Waverly, Iowa Smart Planning Workshop: Policy Options and Project Designs

Photo Credit: Downtown Waverly Market Study Summary

Photo Credit: Downtown Waverly Market Study Summary

Photo Credit: EPA

Photo Credit: FEMA

Photo Credit: FEMA

Photo Credit: FEMA

Waverly, Iowa Smart Planning Workshop: Policy Options and Project Designs

Table of Contents

Executive Summary

The city of Waverly, Iowa is one of several Iowa communities selected by the U.S. Environmental Protection Agency (EPA) and the Federal Emergency Management Agency (FEMA) to receive technical assistance to assist in recovering from flooding that took place in June 2008.

Following the floods, the city's goals were to recover from the floods, create economic opportunity for residents, attract development that provides housing and transportation choices, and achieve a development pattern that will be more resilient to future floods. As the city recovers and rebuilds, it is also in the process of updating its comprehensive plan.

Recognizing the flood recovery efforts and the revision of the city's comprehensive plan as an opportunity to prepare for future challenges, the city asked for assistance in incorporating smart growth techniques into its development and recovery efforts, particularly in its comprehensive plan update. Specific areas of requested assistance included: conducting an audit of the city's policies and development regulations to assess whether they currently integrate smart growth concepts and approaches; outlining green infrastructure strategies that could connect vacant lots in the city as part of a larger green infrastructure strategy; and articulating options for infill and affordable, mixed-income housing strategies.

The project in Waverly was a partnership between the EPA, FEMA, U.S. Department of Agriculture Rural Development (USDA RD), Rebuild Iowa Office (RIO), Iowa Department of Economic Development (IDED), Iowa Northland Region Council of Governments (INRCOG), and the city of Waverly. Representatives from each of the partnering agencies and organizations helped to refine the scope of the project and to plan and implement the Waverly Smart Planning Workshop.

EPA and FEMA assembled a team of national experts in community design and planning to analyze the city's policies and development regulations, interview stakeholders, and develop options for possible green infrastructure and housing policies that the city could consider implementing. The team discussed these policy options with the community at the Waverly Smart Planning Workshop on May 26-27, 2010.

The workshop was intended to help the city develop policies and project designs that it could incorporate into its comprehensive plan. The workshop included a tour of the city, meetings with stakeholders to discuss preliminary policy ideas, a community workshop to present draft policy ideas and project designs, and a closing community open house to gather feedback on refined policy ideas and project designs.

Based on the results of the Waverly Smart Planning Workshop, the team developed this final memo outlining policy options and project design ideas that the city could consider incorporating into the revised comprehensive plan. The policy options and designs are designed to be used by the city of Waverly in the comprehensive plan revision process and may be useful to other partners who have an interest in Waverly's future development. For example, USDA RD may use this memo as a guide for how federal investments in housing and infrastructure could support the city's long-term resiliency and sustainability. The policy options and designs may also be useful to other communities that are interested in incorporating smart growth approaches to development into their policies and regulations and those that are interested in using smart growth approaches to recover following natural disasters, such as flooding.

Section 1 of this memo describes several options the city can consider in the process of revising its comprehensive plan and development regulations, in order to incorporate smart growth techniques into future development and flood recovery efforts. These options include the following:

- Develop a community vision that will identify the community's desired future for Waverly.
- Replace the Future Land Use Map with a Growth Sector Plan that will outline specific areas within the city for future growth.

Section 2 of this memo describes green infrastructure policy options that the city could pursue in order to manage stormwater, conserve important land, and enhance resiliency to future flooding events. These options include the following:

- Develop a comprehensive open space network as part of the city's park and open space planning efforts.
- Conserve important rural land and open space at the edge of town.
- Identify and enhance important entrances to the city.
- Foster a network of connected streets throughout the city that accommodate multiple users.
- Establish community gardens.
- Implement innovative stormwater management techniques.

Section 3 of this memo describes housing and infill policy options that the city could pursue in order to ensure that its residents have access to affordable housing choices that are close to destinations such as jobs, schools, and other amenities and that future development builds on and enhances Waverly's existing development. These options include the following:

- Provide a mix of housing types.
- Ensure that all housing is accessible.
- Permit the construction of Accessory Dwelling Units.
- Designate a historic district and community character design standards within the city.

Section 4 of this memo describes several project areas in the city where many of the policy options could be implemented. These project areas include:

- Dry Run Creek Open Space Network.
- New Middle School Development Site.
- 10th Avenue SW Corridor Extension.

Introduction

The city of Waverly, Iowa (population 8,968), is one of several Iowa communities selected by the U.S. Environmental Protection Agency (EPA) and the Federal Emergency Management Agency (FEMA) to receive technical assistance to assist in recovering from flooding that took place in June 2008.

Following the floods, the city's goals were to recover from the floods, create economic opportunity for residents, attract development that provides housing and transportation choices, and achieve a development pattern that will be more resilient to future floods. As the city recovers and rebuilds, it is also in the process of updating its comprehensive plan.

Recognizing the flood recovery efforts and the revision of the city's comprehensive plan as an opportunity to prepare for future challenges, the city asked for assistance in incorporating smart growth techniques into its development and recovery efforts, particularly in its comprehensive plan update. Specific areas of requested assistance included: conducting an audit of the city's policies and development regulations to assess whether they currently integrate smart growth concepts and approaches; outlining green infrastructure strategies that could connect vacant lots in the city as part of a larger green infrastructure strategy; and articulating options for infill and affordable, mixed-income housing strategies.

The project in Waverly was a partnership between the EPA, FEMA, U.S. Department of Agriculture Rural Development (USDA RD), Rebuild Iowa Office (RIO), Iowa Department of Economic Development (IDED), Iowa Northland Region Council of Governments (INRCOG), and the city of Waverly. Representatives from each of the partnering agencies and organizations helped to refine the scope of the project and to plan and implement the Waverly Smart Planning Workshop.

This memorandum presents a summary of policy options for the city of Waverly, Iowa, based upon a review of the current comprehensive plan (approved in 2005), local development regulations, and input from the Waverly Smart Planning Workshop held May 26-27, 2010. The analysis identifies several areas where updating and coordinating city plans, codes, guidelines, and programs could better position Waverly for public and private investment and redevelopment.

These options were developed through stakeholder interviews in early May, as well as the Waverly Smart Planning Workshop held later that month. The two-day workshop involved several presentations to stakeholders and the community, a tour of the area, stakeholder break-out sessions to discuss preliminary policy ideas, and a closing community open house to gather feedback. A team comprised of representatives from EPA, FEMA, USDA, the Rebuild Iowa Office (RIO), the Iowa Department of Economic Development (IDED), the city of Waverly, and Dover, Kohl & Partners developed and refined policy options and strategies throughout the workshop. FEMA consultants produced drawings that illustrate the options and much of the accompanying text found in the Section 4 of this document.

Figure 1 - Stakeholder break-out sessions on May 26
Credit: EPA

Figure 2 - Community open house held on May 27
Credit: FEMA

The options discussed in this memo are meant to give the city tools and techniques to encourage new development and redevelopment within the city that is consistent with the city's goals for long-term economic and environmental sustainability. These options consider ongoing recovery from flooding that occurred in 2008 and an upcoming initiative to update the city's comprehensive plan. Section 1 of this memo describes some general observations and options for the comprehensive plan update. Sections 2 and 3 focus on green infrastructure and housing policy options, respectively. Section 4 displays project drawings produced during the workshop that demonstrate concept plans for how these options might be implemented in study areas around Waverly.

