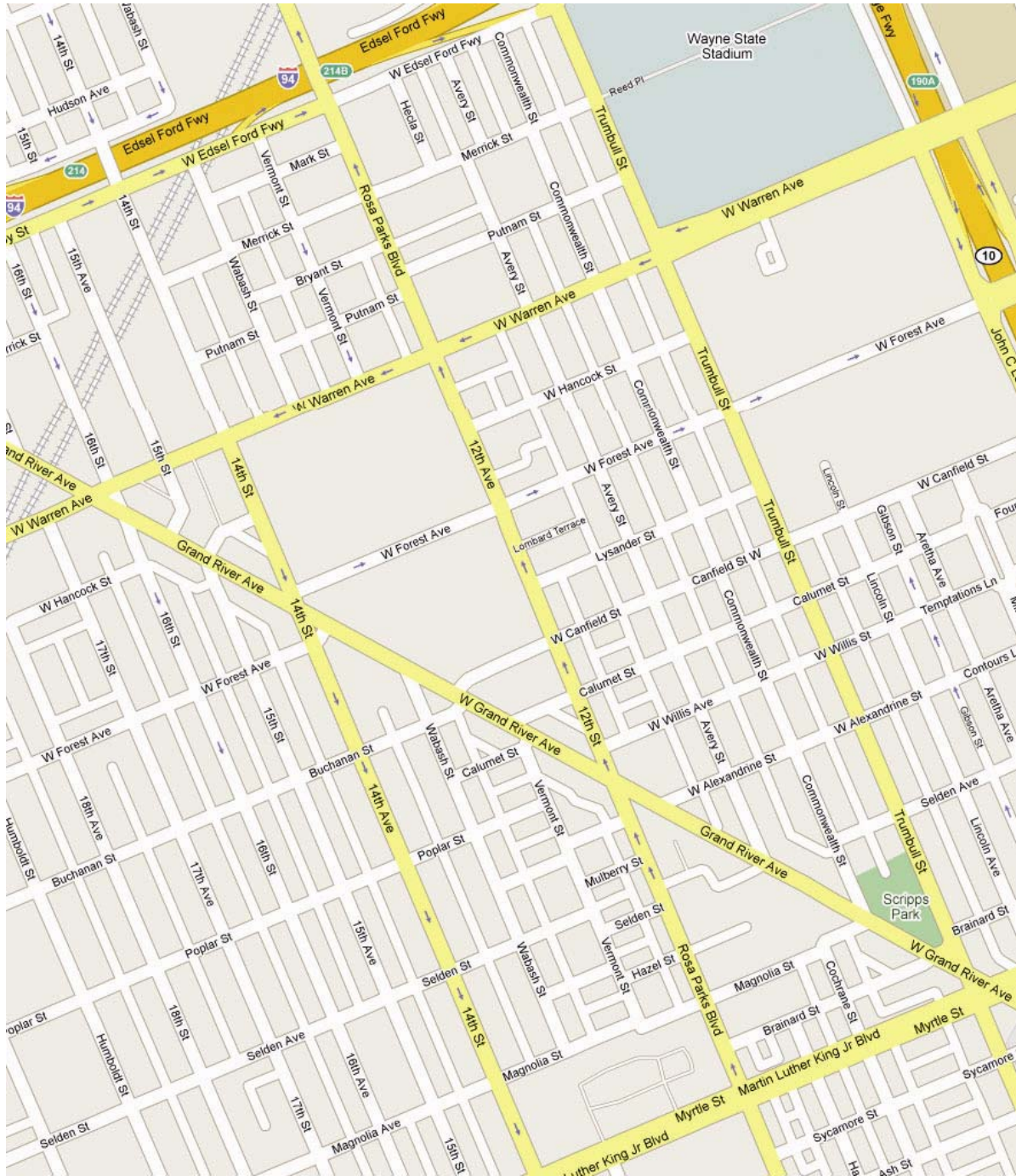
transportation, were observed and recorded. Some examples of recorded information included: important views, existing infrastructure, local architecture, vegetation, pedestrian movement, vehicular traffic, and land uses (Appendix I). We began this process by walking DCDC's proposed greenway route and exploring the neighboring areas by car and on foot. To supplement fieldwork and gain additional information about the site, aerial photographs, historical maps and photographs, and GIS maps obtained from the City of Detroit's website were also consulted.

### *Streets/Sidewalks*

We conducted an inventory of the six streets that comprise our greenway and bike plan route: Rosa Parks Boulevard, Trumbull Street, West Canfield Street, Merrick Street, Warren, and Grand River Avenue (see figure 7). We noted the street and sidewalk widths, the number of vehicular lanes, automobile/pedestrian/bike uses of the street and sidewalks, the presence of on street parking, and the existence of street trees and easement strips for each one of these streets (Appendix II).

### *Traffic Patterns*

We noted the main traffic movements throughout the area, identifying the major and minor thoroughfares within the greenway. Streets that provide important connections to amenities outside of the neighborhood were also noted. Grand River Avenue is a major thoroughway which runs northwest to southeast into downtown and is seven lanes wide (three lanes each way with a center turning lane). Trumbull Street runs north-south, contains the neighborhood's main commercial district, and provides an important bike connection to the Corktown-Mexicantown Greenlink. Warren Avenue runs east-west, becomes a one-way street as it enters the Woodbridge neighborhood, and provides an important connection to Wayne State University and Detroit's cultural district. Rosa Parks Boulevard is also a one-way street which runs north-south through the neighborhood. Rosa Parks Boulevard connects to residential areas south of the neighborhood. Merrick and Canfield are both side streets that run through residential areas of Woodbridge. They both provide important pedestrian connections via bridge across the John C. Lodge Freeway to Wayne State University and Midtown.



**Figure 7.** Map of Woodbridge Streets  
Image taken from Google Maps (2009)



**Figure 8.** View Down Grand River Avenue towards Downtown Detroit  
Photo by L. Miller (2008)

### *On Street Parking*

On street parking throughout the neighborhood was sporadic, but it occurred often on Merrick Street, Canfield Street, and Trumbull Street. We noted little to no on-street parking along Rosa Parks Boulevard, Grand River Avenue, and Warren Avenue.

### *Street Trees*

Street trees occurred sporadically on Rosa Parks Boulevard, Merrick and Canfield Streets. No trees existed along Grand River Avenue and very few existed on Warren Avenue and Trumbull Street. Tree species noted include: Sycamore, Silver Maple, Horse Chestnut, and Honey Locust.



**Figure 9.** Sporadic Street Trees on Merrick St.  
Photo by L. Miller (2008)



**Figure 10.** Vacant Lot on Rosa Parks Boulevard  
Photo by L. Miller (2008)

### *Vacant Lots*

There are a large number of vacant lots along our greenway route, specifically along Rosa Parks Boulevard, Merrick and Canfield Streets. These lots are often unkempt, full of debris, and in two instances were full of rubble. Often times there were empty, burned out structures on these vacant lots.

The best example of this is the remaining shell of Wilbur Wright High School at Rosa Parks Boulevard and Calumet Street.

### *Ecology*

Notable wildlife in the neighborhood includes black squirrels, goldfinches, and pheasants. The large vacant lot at Rosa Parks Boulevard and Lysander Street contains stands of willow, maple, and hawthorn trees as well as standing water. There are several notable plant and vegetable gardens on private, residential property, and what appeared to be a disconnected down spout and rain garden at a residence on Avery Street.