The policy options presented in this memo are based on the workshop and stakeholder discussions. They are also grounded in the basic principles of smart growth.[1] Smart growth development revitalizes neighborhoods, uses resources efficiently, protects farmland and open space, keeps housing affordable, and provides more transportation choices. It is development that is good for the economy, the community, public health, and the environment.

Smart Growth Principles

1. Mix land uses.
2. Take advantage of compact building design.
3. Create a range of housing opportunities and choices.
4. Create walkable neighborhoods.
5. Foster distinctive, attractive communities with a strong sense of place.
6. Preserve open space, farmland, natural beauty, and critical environmental areas.
7. Strengthen and direct development towards existing communities.
8. Provide a variety of transportation choices.
9. Make development decisions predictable, fair, and cost effective.
10. Encourage community and stakeholder collaboration in development decisions.

[1] Smart Growth Network. About Smart Growth, http://www.smartgrowth.org/about/default.asp. Accessed October 5, 2010.

The state of Iowa recently passed legislation to support smart planning at the state level. These statewide smart planning principles also informed the options in this report.[2]

Iowa Smart Planning Principles

1. Collaboration.
2. Efficiency, transparency, consistency.
3. Clean, renewable, and efficient energy.
4. Occupation diversity.
5. Revitalization.
6. Housing diversity.
7. Community character.
8. Natural resources and agricultural protection.
9. Sustainable design.
10. Transportation diversity.

[2] 2010 Senate File 2389 (SF2389), Division VII, Section 17, http://coolice.legis.state.ia.us/Cool-ICE/default.asp?Category=billinfo&Service=Billbook&menu=false&hbill=SF2389. Accessed October 5, 2010.

Section 1: Options for Waverly's Comprehensive Plan and Regulations

Waverly has a wealth of features unparalleled by most communities of its size. The Cedar River offers recreational possibilities and a natural area in the heart of town. Wartburg College and the many businesses in the city are tremendous assets. The historic "main street" and the many tree-lined residential streets contribute to Waverly's small-town character. The options discussed in this document are meant to enhance these features.

Some of the options for updating Waverly's comprehensive plan and regulations that are discussed in this section include the following:

- Developing a community vision that will identify the community's desired future for Waverly.
- Replacing the Future Land Use Map with a Growth Sector Plan that will outline specific areas within the city for future growth.

Figure 3 - Wartburg College
Credit: Dover, Kohl & Partners

Figure 4 - Tree-lined streets in Waverly
Credit: Dover, Kohl & Partners

As the city prepares to update its comprehensive plan, a great opportunity exists to guide new development and growth in such a way that it improves the community and advances goals to strengthen the sense of place and retain the community's small-town character. The city also has the opportunity to engage citizens in decisions about growth by educating them about the options and drawing from their collective vision for Waverly's future.

The Waverly comprehensive plan was developed with public input and reflects Waverly residents' desires. The plan focuses on improving the city's sense of place and preserving open space and environmentally sensitive lands. The goals outlined in the comprehensive plan include the following:

1. The City of Waverly will maintain and improve, whenever possible, the quality of life or sense of place that the residents of the community value and enjoy.
2. The City of Waverly shall protect, preserve, and/or restore environmentally sensitive or natural features in the community, whenever possible.
3. The City of Waverly shall work to provide quality public works infrastructure and service to its residents.
4. The City of Waverly shall work to provide quality public services and offer efficient community facilities to its residents.
5. The City of Waverly shall maximize the opportunity for a wide range of residential opportunities for existing and new residents of the community.

6. The City of Waverly shall provide opportunities for commercial development that meets projected or expected needs while offering safe, attractive, sound design, and convenient locations.
7. The City of Waverly shall provide opportunities for industrial development that meets projected or expected needs that are safe, environmentally sensitive, and attractive locations.
8. The City of Waverly shall work collaboratively and communicate effectively with other levels of government and agencies in order to benefit its residents as well as those in the region.
9. The City of Waverly shall work collaboratively and communicate effectively with entities that have large impacts on land use in the community (i.e. major employers, non-profit entities, and agencies).
10. The City of Waverly shall develop, adopt, implement, and update a Comprehensive Land Use Plan for the community.
11. The City of Waverly recognizes that land use planning is a continuous process.[3]

Overall, the comprehensive plan's eleven goals focus on developing a higher quality of life for residents. However, some of the supporting objectives could inadvertently hinder the city's ability to fulfill its goals.

For example, Goal #1, regarding quality of life and sense of place, includes an objective to develop an efficient transportation system that allows for timely flow of traffic. This sounds reasonable, but objectives like this usually translate to adopting level-of-service standards, where streets are rated from A to F based on the level of traffic congestion. An A-level street has no traffic congestion, and an F-designated street is considered most congested and unsatisfactory. With a goal of timely traffic flow, communities obviously try for an A, B, or C designation. However, streets with those higher designations are less comfortable and safe for pedestrians and cyclists because the only objective is to move vehicles quickly. In this respect, using level of service to determine street design directly conflicts with objectives of Goal #3, which address residents' desire for safer and more appealing walking, biking, and other alternative transportation choices. In order to achieve both Goal #1 and Goal #3, the city could identify street types based on their intended character and whether they are safe and convenient for pedestrians and cyclists to use. By doing so, the city could enhance transportation choices, save its residents' money, and provide better environmental outcomes.

Other land use-related goals of the comprehensive plan, such as Goal #5 (residential opportunities), Goal #6 (commercial development), and Goal #7 (industrial development), lack specific policies to meet the outlined objectives, therefore deferring control to the city's Future Land Use Map, which in turn defers to the zoning ordinance for those land uses. The zoning ordinance offers little guidance about the intended form, character, and functions of those zones and does not connect to the plan goals. As one of the few visual pieces of the document that governs development in the city, the Future Land Use Map cannot guarantee results. In order to ensure that the goals are achieved, the city could instead implement a Growth Sector Plan and could implement appropriate development regulations and policies to support the implementation of the plan. The details of a Growth Sector Plan are described on the following page.

Under the section of the comprehensive plan that deals with future growth and development, agricultural uses are not protected or preserved within the city limits. Given the importance of agricultural uses to the region's economy, the city could partner more closely with the county to

[3] City of Waverly. Waverly, Iowa Comprehensive Land Use Plan Update, http://city.waverlyia.com/docs/Waverly%20Comprehensive%20Plan%202005.pdf. Accessed October 5, 2010.

preserve the region's agricultural heritage. In future revisions to the comprehensive plan, the city could consider several strategies to preserve Waverly's working landscape beyond its borders, particularly at its primary entrances. These strategies could include use value taxation, value-added farm and forest products processing, agritourism, and direct marketing of agricultural products to consumers.[4]

Waverly's subdivision ordinance is a crucial development regulation that has strong influence over the character and nature of the city's future expansion. Current requirements in the ordinance that link the subdivision of land to the comprehensive plan and major street plan are instrumental in ensuring that growth is consistent with the overall vision.[5]

Much of the subdivision ordinance deals with streets, and there are many opportunities to change these street standards to create streets that are safe and attractive for pedestrians and bicyclists as well as drivers. Streets that are well-connected allow multiple users, including pedestrians, bicyclists, and drivers to safely and conveniently travel to their destinations. Much of downtown Waverly has an existing gridded street system that is well-connected, but some development in other parts of the city contains streets that are not as well connected. In addition, many streets within Waverly are fairly wide and do not have designated space for pedestrians or bicyclists to use the streets. The subdivision ordinance's street standards could be changed to increase street connectivity and to designate space for pedestrians and bicyclists. Changes to the street standards could include narrowing or removing traffic lanes, reducing minimum widths of street rights-of-way and curb-to-curb dimensions, reducing block dimensions, and permitting cul-de-sacs only in certain situations. Where street connectivity is not possible, the city could require the use of small green spaces around which to wrap roadways and building lots, often called a close (*figure 5).* All of these changes can be made without increasing traffic congestion.