**Figure 11.** Standing Water on Vacant Lot  
Photo by L. Miller (2009)

### *Institutions*

The Woodbridge Community Youth Center is located on Canfield Avenue east of Trumbull Street. The center was created in 2004 by director Mike Wilson to provide daily tutoring, mentoring, homework support, hot meals, sports/wellness classes, and field trips. Edison Elementary School and the Detroit Day School for the Deaf are located next to the community center. Two others schools are located in Woodbridge: Douglass Academy which is



**Figure 12.** George Crockett Academy  
Photo by L. Miller (2008)

housed in the former Murray Wright High School on Rosa Parks Boulevard, and George Crockett Academy an elementary through junior high private school, located on Warren Avenue and 14<sup>th</sup> Street. The Detroit Area Council Boy Scouts of America is located on the corner of Warren Avenue and Rosa Parks Boulevard. The back of their property contains a large, flat piece of unused land.

### *Community Identity*

The homes found in the area of Avery Street, West Kirby Street/ Edsel Ford Highway, Canfield and Trumbull Streets appear to have the most architectural distinction and are currently

the most well kept. A variety of architectural styles are represented in this housing including Victorian, Italianate, and Queen Anne. Some apartment buildings that appear to be from the late 1800's - early 1900's are located on Merrick and Commonwealth Streets.

Woodbridge Estates, a new residential development along Canfield Street, has a distinct suburban layout and a variety of housing types. The community is primarily single family detached housing, but also includes attached, stacked and high rise senior housing.

### *Commercial Identity*

The primary commercial district is located on Trumbull Street across from the Wayne State Campus. This area includes the recently opened Woodbridge Pub, an auto parts store, and a funeral home. A busy gas station is located one block south. Other businesses in the area include Trumbull Market, a convenience store, and The Woodbridge STAR Bed and Breakfast located on Trumbull Street near the Trumbull market in the historic Hunter House. The sidewalks are wide in this area but there are no street trees or other amenities.



**Figure 13.** Apartment building on Commonwealth Street.  
Photo by L. Miller (2009)

### *Pedestrian Connections*

There are two pedestrian bridges, which cross the John Lodge Freeway, located on Canfield and Merrick Streets that connect to Midtown and Wayne State University, respectively. The bridges themselves are unattractive, lined with hurricane fencing, and are poorly designed. Their many corners and high archway make it difficult to see ahead. The bridges provide important connections to amenities outside of the neighborhood, but are a weakness in terms of safety and aesthetics.

### *Arts Movement*

There are two art galleries located in Woodbridge: The Contemporary Art Institute of Detroit and 4731 Gallery. The art galleries are used as studio and gallery space for both local and

non-local artists and attract people from all around Southeast Michigan.

The Architectural Salvage Warehouse is also located in the neighborhood along Grand River Avenue. The Architectural Salvage Warehouse attracts people from outside of the community looking for building materials to re-use in their homes and businesses.

### Client and Stakeholder Meetings

In February 2008 we had our initial meeting with our client, the Woodbridge Neighborhood Development Corporation (WNDC), at the unveiling of the Detroit Collaborative Design Center's (DCDC) master plan and development strategy. During this meeting we discussed our project's scope and timeline.

In the fall of 2008 we met with the WNDC's board as well as other professionals engaged in similar work or closely affiliated with our project site including Dan Pitera, Director of the Detroit Collaborative Design Center, Todd Scott, Director of Greenways with the Michigan Trails and Greenways Alliance (MTGA), and Mike Wilson, Director of the Woodbridge Community Youth Center.

In the meeting with Dan Pitera, we discussed the history of DCDC's involvement with the Woodbridge neighborhood and the details of the community design process which DCDC employed to produce the Woodbridge Master Plan and Development Strategy. Dan was an excellent source in providing practical background knowledge as well as giving instructions for holding our community meeting.

The meeting with Todd Scott from the MTGA provided important insight into the current greenway movement in Detroit including existing and future locations of greenways as well as the challenges of bike route implementation in Detroit.

The last formal meeting was held with Mike Wilson, Director of the Woodbridge Community Youth Center, who agreed to the use of the community center for our community meeting. His input was valuable for understanding the societal benefits of a greenway from the community and youth development perspective, and his knowledge of the history of the neighborhood was beneficial. Throughout the process we kept in close contact with the client via e-mail communication and used any available opportunity to speak to community members



and residents. Several of these informal interviews took place while we were conducting site visits.

### Community Meeting

During the research phase, the importance of obtaining community input concerning the greenway design became apparent. By gathering community feedback on our design concepts and ideas we are better able to provide the Woodbridge neighborhood with a greenway design that meets their needs.

The most inclusive form of gathering feedback from community members of all incomes, ethnicities, and social status was to hold a community meeting. In order to advertise our community meeting we designed a flyer with details regarding the community meeting including topic, date, time and location. The flyer was posted at several important locations within the neighborhood including University Foods Grocery Store, Trumbull Market, Sunoco Gas Station, Woodbridge Estates, and the Woodbridge Pub. An additional flyer was given to Mike Wilson,



**Figure 14.** “What do landscape architects do?”  
Cara presenting at the community meeting  
Photo by L. Westbrook (2009)



**Figure 15.** Lindsey explaining the survey to a resident  
Photo by L. Westbrook (2009)

Director of the Woodbridge Community Youth Center, where the meeting was to be held, to copy and hand out to students to pass along to their parents. We additionally e-mailed Brian Shellebarger, of WNDC, and Todd Craft, Property Manager of Woodbridge Estates, to forward the meeting details on to anyone they thought would be interested in attending.

The meeting was held at the Woodbridge Community Youth Center in March, 2009. In preparation for the meeting, we organized an informative half-hour PowerPoint presentation that included:

- The definition of a greenway
- 3 examples of existing urban greenways (Pittsburgh, Boston, Vancouver)
- Greenway uses
- Illustrated examples of typical features found in a greenway design including stormwater management techniques, public art, pocket parks, traffic-slowing structures, recreational activities and non-motorized transportation alternatives.
- Our current greenway design and bike plan location with loose design ideas we had generated

The second half-hour of the meeting was devoted to discussion based on previously determined questions related to the presentation. Residents were encouraged to express their thoughts on safety concerns, design program, and any topic of relevance to them.

### Community Survey

In addition to the community meeting we also constructed a paper survey containing 11 questions regarding residents' feelings about transportation, recreation, and strengths and weaknesses of their community (Appendix III). We constructed the survey based on the articles, "How to Obtain a High Response: Length and Ordering of Questions" and "How to Construct Questionnaires: Wording and Structure of Questions" by Jessie Carol (2008). The specific questions were questions we determined and agreed upon with our practicum advisors. The survey was given to our community meeting participants.

### Ecological Research

To address our objective of enhancing local ecology through a park and green space system, we noted the flora and fauna present in Woodbridge during our site visits. We also reviewed GIS data on historical plant communities within Detroit to understand the ecological history of the site. From this data we established a native species plant palette for use in designated habitat creation and green space areas. We supplemented this palette with plant preferences of desirable fauna species observed in the neighborhood like goldfinches, black squirrels, and pheasants.

## **Results**

The information gathered through the literature review, personal interviews with local professionals, meetings with the client, community meeting, and site visits was synthesized and portrayed both graphically and in written word on a base map of the project site in reference to the greenway location. From there we determined our final greenway design and bike plan for the Woodbridge neighborhood of Detroit.

The greenway location follows the original path generated by DCDC (along Rosa Parks Boulevard and across Merrick), but we also included Canfield Street based on our site inventory and analysis. Our design emphasizes the designation of road uses in terms of alternative transportation connectivity, elements emphasizing ecological function, and park and open space planning which encourages social interaction. Our design develops the programmatic elements and describes the necessary adjustments for bicycle use and streetscape enhancements.

## **Site Analysis**

Through the process of the site analysis we were able to determine the most effective location of the greenway and bike routes in order to provide important connections to other existing and proposed greenway routes and amenities within the local area. Our greenway and bike plan transverses six streets in the neighborhood: Rosa Parks Boulevard, Canfield Street, Trumbull Street, Grand River Avenue, Merrick Street, and Warren Avenue. The site analysis aided in the development of a design program along each of these streets while adhering to our objectives of ecological benefits, social interaction, public health and economic benefits.

The programming addresses streetscape design and includes the implementation of street trees, the narrowing or removal of vehicular traffic lanes to include bike lanes, on-street parking, and extended easement strips or medians, and the addition of pedestrian lighting and furniture along all streets in the greenway plan. In other areas, specifically along Rosa Parks Boulevard, Merrick, and Canfield Streets, we have designated vacant lots for active and passive recreation, stormwater management demonstration areas, and community gathering spaces.

### *Streets/Sidewalks*

As a result of our inventory on the street and sidewalk network we came to several conclusions. Many of the streets in Woodbridge have too many vehicular lanes for the amount of traffic they receive, and a large number of people use bikes or walk as a source of transportation within the neighborhood and surrounding areas. The underused traffic lanes provide an opportunity for the insertion of bike lanes, extended green space on easement strips and central green islands on some especially wide streets.

### *Traffic Patterns*

Two of the streets in our greenway and bike plan are one-way. This encourages speeding. Altering the traffic pattern to a two-way street will improve vehicular and bike movement throughout the neighborhood while increasing pedestrian safety by forcing traffic to slow down. Introduction of raised pedestrian walkways at street intersections could also act as a traffic calming measure through the neighborhood.

### *On-Street Parking*

On street parking throughout the neighborhood was sporadic, but it occurred often on three of the six streets in our greenway. Streetscape plans should retain some but not all of the on street parking. The freed space can be used for bike access.

### *Street Trees*

Street trees occurred sporadically on three of the six streets in our greenway. Species noted include Sycamore, Silver Maple, Honey Locust, and Horse Chestnut. As part of a streetscape improvement plan, street trees should be planted on all streets to provide shade, wildlife habitat and stormwater management. Tree species that provide food and habitat for wildlife but do not interfere with underground pipes or existing infrastructure should be chosen. This includes species that do not have deep tap roots, survive well in dry, compacted soils, and tolerate salt. A few street tree species recommended by the City of Ann Arbor include American Hornbeam, Northern Hackberry, Ginkgo, London Plane, and American Yellowwood (City of Ann Arbor, 2007). Tree spacing will be determined by the mature canopy spread of the species

selected, but the minimum suggested spacing is 20 feet. Although, if a narrow growing species of tree is selected, the suggested spacing is 15 feet (Portland Online, 2009).

The practicality of street tree additions differs by location. Planting trees on streets with existing easement strips or vacant land will be very practical since the costs will only include the tree itself, mulch, and any necessary tools. The actual planting of the tree can be done through volunteer efforts. Planting street trees will be more difficult on streets with existing concrete sidewalks because of the necessary costs involved, including the concrete removal and additional tree grate. Regardless, the ecological and aesthetic benefits of street trees outweigh the costs, and we hope through volunteer efforts and street tree funding sources the Woodbridge neighborhood can implement this portion of our greenway design.

### *Vacant Lots*

The vacant lots throughout Woodbridge provide opportunities for new land use along the greenway. Design recommendations include an environmental education center, community garden plots, a prairie and rain garden demonstration site, an active recreational area, and a traditional park area. Examples of these recommendations can be found in the greenway master plan in our community booklet.



**Figure 16.** Rain garden on Avery Street.  
Photo by L. Miller

### *Ecology*

Based on the wildlife observed in the neighborhood, there is an apparent need for vegetation that better supports the existing species and will also attract more desirable wildlife species such as birds and insects. A suggested plant palette for the Woodbridge Greenway is included in Appendix IV.

With the high number of vacant lots, Detroit seems to have less impervious area than most cities. However, the city currently has a combined sewage system (CSO) that collects sanitary drainage from residences, industries and businesses and stormwater runoff. When the sewer that conveys this water is exceeded, contaminated water is discharged into the Detroit River. The city of Detroit is implementing a long term CSO control program to ensure that combined sewage discharges receive adequate treatment, consistent with state and federal environmental regulatory requirements (City of Detroit 2007). In addition, a Stormwater Management Program Plan has been developed that includes six Best Management Practices objectives (city of Detroit 2007):

1. Education and outreach on storm water impacts - public education program;
2. Public involvement and participation;
3. Illicit discharge elimination program;
4. Post-construction Storm Water Management Program for new development and re-development projects;
5. Construction storm water runoff control;
6. Pollution prevention/good housekeeping for municipal operations.

The first two objectives call for education and involvement of the public on matters of stormwater runoff impacts and management. The fourth objective emphasizes the use of “procedures and techniques which maximize the opportunities to use natural drainage systems, rain gardens, and other practices to reduce runoff and control pollutant concentrations in stormwater discharges (City of Detroit, 2007, p. 20).

Currently in Woodbridge, there are little to no engineered sustainable stormwater management features such as rain gardens and bioswales. Incorporating these structures into currently vacant land and streetscape additions, such as curb extensions with planted rain gardens, will ensure stormwater infiltration and help control pollutant concentrations in Detroit River discharges. Public education and involvement are addressed through the use of

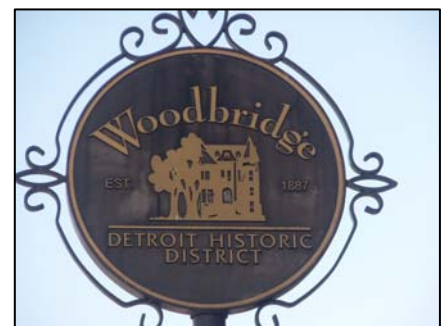
educational/ interpretive signage explaining the purpose of these structures and their additional benefits such as habitat creation and native plant use.

### *Institutions*

The many schools and the Woodbridge Community Youth Center suggest that environmental education opportunities and safe places for children to play outside are desirable. Since schools are spread evenly across Woodbridge, Rosa Parks Boulevard and Canfield Street are important axes for children’s travel and environmental education opportunities. Children will benefit from amenities that create safe pedestrian travel including raised crosswalks, sufficient lighting, and reduced traffic speeds. Environmental education opportunities can be created by reusing vacant lots to demonstrate urban wildlife habitat and stormwater management techniques. School teachers can incorporate these demonstration areas into their science lessons and provide their students with a hands-on learning experience. This interaction can possibly evolve into a classroom ‘adoption’ and maintenance schedule in these areas. Interpretive signage will be included in these locations to inform children and adults of the ecological functions occurring and their benefits to an urban environment.