Figure 5 - Example of a close surrounded by single-family homes
Credit: The Cottage Company

Drainage requirements in the subdivision ordinance could consider a greater range of options in order to enhance their ability to manage stormwater effectively. Innovative stormwater management techniques, such as those outlined in Section 2 of this document, could be permitted as alternatives to simply requiring all surface water to be directed towards storm sewers and natural watercourses.

[4] More information about strategies to protect Waverly's working landscape can be found in: "Putting Smart Growth to Work in Rural Communities," http://www.epa.gov/dced/sg_rural.htm. Accessed October 5, 2010.
[5] City of Waverly. Subdivision Ordinance, http://agendas.waverlyia.com/documents/public/city%20code/Subdivisions/SUBDIVIS.doc. Accessed October 8, 2010.

Developing a Community Vision

The volume of feedback from community members and stakeholders during the Waverly Smart Planning Workshop shows the importance of updating the comprehensive plan through community engagement and an open and public process. This process would focus on creating a community vision for the future of Waverly. Planning efforts in the past have been drawn out over too long a span of time and may become obsolete before implementation, due to ever-changing conditions. The community would like this process to happen in a short period of time to take advantage of momentum created through community involvement, and also to ensure the final plan accurately reflects current conditions.

In the process of developing a community vision, the city could undertake an intensive week-long public charrette process, where community members engage in dialogue about future growth in the city, with the intention of adopting a completed new comprehensive plan within six to eight months. A charrette process would quickly dive into development of the plan, while simultaneously gathering meaningful community input and bringing all stakeholders to the table at once. In many communities throughout the country, charrettes have proven to be effective at building consensus and creating a successful planning tool in a relatively short timeframe.

Implementing a Growth Sector Plan

A Growth Sector Plan, a document that outlines future areas for targeted growth, could replace the Future Land Use Map in the next iteration of the comprehensive plan, could serve as the foundation for all other regulatory plans and documents, and could make development decisions more fair and predictable. Unlike a Future Land Use Map, a Growth Sector Plan for Waverly would prioritize growth within the city, using the neighborhood as the organizing principle for future development. This instrument could be developed through the visioning process and would embody the collective vision for the city's future growth. Through intensive community input and consensus, sectors for new growth, as well as infill development, could be identified and mapped. The Growth Sector Plan is organized primarily by neighborhoods and on a hierarchy of roadways, with the intent of creating compact neighborhoods and places as opposed to development that extends linearly along roadways. Neighborhoods within the plan would reinforce and build upon existing nodes of development and would identify preferred areas for future growth where new neighborhoods might be created.

On the following page is a Growth Sector Plan *(figure 6)* that was recently created for the comprehensive plan of a community that is similar in size to Waverly, the city of Hammond, Louisiana. The Growth Sector Plan serves as the basis for all other regulatory maps and documents within the framework of the comprehensive plan. It identifies areas for future infill, new development, and redevelopment, while also outlining which areas should be preserved and left undeveloped.

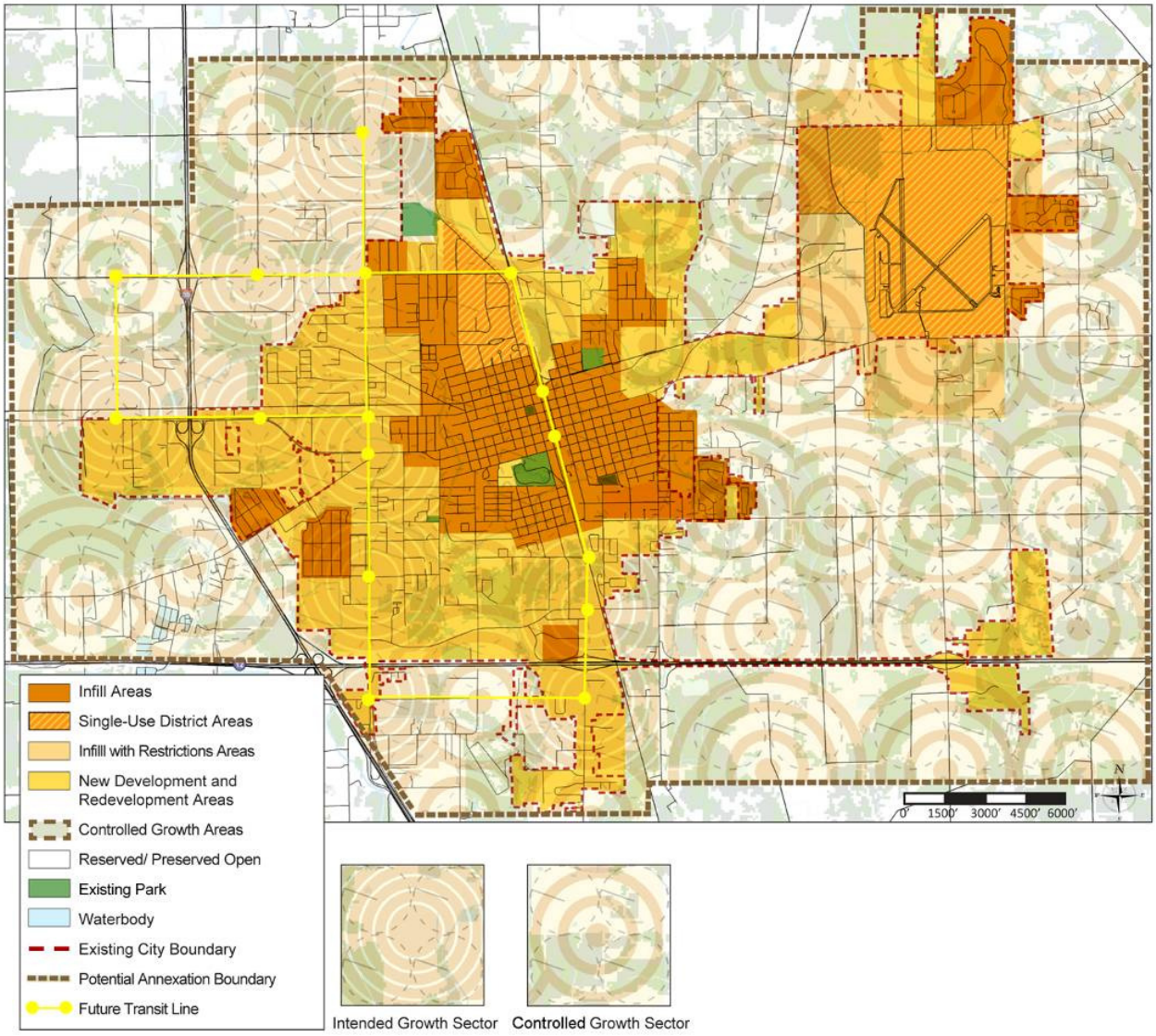


Figure 6 - Example Growth Sector Plan from Hammond, Louisiana
Credit: Dover, Kohl & Partners

The maps on the following pages were created for Waverly during the workshop and are examples of the types of maps that would inform a Growth Sector Plan. The first is a general Community Analysis Map *(figure 7)*, which overlays key features such as floodplains, major roadways, schools, existing natural features, and trails in the city. The second is a City of Neighborhoods Map *(figure 8)* that provides a preliminary identification of existing, emerging, and potential future neighborhood units, based on the Community Analysis Map.