### *Community Identity*

This greenway will help to identify Woodbridge as the unique community it is by incorporating its character and identity throughout. Woodbridge’s identity can be illustrated through the use of site furnishings including bike racks, benches and light fixtures, custom signage, public art, the selection of a signature plant palette, and a showcase for ecological design.



**Figure 17.** Existing Historic District Sign  
Photo by L. Miller (2009)

The identity of the neighborhood as a historic residential area of Detroit is something that we felt was important to keep consistent in all details. The street lights in the neighborhood are historic and styled after Victorian architecture. Neighborhood identity signs exhibit the same character as shown in Figure 17. These details were inspiration for our site furnishing choices and signage that will be located along the greenway and bike paths. We chose to use site

furnishings that had the same character as the existing historic district marker and street lights, but it is our hope that local artists and community members take it upon themselves to design some of these amenities such as bike racks and public art, truly showcasing Woodbridge's character. Specific examples of greenway signage and site furnishings can be found in our community booklet.

### *Commercial Identity*

The commercial district along Trumbull has wide sidewalks but no street trees. The addition of street trees in this area of our greenway design may help the local economy by attracting more businesses and customers to the area. A list of best tree species and furnishings for use in the Trumbull Street commercial district can be found in the community booklet.

### *Pedestrian Connections*

The Canfield and Merrick Street pedestrian bridges span the John Lodge Freeway and connect to Wayne State University and Midtown, respectively, and provide connections to amenities outside of the neighborhood. These important connections influenced the location of our greenway. The original DCDC master plan incorporated both Canfield and Merrick Streets but included Canfield Street only as a pedestrian connector to Midtown. After completing the site inventory, we chose to make Canfield Street a secondary greenway street after Rosa Parks Boulevard mainly because it extends to the community center, Woodbridge Estates, and Midtown. We felt that designating Canfield Street as part of our greenway would improve the visual connection of the community across Trumbull Street and establish a better connection between Woodbridge Estates and the Woodbridge Community Youth Center to the primary greenway located on Rosa Parks Boulevard.

Merrick Street currently intersects with Wayne State University campus and includes a pedestrian bridge from the campus athletic fields in Woodbridge to the main campus opposite the John Lodge Freeway. This connection brings Wayne State students into Woodbridge and allows for safe pedestrian travel from Woodbridge to Midtown. It is included as a secondary greenway street because it extends from Rosa Parks Boulevard to the Trumbull Street commercial district, outward into an adjacent neighborhood.



### *Arts Movement*

There are two art galleries located in Woodbridge: The Contemporary Art Institute of Detroit and 4731 Gallery. The community design work previously done by DCDC emphasized the importance of the artist community as an influence for future development. The greenway design can respond to this movement by providing spaces for art exhibitions including children's art or sculpture gardens as well as including artists in the design of bike racks, murals, and other design elements throughout the greenway.

### Community Meeting

There were five attendees at our community meeting, four of which were Woodbridge neighborhood residents. The fifth attendee was affiliated with the Greater Corktown Redevelopment Corporation, the organization responsible for establishing the Corktown-Mexicantown Greenlink. Our greenway design and bike plan was well received. In particular they liked our suggestions for bike lanes, painted crosswalks, community garden plots, and restoring the large vacant plot of land along Rosa Parks at Lysander. The discussion portion of the meeting was very interactive and provided us with specific insight into the community's desires for a greenway design. In particular, there seems to be a need to connect the Woodbridge Estates housing development with the rest of the neighborhood, a strong desire for the property at Rosa Parks and Lysander to remain natural, and greenway and park maintenance issues.

In order to address the perceived disconnect between the new housing development, Woodbridge Estates, with the rest of the community we have suggested a traditional park design with barbeque pits, playground equipment, tables, and picnic pavilion on a vacant parcel at the corner of Canfield and Trumbull Streets. This location will attract residents from both areas of the community and hopefully spur interaction. In addition, the greenway designation and streetscape improvements along Canfield will also help to improve social interaction and bridge the perceived gap.

The desire for the large vacant parcel at Rosa Parks and Canfield St. to remain natural is addressed in our design (page 45 in design booklet). At this location we propose constructing an environmental education center as well as restoring the land by removing the current dumping grounds and replanting native vegetation. On our site visits we noted standing water in this area

and the growth of water loving plant species. We suggest determining where this water comes from – whether it is rainwater, groundwater, or a disconnected pipe –as well as testing the water for possible contaminants. If conditions allow, we propose implementing a constructed wetland to cleanse this water and allow infiltration. Boardwalk trails will meander throughout the site offering residents a natural area to enjoy and learn from while providing a recreational opportunity. A native prairie demonstration area will be located on the vacant parcel across the street from this site and will serve as an important environmental education node at Rosa Parks and Canfield Street.

We incorporated the requests to have more active recreation areas such as a sand volleyball court or an ice skating rink by creating an active recreation area on an abandoned elementary school's property along Rosa Parks Boulevard. The property already has an active, full size basketball court but we envision adding a sand volleyball court, a shuffleboard court, and horseshoe pits to accommodate physical activities for every age group. We also suggest the implementation of community gardens on the backside of the boy scouts property.

### Survey Responses

Four of the five meeting attendees returned surveys. Although this is not a large survey sample response the answers did provide specific ideas for amenities and programming within the greenway such as a volleyball court and an ice skating rink. The answers also provided insight into community identity. Woodbridge's proximity to downtown and the cultural district is appreciated. The residents surveyed responded positively to questions regarding the ease of travelling through Woodbridge and nearby locations. The responses indicated this is an active community that participates in physical activities and community events. The general consensus is that people feel safe in the neighborhoods but would prefer not to walk around at night. All respondents indicated that they would like to see more vegetation throughout the neighborhood. See Appendix III for complete survey responses.

### Informal Community Interviews

While visiting the site we often encountered residents who inquired as to what we were doing. Through these impromptu interviews on the street, or in the local Woodbridge Pub, we

maintained that people took great pride in their neighborhood and truly enjoyed living there. They were excited to see a greenway through the neighborhood and would very much like to see more plants and vegetation. Safety was a topic that we often inquired about. In general it appears that people feel safe but they do admit to taking extra precautions such as walking home with a friend or being more cautious at night.

In general, the greenway addresses safety concerns by encouraging outdoor use and social interaction. Destinations such as community gardens, recreation facilities and educational sites draw residents from their homes and into the streets. Design decisions that enhance the safety of pedestrians and non-motorized vehicles include raised crosswalks, curb bump outs, designated bike lanes, informative signage, and strategic lighting in high traffic pedestrian areas. The streetscape improvements and potential for increased interaction among residents provide ‘eyes on the street’ which discourages negative behavior in the neighborhood.

### **Woodbridge Greenway and Bike Plan Design**

Our design work focused specifically on determining what purpose the greenway would serve and how it could be designed to benefit Woodbridge residents. The bike plan includes routes that connect residents to amenities inside and outside of the neighborhood, other city greenway efforts, and a 2.5 mile neighborhood recreational loop. The greenway is an interconnected park and open space system that utilizes vacant lots and wide roadways to ‘green’ the neighborhood in ecologically functioning and aesthetically pleasing ways. The two plans combine to create a network for alternative transportation, recreation, social interaction, and learning that we hope provides Woodbridge residents with a valuable space for generations to come. The designs that emerged from these plans are presented in greater detail in the “Woodbridge Neighborhood Greenway and Bike Plan Design Guide.”