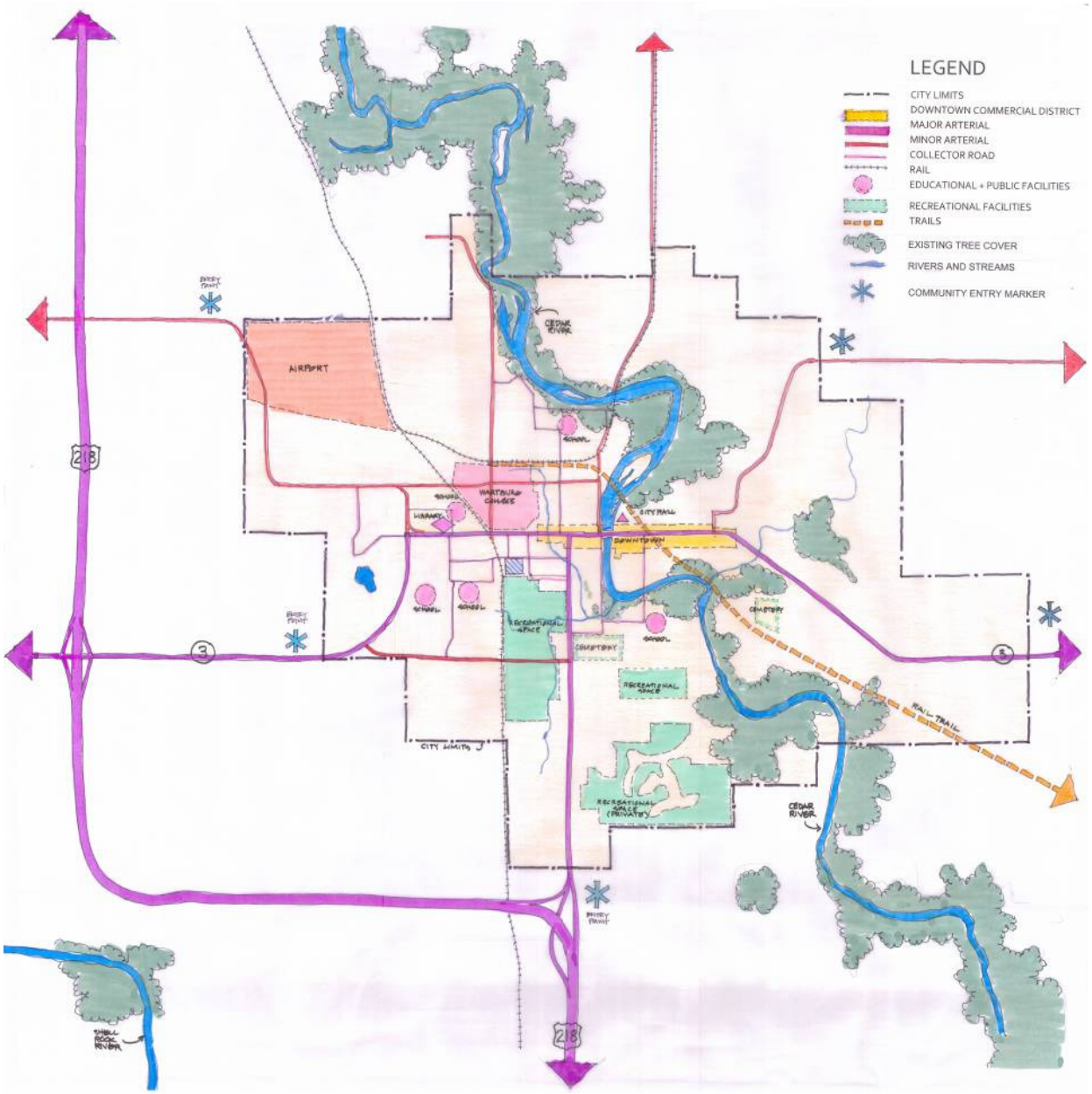


Figure 7 - Waverly Community Analysis Map
Credit: FEMA

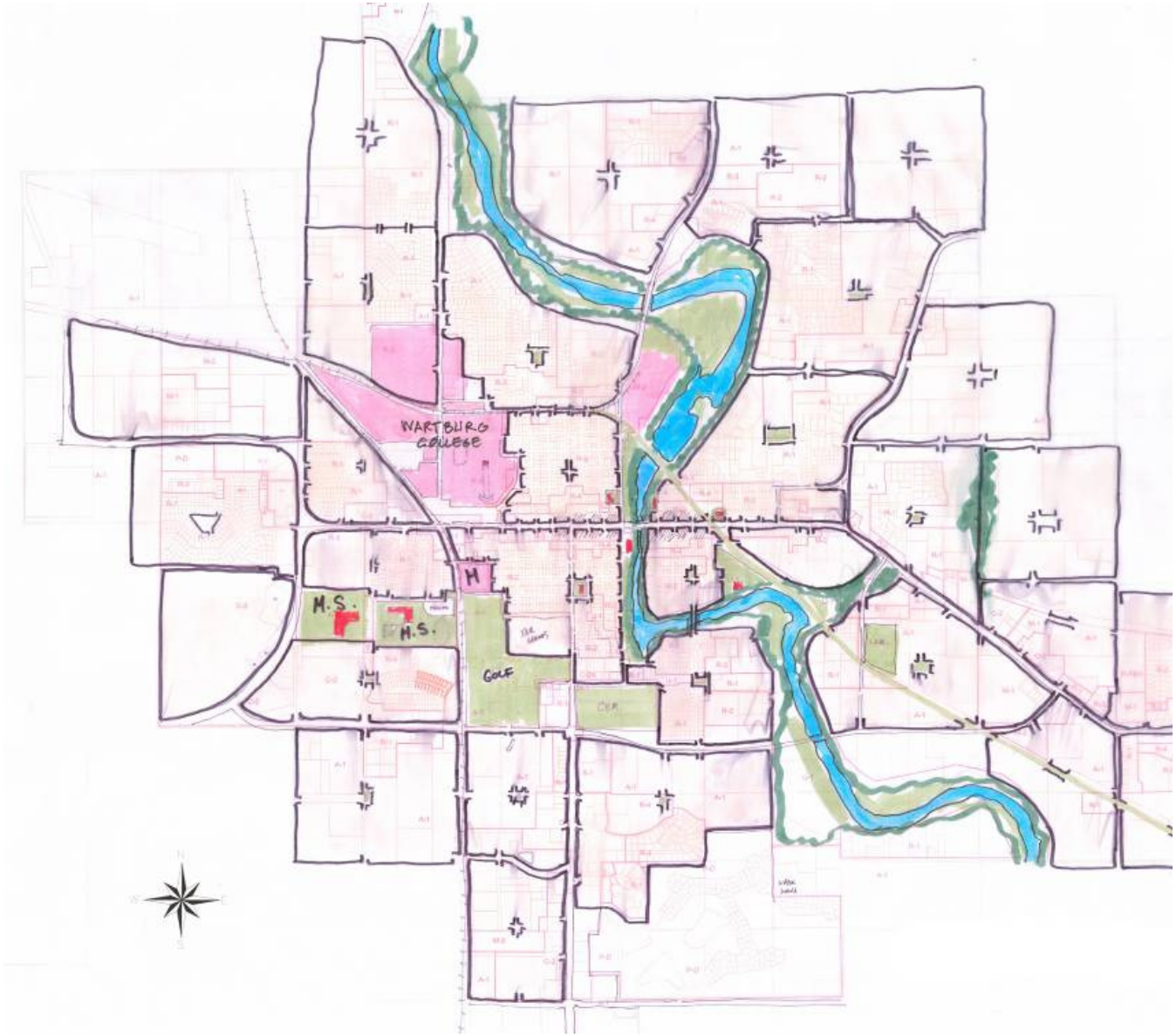


Figure 8 - Waverly City of Neighborhoods Map
Credit: FEMA

Section 2: Green Infrastructure Policy Options

Development patterns and practices over the last half-century have limited our waterways' ability to handle natural fluctuations in volume, exacerbating flooding in built areas. Green infrastructure is a strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserve ecosystem values and functions and provide benefits to human populations, such as cleaner air and water, increased recreational and transportation options, improved health, and better connection to nature and sense of place. While green infrastructure planning occurs at a broad landscape scale, elements of the over-arching network can be found at all scales, from statewide, to the county, city, and parcel/site scales. Strengthening green infrastructure in Waverly would help mitigate some of the effects of flooding and other waterway impairment, while protecting the city's rural character and environmental sustainability.