This booklet is intended for use by the Woodbridge Neighborhood Development Corporation and community members who are interested in pursuing the adoption of non-motorized transportation or greenway plans for the community. It can also be used by residents to implement less technical aspects of the greenway in a grassroots manner. The guide includes

illustrations created to express the design intent and should be referred to for complete coverage of the design work.

The design includes a bike route master plan and a greenway master plan. They were designed in conjunction with one another, but are discussed here separately for clarity. The information in the booklet is divided into four themes: Design for Alternative Transportation, Design for Environment, Design for Community and Design for Community Identity. Summaries of these sections and the design work are provided below.

### Design for Alternative Transportation



**Figure 18.** Woodbridge Greenway and Bike Master Plan Diagram

### *Woodbridge Bike Route Master Plan*

The bike plan design defines the bike routes in the neighborhood and describes the necessary adjustments for bicycle use and streetscape enhancements. The bike plan contains two types of routes, illustrated in the greenway and bike route master plan as “designated” and “signed.” Designated routes contain a separate lane solely for bikes which is differentiated from vehicular traffic through a painted stripe on the road. On signed bike routes, however, drivers and bicyclists share the road. These routes do not have a painted bike lane but do contain informative signage such as “Share the Road” in order to alert vehicles to cyclists. The streets with designated bike routes include: Trumbull Street, Warren Avenue, Grand River Avenue, and Rosa Parks Boulevard. The design intent and reasoning for each street is outlined below.

#### *Trumbull Street and Warren Avenue*

These are two very important thoroughfares in the bike plan. The potential connections provided by Warren Avenue and Trumbull Street integrate the Woodbridge greenway and bike plan into local and regional greenway efforts. The designated bike route on Trumbull provides a connection to the Corktown-Mexicantown Greenlink, and the bike route heading east on Warren intersects the Midtown Loop. If extended further east, the Warren bike lane will connect directly to the proposed path of the Dequindre Cut rails to trails project in East Detroit. If extended west, the Warren bike route will eventually connect to the Rouge River Park.

#### *Grand River Avenue*

The designated bike route along Grand River Avenue runs from Woodbridge into downtown Detroit and completes the Woodbridge neighborhood bike loop between Trumbull Street, Warren Avenue and Grand River Avenue. This local 2.5 mile loop can be used by residents for recreational purposes. Additionally, both the Grand River and Warren bike routes provide options to residents who commute into Detroit for work.

### *Rosa Parks Boulevard*

The final designated bike route is located on Rosa Parks Boulevard. As the main axis of the greenway plan, it was important to provide a designated bike lane on this street. It is also thought that the presence of bikes along Rosa Parks will aid in slowing traffic.

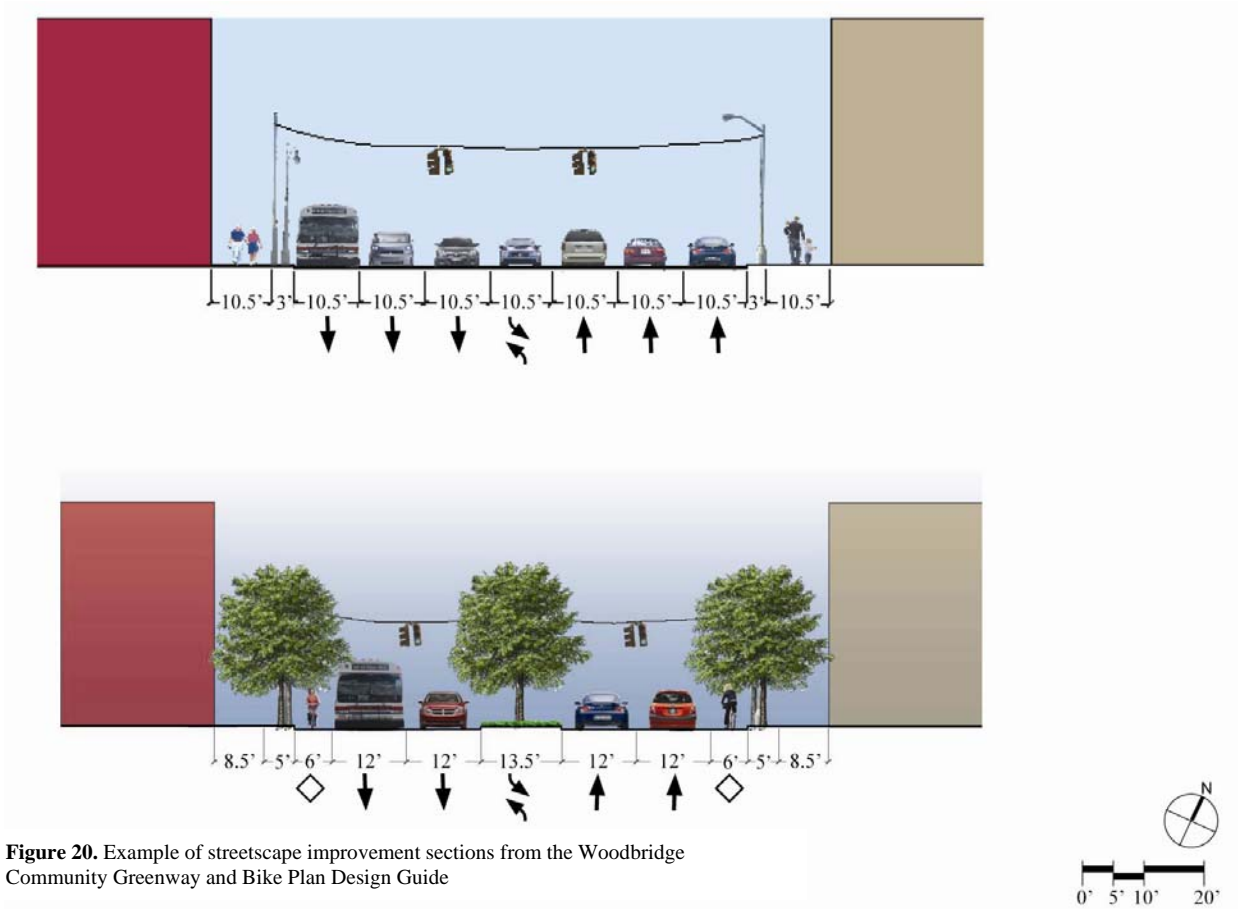
Signed bike routes within the bike plan include: Merrick and Canfield Streets, both of which are secondary streets in the greenway design. These streets are mainly residential and experience local traffic. They are not wide enough to include both on-street parking and a designated bike lane so they must remain as signed routes. This is accomplished through the use of signage and “sharrows” that indicate to a driver that a bicyclist also has the right of way.



**Figure 19.** Example of Signage Suggested for Merrick and Canfield Streets. Image from City of Richmond, CA. (2009)

The implementation of the bike plan requires altering existing streetscapes. The proposed adjustments to the roadway and bike lane additions were based on the recommendations and examples in the City of Chicago’s Bike Lane Design Guide and the City of Pittsburgh’s Bicycle Facility Guidelines and Policies. All redesign, proposed within the right-of-ways, maintain the existing width. Lanes and sidewalk adjustments are also within the existing width. The proposed design elements strive to achieve improvements to the streetscape that are cost effective and realistic. The community booklet covers all proposed design adjustments for the bike and greenway plan, as an example, the before and after sections of Grand River Avenue are below.

Grand River Avenue Existing (top) and Proposed (bottom)  
 Bike Lane Implementation and Streetscape Improvements



**Figure 20.** Example of streetscape improvement sections from the Woodbridge Community Greenway and Bike Plan Design Guide

Existing Section

Grand River Avenue is the largest roadway in Woodbridge. The total road width measures 74' (sidewalk curb to sidewalk curb). The most notable feature of Grand River Avenue is the width of the road and the lack of traffic congestion. There is not enough traffic to support the amount of asphalt. There is an unofficial parking lane on both sides of the street, and cars are usually found outside one of the few businesses that are located along Grand River, north of Rosa Parks Boulevard. Due to its width, the road presents a hazard to pedestrians. There are currently no street trees; however the sidewalks are large enough at 13.5' to support tree grates.

### Proposed Section

To reduce the imposing effect of excessive asphalt, we propose retrofitting the center lane into a 13.5' wide planted median, similar to the one currently on Warren Avenue. The vacant space available along Grand River Avenue can be converted to small parking lots to accommodate local business customers. The traffic lanes can be reduced to only two 12' lanes in each direction. This change allows space for two 6' designated bike lanes. The sidewalk width can be reduced to 8.5' to provide room for a 5' tree planting space.



## Design for Environment



**Figure 21.** The Woodbridge Greenway Master Plan

### *Woodbridge Greenway Master Plan*

The greenway location follows the original path generated by DCDC (north along Rosa Parks Boulevard and east across Merrick), with the addition of Canfield Street. Rosa Parks Boulevard is the primary axis of the greenway with the most design work and programming. Merrick and Canfield Streets are considered secondary greenway routes because of their smaller size, but provide important pedestrian connections to Detroit’s cultural district and Wayne State University. The greenway design emphasizes a reinterpretation of road uses to increase

pedestrianism, improves alternative transportation options, and supports an open space network focusing on ecological function and social interaction.

The greenway organizes existing vacant land along Rosa Parks Boulevard, Merrick and Canfield Streets into defined, usable outdoor space that improves pedestrian circulation and safety, promotes social interaction, provides environmental education opportunities, and increases physical activity while exhibiting the unique character of the Woodbridge Community. Additions such as raised or stamped crosswalks, street trees and easement plantings promote walking and biking as a form of transportation and exercise by creating a more visually appealing environment. The proposed reuse of vacant lots for sports and recreation or habitat enhancement offers alternatives for residents.

The *Design for Environment* section of the booklet highlights the importance of ecological features in the greenway design such as stormwater management techniques, habitat creation and enhancement, and the use of native plants. This section of the booklet also illustrates the proposed design for each vacant lot with an emphasis on ecological design through narratives and character perspectives. An illustration and explanation for three proposed uses are below.

#### *Prairie Demonstration Site Character Sketch*

The intersection of Rosa Parks Boulevard and Canfield Street is the location of a large vacant parcel that is currently used as a passive, natural walking area. This became the primary node of the greenway and is enhanced with the addition of an urban environmental education center and prairie demonstration site. The prairie demonstration site allows residents to learn about the Midwestern landscape and the ecology of a



**Figure 22.** Prairie Demonstration Site

fire-dependent ecosystem. The native grass plantings support wildlife habitat, particularly of birds, adding another layer to the environmental educational opportunities.

## Design for Community

The *Design for Community* section of the booklet focuses on design aspects that encourage community building and interaction. This section of the booklet illustrates the sites that are designed to bring people together through activities emphasizing recreation.

### *Multi-generational Recreation Park Character Sketch*



**Figure 23.** Active Recreation Park

The proposed multi-generational recreation park, located on the abandoned elementary school property along Rosa Parks Boulevard across from the Douglass Academy, currently contains a full length basketball court that gets regular use. The goal for this site is to provide an area centered around active, organized recreation to increase and improve Woodbridge residents' physical activity and

health. In order to accommodate different levels of physical abilities and encourage social interaction between generations, the sport courts include two basketball courts, a sand volleyball court, two bocce courts, and a horseshoe pit. The design also includes a picnic pavilion, seating areas, and vegetative enhancements.

## Design for Community Identity

The *Design for Community Identity* section of the booklet illustrates how Woodbridge's unique identity and character can be portrayed in the greenway through the use of site furnishings, including bike racks, benches and light fixtures, custom signage, public art, the selection of a signature plant palette, and a showcase for ecological design. Suggestions for some of these amenities have been included in the booklet, based on site visits and observations, but it is our hope that local artists and community members design some of these amenities themselves, truly showcasing Woodbridge's character.

### *Art Park Character Sketch*

The art park envisioned for the vacant lot next to the Contemporary Art institute of Detroit is where art and nature collide. This design highlights the artistic culture and identity of the Woodbridge neighborhood. The landscape features rounded earth mounds punctuated by sculptural elements and a winding pattern of native plantings throughout. This is the place to see and be seen along the Woodbridge Greenway.



**Figure 24.** Art Park Adjacent to the Contemporary Art Institute of Detroit

### **Conclusion**

Greenways have been shown to benefit people and the environment in many ways, however the cultural definition of a greenway limits its application in an inner city urban environment. Many greenway projects are large scale and more accessible to suburban populations. The Woodbridge greenway design and bike plan required small design solutions that create a large impact.

The streetscape improvements, roadway modifications, and vacant lot programming that we have proposed, address the five specific goals previously outlined above and repeated below:

1. Improve Environmental Quality
2. Promote Human Health
3. Encourage Social Interaction
4. Stimulate Economic Growth
5. Implement Community Input

Environmental quality was addressed primarily through the use of low impact stormwater management practices and native plantings. Vegetated curb bump outs and easements retrofitted with curb cuts and infiltration trenches along roadways and in vacant lots will help to absorb, infiltrate, and cleanse urban stormwater runoff. The expansion and improvement of existing habitat in vacant lots, through the removal of invasive species and the re-vegetation of native plant species, creates food and habitat resources for wildlife and enables their movement throughout the city. The proposed constructed wetland and a native grass prairie within the greenway increases habitat diversity and attracts a range of wildlife to the area. Native plants attract pollinators, prevent the spread of invasive species, and reduce soil erosion. These design suggestions improve environmental quality and provide educational experiences for residents to learn from and enjoy.

The literary review of Kim and Kaplan research confirmed that access to open space improves physical and emotional health while providing opportunities for social interaction among residents which results in a sense of community or belonging. The proposed streetscape improvements such as the addition of bike lanes, crosswalks, and native plantings improve the pedestrian experience and encourage walking and biking throughout the neighborhood. In addition, opportunities for active recreation throughout the greenway, such as the multigenerational sports park improve physical health and fitness across age groups and abilities. Interaction with nature in passive recreation areas like the proposed native grass prairie, constructed wetland, and rain garden site improves emotional well being. Community gardens serve as gathering spaces and provide food security and access to fresh, nutritious food.

Other locations in the greenway are designed solely to encourage social interaction. These areas include the pocket park on Rosa Parks Boulevard and Calumet which contains seating areas and native planting beds for nearby residents, the traditional park design at Trumbull and Canfield Streets which includes barbeque pits, playground equipment, and a picnic pavilion, and the art park adjacent to the Contemporary Art Institute of Detroit which demonstrates civic pride, expresses the Woodbridge community's identity, and encourages dialogue among residents. The diversity of recreational opportunities and emphasis on ecological design in the Woodbridge greenway has the potential to attract local business and potential homeowners to the neighborhood for the high quality of life the greenway offers.