Several green infrastructure options could be incorporated into the city's comprehensive plan and development regulations. These options range from large-scale land conservation to site-specific approaches such as rain barrels and pervious pavers. The options discussed in this section include the following:

- Developing a comprehensive open space network as part of the city's park and open space planning efforts.
- Conserving important rural land and open space at the edge of town.
- Identifying and enhancing important entrances to the city.
- Fostering a network of connected streets throughout the city that accommodate multiple users.
- Establishing community gardens.
- Implementing innovative stormwater management techniques.

Developing a Comprehensive Open Space Network

As the city begins its park and open space planning, coordination with the comprehensive plan updates is vital. If the city plans to undertake a public process to create the new comprehensive plan, it could work simultaneously on a complementary Open Space Master Plan. While stakeholders expressed excitement for the possible uses of vacant buyout parcels in town, many also were concerned that the piecemeal assembly of properties may not meet the city's objectives of developing a connected network of natural lands and trails. An Open Space Master Plan could record the community's vision for its newly acquired open spaces and organize a citywide framework for how these spaces connect to one another.

In order to connect the city's green spaces, it should ensure that the city's green resources include a wide range of open spaces, ranging from downtown parks to surrounding agricultural and other natural lands. The city could establish an Open Space Master Plan that identifies design standards and ideal locations for spaces such as hardscaped plazas, town squares, neighborhood greens, city parks, greenways and trails, farmland and arable land, and natural areas such as forests, prairies, and marshes. An Open Space Master Plan would identify existing and proposed open spaces and would seek to form a seamless and interconnected system. Including the full spectrum of open space types would create multiple benefits, including recreational space, habitat corridors, food production, carbon sequestration, and stormwater recharge. The city has already begun to acquire properties susceptible to flooding. These parcels are stepping stones to what could be a contiguous greenway system in the future. The city could establish a fund for new acquisitions and direct it toward gaps that would connect these properties, which roughly follow Dry Run Creek and other tributaries to the

Cedar River. This greenway network would be an amenity to those living and working in town and would protect and restore a natural flow-way.

Tree-lined streets and trail systems can also be part of the Open Space Master Plan. Trees mitigate the urban heat island effect[6] and provide habitat for native wildlife. Trees also provide ecological services, including absorbing rainwater, controlling erosion and sediment, and removing pollutants. Streets, in addition to off-road multi-use trails, can increase mobility options without increasing pollution by making it easier to walk or bike to destinations. New trails could connect with existing networks. Community members wanted better signs installed as the network expands. Posted trail maps will show residents and visitors the system's extent.

A large part of the Open Space Master Plan for Waverly will include decisions about the character of different open spaces and how they should be used. Disconnected buyout parcels may be best suited for leasing to adjacent property owners, while parcels along Dry Run Creek could become part of a continuous greenway, as illustrated during the workshop. The project drawings Section 4 of this report *(figures 43 and 44)* illustrate the potential use for some of the vacant lots around the creek and highlight connectivity between them.

The map on the following page *(figure 9)*, taken from Hammond, Louisiana's recent comprehensive plan, describes the planned citywide open space network, as well as an envisioned network of trails and pedestrian connections, including those along roadways in the downtown. Waverly could develop a similar plan in concert with a Growth Sector Plan to inform decisions about where the city should direct growth and where it should preserve land.

The Greenway and Trails Network Map *(figure 10)* created for Waverly during the workshop is a conceptual review of existing and potential networks and open spaces. The inclusion of various civic and community amenities helps identify key connections. This conceptual map, which focuses on existing and potential greenways and trails, could serve as the basis for a more comprehensive open space network within the city.

Conserving Important Rural Land and Open Space at the Edge of Town

Based on the workshop, pre-workshop stakeholder interviews, and a review of the current comprehensive plan, the team realized that preserving the small-town character of Waverly is a top priority for residents. The community recognizes the value of its rural edge, which many other similar towns and cities have already lost through unchecked expansion. Limiting growth at the edges and maintaining a healthy balance between town and countryside is key to maintaining the rural sense of place in Waverly. A large part of this strategy is to protect open space at the edges of town as natural and working (i.e., agricultural) landscapes.

In addition to connecting open space networks in developed areas of the city, Waverly would also benefit from permanently dedicating rural and open space at its edges. While keeping the city compact helps to reduce development pressure on farmland and natural areas, it is equally important to keep the boundary between "town" and "countryside" distinct. Spreading development further into outlying areas can increase the costs of building and maintaining new infrastructure and can result in

[6] The term heat island effect describes the tendency for developed/built up areas to be warmer than nearby undeveloped areas. The heat island effect can increase summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and can affect water quality. (Definition from: Environmental Protection Agency. Heat Island Effect, http://www.epa.gov/heatisld/. Accessed October 7, 2010.)