Many of the ideas expressed by community members are represented in the final greenway design such as leaving a large, vacant parcel, referred to locally as “Central Park,” a natural setting where residents currently walk. The inclusion of a sand volleyball court and community garden plots also came from community feedback and are central aspects of the greenway design. The Woodbridge Neighborhood Greenway Design and Bike Plan is designed specifically for the current and future residents of Woodbridge and surrounding areas of Detroit. It is our hope that they embrace it as their own and use it to take the steps that will one day help to rebuild the City of Detroit as an example of a green, livable city.

The Woodbridge Neighborhood Greenway and Bike Master Plan is the product of scholarly research, community input and the desire to positively impact a community in Detroit through ecologically sensitive design. The design review and guidelines presented in the booklet present the project in a usable format for both the Woodbridge Neighborhood Association and community members to continue the greenway discussion or implement our ideas. This project served as a comprehensive capstone in our education by allowing us to work with an urban community and develop ecological design solutions to common problems in today’s shrinking cities. Through this work we are better equipped as designers both in skill set and ability to interact and learn from the public.

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Appendix I



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Door Parks

Cat/Dog Hospital

Washrooms

Marathon

Car-muffler transmission

Real Estate Developer

Deer's Park

fllea Market

Community - Detroit Publics Library

Animal Hospital

Scripps park - playground

Turnbull - Women begins business district

antibody

closed green

Wood. Pub

2 gas stations

apartment home

strip mall → Waver & John Lane

Blackstar, Sub way, Univ. Midt Foods

- Waver & Ann Arbor corner nice estyway

opportunity

- corner P&W a Waver empty

- Patman to communitelch to Merrick → g.w.

- empty lots common / putman

**Appendix II**

Street Names	Street Width (ft.)	Sidewalk Width (ft.)	# of Driving Lanes	Parking	Easement (ft.)	Street Trees	Tree Species	Notes
Trumbull Avenue (Residential, south of Warren)	52	7; 6 on east side	5: 2 each way; 1 turning lane at major intersections	Both sides of street	East side of street, 5'	Intermittent	None	Connection to Corktown- Mexican Greenlink
Trumbull Avenue (Commercial, north of Warren)	52	8	5: 2 each way; 1 turning lane at major intersections	Both sides of street	None	None	None	Connection to Corktown- Mexican Greenlink
Warren Avenue (East of Trumbull)	31.5	9.5	3	North of boulevard	None	Yes + blvd. trees	Maple and Locust	Connection to Midtown and Wayne State
Warren Avenue (West of Trumbull)	44	8	4: one way	Both sides of street	None	None	None	Connection to Midtown and Wayne State
Grand River Avenue	73	13.5	7: 3 each way; 1 turning lane	Intermittent	None	None	None	Connection to Downtown
Rosa Parks Boulevard	33	5.5	3: one way	No	6.5	Yes, on left side	Locust	Central Location in Neighborhood
Canfield Street	35	6.5	2: 1 each way	East of Trumbull	East of Trumbull, 3'	Yes	Locust	Pedestrian Bridge to Midtown
Merrick Street	27	6	2	Both sides of street	9.5	Intermittent	Maple, Chestnut, Sycamore	Pedestrian Bridge to Midtown

## **Appendix III**

### **Woodbridge Greenway Community Survey and Results by Respondent**

#### **Question 1.) What do you like about your neighborhood?**

Response 1: Great people! I like walking and riding bikes through the hood. I love the architecture.

Response 2: Pheasants. Proximity to New Center/Midtown/Downtown

Response 3: Neighbors, location (proximity to downtown & midtown)

Response 4: I like the new housing, the neighbors, the cleanliness, the quietness, the closeness of the center with the variety of activities

#### **Question 2.) What do you dislike about your neighborhood?**

Response 1: Crime. People who don't maintain their properties. Abandoned buildings and the people who own but don't fix them.

Response 2: Clique-ishness. Lack of openness of "community groups."

Response 3: The sluggish city within which it is located. Antiquated ideas and lack innovation amongst some residents.

Response 4: No shopping mall close by

#### **Question 3.) Do you feel safe?**

Response 1: Yes! But I also don't want my wife walking in the hood by herself at night.

Response 2: Yes.

Response 3: Generally

Response 4: Yes – we have patrolled (woodbridge Estates security patrol) on a regular basis, we had security companies and now we have a partnership with the Wayne State Police and the Detroit Police to patrol and respond quickly.

**Questions 4.) How to you get from place to place within the neighborhood? (Bus, bike,walk, car?)**

Response 1: Bike to Downtown/Midtown/Corktown

Walk within woodbridge to grocery store

Walk to Midtown sometimes in the summer

Drive to work

Drive everywhere in the winter!

Response 2: Bike or Walk

Response 3: bike, walk, car

Response 4: I either walk or drive

**Question 5.) Is it difficult to get to the places you want or need to go?**

Response 1: Nope

Response 2: No

Response 3: No due to lack of traffic

Response 4: No

**Question 6.) What do you like to do for recreation?**

Response 1: Listen to music; going to festivals in the summer; tennis; golf; community development

Response 2: Bike, walk, garden, volleyball, swim

Response 3: Cycling

Response 4: I like to exercise and walk in the neighborhood

**Question 7.) If you had to choose an outdoor activity to participate in what would you do?**

Response 1: No response

Response 2: I ride my bike and walk a lot...It'd be great if we had a neighborhood sand volleyball court

Response 3: walking, cycling

Response 4: I would like to participate in walking or riding a bike

**Question 8.) What is your favorite area of your neighborhood? Why?**

Response 1: No Response

Response 2: What we call "Central Park" along Rosa Parks @ Lysander

Response 3: Avery Street between G.R. and Canfield

Response 4: I love Woodbridge Estates – I love the park, I love to walk around the neighborhood and look at the houses and greenery.

**Question 9.) Would you like to see more or less trees & plants?**

Response 1: No Response

Response 2: More

Response 3: More

Response 4: I love trees and plants however raking the leaves is very challenging for me

**Question 10.) What do you think would be good about a greenway in Woodbridge?**

Response 1: No response

Response 2: It'd help get ppl. out & about more

Response 3: Renewed clean and safe efforts and creating a "spark"

Response 4: Tell me more

**Question 11.) What do you think would be bad about a greenway in Woodbridge?**

Response 1: No Response

Response 2: Nothing. Maintenance necessitates community involvement though.

Response 3: Nothing!!

Response 4: Not sure yet!

## Appendix IV

Scientific Name	Common Name	Height	Color	Bloom Time	Light	Moisture	Value
<b>Herbaceous</b>							
<i>Asclepias incarnata</i>	Swamp Milkweed	3-4'	Pink	June-July	FS-PSh	MW	Attracts Butterflies; supports Bees; Native
<i>Asclepias tuberosa</i>	Butterfly Weed	1.5-2'	Orange, Red, Yellow	May-July	FS-PSh	DM	Attracts Butterflies; Native; Good Fall Color
<i>Aster laevis</i>	Smooth Blue Aster	2-4'	Lavender-Blue	Aug-Oct	FS-PS	DM	Attracts Butterflies; Food for Birds; Native
<i>Baptisia australis</i>	Blue False Indigo	2-4'	Blue	June	FS-PSh	DM	Good Cut Flowers
<i>Coreopsis lanceolata</i>	Lanceleaf Tickseed	1-2.5'	Yellow	April-June	FS-Sh	D	Attracts Butterflies; supports Bees; Native
<i>Dalea purpurea</i>	Purple Prairie Clover	1-3'	Purple	June-aug	FS	DM	Attracts Butterflies; supports Bees; Native
<i>Echinacea purpurea</i>	Purple Coneflower	2-4'	Purple	June-Oct	FS	DMW	Food for Birds & Wildlife; Attracts butterflies; Native; Long Bloom Time
<i>Helenium autumnale</i>	Sneezeweed	2-4'	Yellow	Aug-Oct	FS-PS	MW	Native; Good cut Flowers
<i>Listris spicata</i>	Blazing Star	2-4'	Purple	July-Aug	Fs	DM	Food for Birds and Wildlife; Attracts Butterflies; Native
<i>Rudbeckia fulgida</i> var. <i>sullivanti</i> 'Goldsturm'	Goldsturm Black-eyed Susan	1-1.5'	Yellow	June-Aug	FS-PSh	DM	Food for Birds and Wildlife; Winter Interest
<i>Sedum</i> 'Autumn Joy'	Autumn Joy Sedum	1.5-2.5'	Pink-Russet	July-Sept	FS-PSh	DM	Attracts Butterflies; Supports Bees; Winter interest

Key: Light, FS=Full Sun, PS=Part Sun, PSh=Part Shade, Sh=Shade Moisture, D=Dry, M=Moist, W=Wet

Scientific Name	Common Name	Height	Color	Bloom Time	Light	Moisture	Value
<b>Grasses</b>							
<i>Andropogon gerardii</i>	Big Bluestem	3-9'	Bronze	July	FS-PS	DMW	Wildlife Food and Habitat; Native
<i>Bouteloua curtipendula</i>	Sideoats Grama	2-2.5'	Purplish	July -aug	FS	D	Wildlife Food and Habitat; Attracts Butterflies; Native
<i>Chasmanthium latifolium</i>	Wild Oats	2-5'	Green	Aug-Sept	FS-PSh	DM	Wildlife Food and Habitat; Native; Winter Interest
<i>Panicum virgatum</i>	Switchgrass	3-5'	Pink	June-Aug	FS-PS	DMW	Wildlife Food and Habitat; Native
<i>Schizachyrium scoparium</i>	Little Bluestem	2-3'	Rust	July-Sept	FS-PSh	DM	Food for Birds and Wildlife; Native
<i>Sorghastrum nutans</i>	Indian grass	3-6'	Golden Brown	Aug-Sept	FS	DM	Wildlife Food and Habitat; Attracts Butterflies; Native
<i>Sporobolus heterolepis</i>	Prairie Dropseed	2-3'	Pink and Brown	Aug-Oct	FS	DM	Attractive Foliage; Fragrant; Native

Key: Light, FS=Full Sun, PS=Part Sun, PSh=Part Shade, Sh=Shade Moisture, D=Dry, M=Moist, W=Wet



Scientific Name	Common Name	Height	Color	Bloom Time	Light	Moisture	Value
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**Shrubs**

<i>Cornus stolonifera</i> 'Kelsey'	Kelsey Red Osier Dogwood	3'	White	April-May	FS-PSh	DMW	Wildlife Food and Habitat; Supports Bees; Red stems - Winter Interest; Good fall Color
<i>Fothergilla gardenii</i>	Dwarf Fothergilla	2-3'	White	April-May	FS-Sh	DMW	Supports Bees; Good Fall Color
<i>Ilex verticillata</i> 'Red Sprite'	Red Sprite Winterberry	3'	White	April-May	FS-PSh	MW	Wildlife Food and Habitat; Supports Bees; Red Berries - Winter Interest;
<i>Rhus aromatica</i> 'Gro-lo'	Gro-lo Fragrant Sumac	2'	Yellow	March-April	FS-PSH	D	Wildlife Food and Habitat; Red Berries; Attractive Foliage; Good Fall Color
<i>Viburnum dentatum</i> 'Blue Muffin'	Blue Muffin Arrowwood Viburnum	4'	White	June	FS-PSh	DMW	Wildlife Food and Habitat; Supports Bees; Attractive Foliage; Good Fall Color

**Deciduous Trees**

<i>Aesculus hippocastanum</i>	Horsechestnut	40-60'	White	April-May	FS-PSh	DM	Wildlife Food and Habitat; Attractive Foliage; Street Tree
<i>Amelanchier arborea</i>	Downy Serviceberry	25-40'	White	April-May	FS-PSh	DM	Wildlife Food and Habitat; Supports Bees; Native Flowering Tree; Good Fall Color
<i>Amelanchier canadensis</i>	Shadblow	15-20'	White	April-May	FS-Sh	MW	Wildlife food and habitat; Supports bees; Flowering Tree; Good fall color
<i>Betula Nigra</i>	River Birch	50-75'	Dark Brown	April-May	FS-PSh	MW	Wildlife Food and Habitat; Native; Attractive Bark and Foliage
<i>Cercis canadensis</i>	Redbud	15-25'	Lavender-Purple	April-May	FS-PSh	DM	Wildlife food and habitat; Attractive foliage; Good fall color; Flowering Tree; Native
<i>Ginkgo biloba</i>	Ginkgo	50-75'	Green	April-May	FS-PSh	DM	Attractive foliage; Bird Habitat; Good Fall Color; Street Tree

Scientific Name	Common Name	Height	Color	Bloom Time	Light	Moisture	Value
<i>Gleditsia triacanthos</i>	Honey Locust	50-60'	Yellow-Green	May-June	FS	DM	Wildlife Food and Habitat; Attractive Seed Pods; Street Tree
<i>Liquidambar styraciflua</i>	Sweetgum	50-75'	Green and Yellow	April-May	FS-PSh	DM	Wildlife Food and Habitat; Supports Bees; Good Fall Color; Street Tree
<i>Malus spp.</i>	Flowering Crabapple	15-20'	Pink, Red, White	April-May	FS	D	Wildlife Food and Habitat; Supports Bees; Flowering Tree
<i>Platanus x acerifolia</i>	London Planetree	70-85'	Yellow	April-June	FS	DMW	Wildlife Food and Habitat; Attractive Bark; Attractive Foliage; Street Tree
<i>Quercus alba</i>	White Oak	50-75'	Brown	April-May	FS-PSh	DM	Wildlife Food and Habitat; Native; Good Fall Color; Street Tree
<i>Quercus rubra</i>	Red Oak	50-75'	Yellow-Green	April-May	FS	DM	Wildlife Food and Habitat; Native; Good Fall Color; Street Tree
<i>Tilia cordata</i>	Littleleaf Linden	50-75'	Yellow	June-July	FS-PSh	DM	Wildlife Habitat; Supports Bees; Good Fall Color; Street Tree

#### Evergreen Trees

<i>Juniperus virginiana</i>	Eastern Red Cedar	25'-50'	Green and Yellow	April-May	FS-PSh	D	Wildlife Food and Habitat; Evergreen
<i>Picea glauca</i>	White Spruce	35'-50'	Red and Yellow	April-May	FS-PSh	DMW	Wildlife Food and Habitat; Evergreen
<i>Pinus Strobus</i>	Eastern White Pine	50-75'	Pink and Yellow	April-May	FS-PSh	DM	Wildlife Food and Habitat; Evergreen