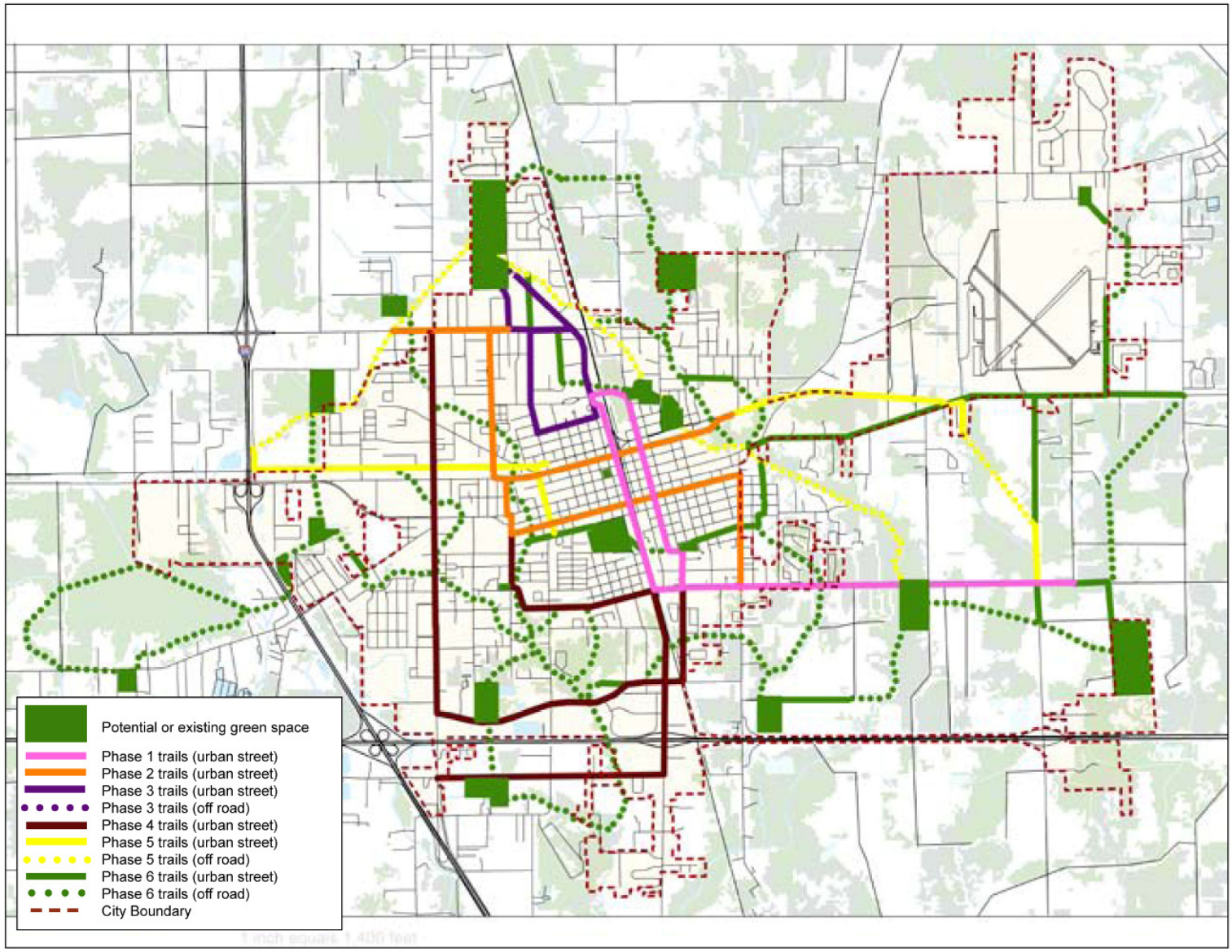


Figure 9 - Example Open Space Master Plan from Hammond, Louisiana
Credit: Dover, Kohl & Partners

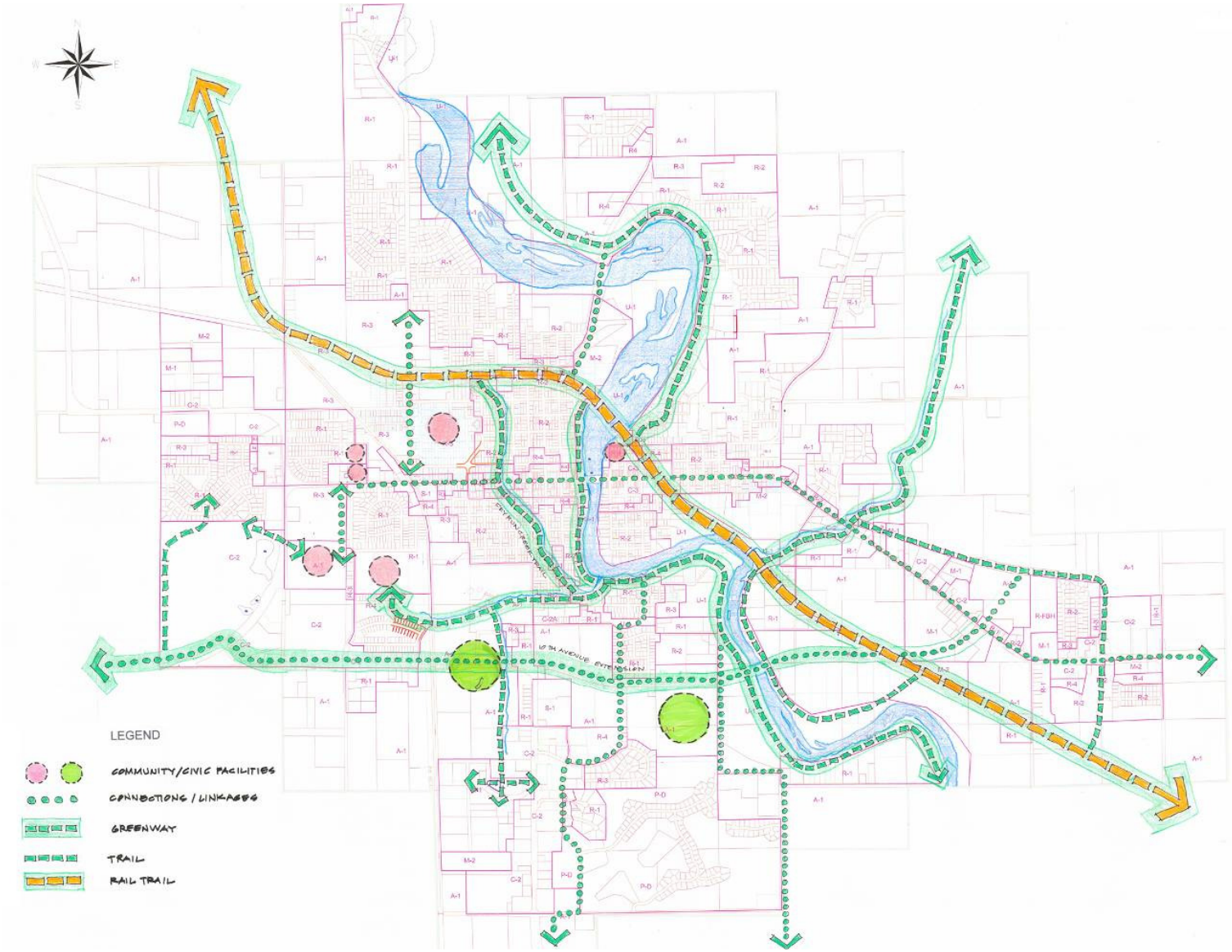


Figure 10 - Waverly Greenway and Trails Network Map
Credit: FEMA

environmental impacts such as reduced water quality, air quality, and wildlife habitat. Conserving important rural land and open space at the edges of town will not only preserve the ecosystem services and environmental benefits that these lands provide but will also help concentrate development in places that already have existing infrastructure, saving taxpayer money and achieving better environmental outcomes.

A permanently protected greenbelt – a ring of protected land around the developed area of the city – not only ensures contiguous areas that can be used for native habitat restoration but can also make it possible to cultivate crops close to the city. The current size of the city makes it possible for many residents to walk or bicycle to the countryside. The ability to reach unbuilt countryside is increasingly rare in this country, and as growth occurs, if the city moves outward, it will become increasingly difficult for Waverly's residents to experience this. Waverly has an opportunity, which will never be repeated, to secure a greenbelt while much of the city and surrounding land is still undeveloped. A greenbelt would enhance Waverly's rural character while enhancing walking and bicycling opportunities that are important to residents. The types of land the city could secure for a greenbelt include, but are not limited to, floodplains and lands adjacent to floodplains, areas containing prime soils and pastureland, lands containing native trees and prairie grasses, and areas of scenic beauty. The location of these lands is also important – land should be protected so that a ring of protected land surrounds the city. This greenbelt could connect with larger, regional networks beyond Waverly's limits. It is possible that a greenbelt would need to be located on both city and county lands, so cooperation between both governments would be necessary to secure a greenbelt of usable size and appropriate location. At the same time that they city and county are prioritizing land to include in a greenbelt, the city should also make every effort to direct growth toward already developed and centrally-located parcels, in order to make protecting land at the fringe easier.

The city could employ a number of methods to assemble permanent open space at its borders. Some properties, such as those currently in a more natural state, may be prime candidates for purchase and management directly by the city or county. Other parcels, which are currently used for agriculture, could remain as such through conservation easements. Tax deductions and property tax abatements would provide incentives to property owners to dedicate the easements.[7] The city could develop a list of priority parcels for preservation and work closely with these land owners to decide which methods are best to achieve the long-term goal.

Figure 11 - Agricultural lands on the outskirts of Waverly
Credit: Dover, Kohl & Partners

[7] More information on tax deductions, property tax abatements, and other strategies to assemble open space can be found in: "Putting Smart Growth to Work in Rural Communities," http://www.epa.gov/dced/sg_rural.htm. Accessed October 5, 2010.

Identifying and Enhancing Important Community Entrances

In addition to maintaining long views through the preservation of rural lands at the edges of town, as described above, Waverly citizens expressed interest in further enhancing the landscaping and roadway treatment of areas adjacent to primary entry points to the city. These enhancements not only beautify these entrances for visitors, but reinforce the sense of place in Waverly. Stakeholders identified locations along the city's boundary at key entrances, such as at 4th Street to the south and at Route 3 to the east and west, as priorities for protection and enhancement.

Trees clearly delineate the edges of the historic grid of Waverly as one enters from all directions. New locations marking the entrances to the city farther out should also use trees to delineate the "threshold" of the municipality. Stakeholders suggested that funding from the Trees Forever program could be used to pay for the plantings.[8]

Figure 12 - Example of a landscaped community entrance
Credit: Dover, Kohl & Partners

Fostering a Network of Complete Streets

The streets of Waverly could be thought of as integral parts of the city's green infrastructure network. The network of roads in the city could connect closely with the Open Space Master Plan, as well as with the Growth Sector Plan. More than any other feature, streets define a community's character. City streets could be designed to calm automobile traffic while making pedestrians and cyclists safe and comfortable.

An interconnected network of streets offers motorists, pedestrians, and cyclists a variety of options to get from one destination to the next. Generally, having more streets per square mile results in an open network, allowing greater mobility and less dependence on larger collector roads. Complete streets are walkable, accessible to all, interesting, comfortable, safe, and memorable. While streets are most effective when they are designed to accommodate multiple modes of travel, they are also signature public spaces. In order to ensure a network of complete, connected streets, the city could require all new development to include an interconnected street grid similar to the street grid in Waverly's downtown core. The city could also prohibit cul-de-sacs, which reduce street connectivity. In order to ensure connected, safe streets, policies could also further limit the width of streets, require maximum

[8] Trees Forever. Home Page, http://www.treesforever.org/Default.aspx. Accessed October 7, 2010.

block sizes, and consider the design of the entire right-of-way when constructing new roadways. The subdivision regulations could be updated to require the construction of continuous sidewalks along all new roadways concurrent with road construction, rather than awaiting the development of adjacent parcels.

While certain physical barriers, such as the river and railroad tracks, limit connectivity, other disconnected portions of the city's street network could be connected through new neighborhood streets and future development. A complete and connected street network could promote infill development and simultaneously improve pedestrian and cyclist opportunities.

Waverly stakeholders expressed great interest in cycling for recreational and commuter uses, and the city has been aggressively trying to expand its network of trails. The city could make it a policy to accommodate bicycles in different ways, depending on the street type, in all new street improvement projects. Currently, the city focuses on the creation of parallel trails, separate from roadways. Designated bicycle lanes, which are part of the curb-to-curb pavement but striped separately from cars, and sharrows *(figure 14)*, in which cars and bicycles share the same travel lane, are both additional strategies that would complement Waverly's separate off-road trail system. Both of these types are dependent on slower vehicle traffic and may not be appropriate in all locations.

Figure 13 - The Waverly Rail Trail
Credit: Dover, Kohl & Partners

Figure 14 - Example of a sharrow
Credit: StreetsWiki

Establishing Community Gardens

The floodplain and other lands that are to remain undeveloped, such as those parcels of land that the city purchased after the floods, are ideally suited for community gardens. Such areas, could be managed as allotment gardens (in which residents lease individual plots for their own consumption) or for Community Supported Agriculture (CSA, in which residents subscribe to a weekly supply of produce cultivated by a farmer). Community gardens can enhance the community; increase access to local, seasonal produce; help reduce greenhouse gas emissions caused by the long-range transport of food; and and strengthen the local economy. In-town agriculture, when located in particularly flood-prone areas, could be part of the city's comprehensive approach to flood mitigation and can help give new purpose to land that is no longer suitable for development.

Stakeholders were quite interested in the prospect of new community gardens in town, particularly on those buyout parcels that are not otherwise suited to be leased or that are susceptible to frequent flooding. While there was a desire to keep participation in the gardens affordable, some community members felt that it was important to charge a minimal fee to lease a plot every season. In addition to individual citizens being involved with the gardens, the hospital, local elementary school students, churches, senior communities, and other local businesses or civic organizations could be involved. Events and gatherings focused around community gardens could also increase interest in gardening

and strengthen neighborhood bonds. The community gardens could work in cooperation with the existing Waverly Farmers' Market or create a new produce market.

To begin the process of establishing community gardens in Waverly, programs such as AmeriCorps VISTA,[9] the Iowa Department of Economic Development (IDED),[10] and the Green Corps[11,12] could offer services to establish and manage new community gardens.

Figures 15 & 16 - Examples of community gardens
Credit: Dover, Kohl & Partners

Preliminary drawings produced during the workshop identified potential locations for future community gardens in Waverly.

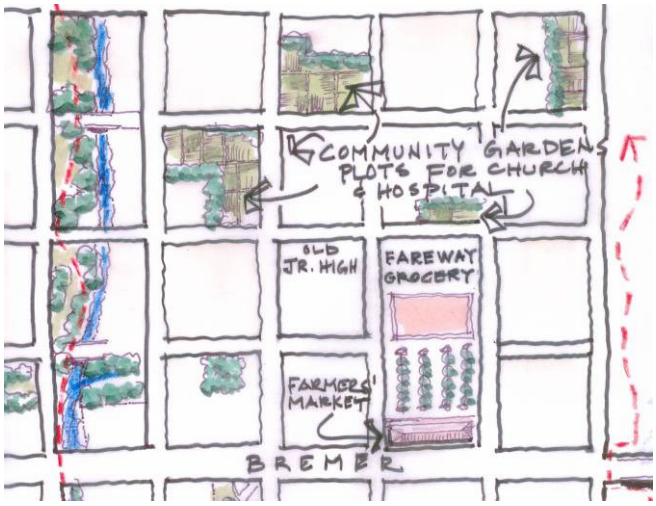


Figure 17 - Detail of the Dry Run Creek Open Space Network Concept Plan, showing potential locations for community gardens; cross-streets on this figure are W. Bremer Avenue on the south and 1st Street NW on the east
Credit: FEMA

Implementing Innovative Stormwater Management Techniques

Integrating stormwater management practices into new private development and municipal projects can reduce or eliminate many of the problems associated with uncontrolled rainwater runoff. Using green infrastructure at the site level to manage stormwater can filter and clean runoff before it reaches groundwater, which helps to protect drinking water supplies, and can hold rainwater for

[9] AmeriCorps. AmeriCorps VISTA, http://www.americorps.gov/about/programs/vista.asp. Accessed October 7, 2010.
[10] Iowa Department of Economic Development, http://www.iowalifechanging.com/. Accessed October 7, 2010.
[11] Green Corps, http://www.greencorps.org/. Accessed October 7, 2010
[12] Green Iowa AmeriCorps, http://greeniowaamericorps.com/. Accessed October 8, 2010.

longer periods, which helps landscaped areas survive extended droughts. Stormwater management systems that mimic natural processes can be designed to be attractive amenities to the community and can be used as educational tools to help residents learn about the benefits of green infrastructure. These measures, when implemented in small increments over large areas, may help make future flood events less severe by absorbing some of the water. Stakeholders in the workshop seemed to unanimously support exploring new techniques for handling stormwater and saw many opportunities to do so. Several stakeholders noted that most new construction in Waverly is accompanied by parking lots with no landscaping or trees, let alone accommodations for on-site stormwater management.

Many stormwater management techniques can perform double duty, neatly fitting into civic spaces and providing amenities for residents. Different stormwater management practices will be appropriate for different contexts, depending on the surrounding environment, the land use, and other factors. The city's zoning ordinance could designate which stormwater management practices are appropriate for specific zones, thus integrating stormwater management techniques directly with intended development patterns and street design. The natural environmental conditions should also inform site-specific design. Providing a connected network of stormwater management elements can serve several purposes, including providing attractive landscape design and recreation space, strengthening a neighborhood's sense of place, and improving drainage. Providing water management elements as prominent landscape features provides visible connections between the natural and the built environments. Including stormwater management practices that harvest rainwater for irrigation or other non-potable water uses can provide additional benefit to area residents.

Examples of features that can be part of a holistic stormwater management approach include:[13]

- Bioswales;
- Rainwater planters;
- Recessed greens;
- Roof gardens;
- Rain barrels;
- Cisterns and underground water storage vaults;
- Pervious paving surfaces; and
- Rain gardens.

[13] More information on stormwater management techniques, including more detailed descriptions of many of these techniques, can be found at:

- EPA Smart Growth. Project Summaries: Sanitation District No. 1, Northern Kentucky, http://www.epa.gov/smartgrowth/sgia_communities.htm#ky. Accessed October 7, 2010.
- EPA Smart Growth. EPA-NOAA Smart Growth Implementation Assistance for Coastal Communities: Sussex County, Delaware, http://www.epa.gov/smartgrowth/noaa_epa_techasst.htm#6. Accessed October 7, 2010.
- Rebuild Iowa Office. The Green Infrastructure Playbook: State of Iowa, http://rio.iowa.gov/smart_planning/assets/Green_Infrastructure_Playbook.pdf. Accessed October 7, 2010.

Figure 18 - Example of a bioswale in a residential area
Credit: EPA

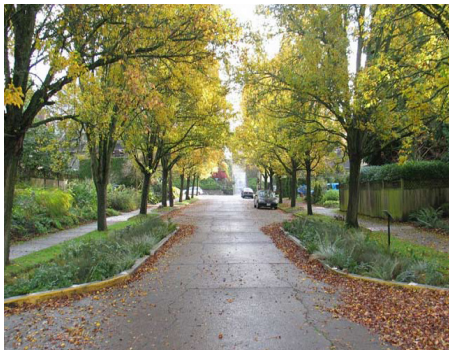


Figure 19 - Example of stormwater treatment along a planting strip
Credit: Dover, Kohl & Partners

Figure 20 - Example of a recessed green
Credit: Dover, Kohl & Partners

Figure 21 - Example of a roof garden
Credit: Dover, Kohl & Partners

Figure 22 - Example of a rain barrel
Credit: www.arttec.net

Figure 23 - Example of a cistern
Credit: Foundation Industries

Figure 24 - Example of pervious paving surfaces
Credit: Nevue Ngan Associates

Figure 25 - Example of a rain garden
Credit: www.swarthmoreepa.org

The city could consider adopting some of these techniques in municipal projects, such as city parks, streetscape improvements, government/educational buildings, and environmental restoration. Making maintenance and improvement of stormwater management systems a high priority can alleviate strain on constructed "gray" infrastructure, prolonging its lifecycle and reducing maintenance costs.

Much discussion with stakeholders during the workshop centered on how best to promote the stormwater techniques outlined here and how to implement general landscape standards for the community. Community members saw great opportunity to improve environmental conditions while also making spaces more pleasant. Several stakeholders suggested implementing a stormwater utility fee, which the city could use to help fund streetscape improvements and additional property purchases. This fee would be levied each month based upon the amount of impervious surface on a particular parcel of land. While this fee would be nominal for most homeowners, it could become more expensive, for example, for large-footprint retailers with vast parking fields. This added cost would provide an incentive to property owners to make improvements, such as increasing pervious surfaces, creating rooftop gardens, and constructing bioswales, all of which would reduce the monthly fee.

Additionally, the city could incorporate minimum landscaping standards into the zoning ordinance that would require parking areas of a certain size to include landscaping and trees. Such landscaping standards might have specific suggestions for the location of planting areas and trees and on the size and spacing of landscape islands in parking lots. Below is an example which illustrates basic landscaping requirements for parking lots.

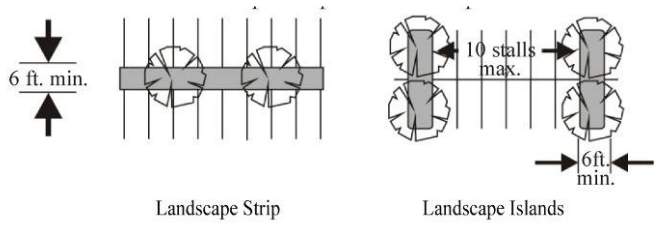


Figure 26 - Minimum landscaping standards could govern the width of planting areas between rows of parking, as well as the size and spacing of landscape islands.
Credit: Dover, Kohl & Partners

Section 3: Housing and Infill Policy Options

Due to extensive flood damage to much of the city's affordable housing stock and an overabundance of new, large-lot, single-family detached home subdivisions, the city is in need of affordable, mixed-income, and multifamily housing. Infill development can take advantage of vacant parcels and strengthen in-town neighborhoods.

Several housing and infill options could be incorporated into the city's comprehensive plan and development regulations. These options could promote greater diversity in the housing stock, with a focus on affordability and infill construction. The options discussed in this section include the following:

- Providing a mix of housing types.
- Ensuring that all housing is accessible.
- Permitting the construction of Accessory Dwelling Units.
- Designating a historic district and community character design standards within the city.

Providing a Mix of Housing Types

Conversations with stakeholders and observations of the city reveal a historic mix of housing types in Waverly. Affordable housing has never been relegated to a certain area of town, and the result has been a harmonious blend of income levels and household types. The community has expressed a desire to retain this tradition of mixed housing stock with the next wave of development, which it hopes will bring greater variety and affordability to town. During the workshop, stakeholders explored methods for creating housing diversity. The city could explore several strategies to boost the housing mix. Incentives for constructing new mixed-use buildings or multifamily housing could include reduced parking requirements, density bonuses,[14] or a more streamlined approval process.

By reducing minimum lot size requirements for residential lots in the zoning ordinance, the city could offer opportunities for a wider range of housing types without altering the fundamental character of residential streets. Reducing minimum lot size and width can go a long way in reducing overall home prices by reducing the cost of land per lot and by reducing the cost of infrastructure to serve those homes. Reducing front and side setbacks also allows more efficient use of smaller parcels. Small lot sizes would increase development potential on infill parcels in central Waverly's existing grid, bringing more people downtown.

In addition to allowing a more diverse range of lot sizes in the city's zoning ordinance, updates to the subdivision regulations could also change the trend of new housing development. Requirements for new subdivisions could stipulate that certain percentages of subdivided lots must fall into various size ranges and be mixed together. For example, subdivisions involving 10 or more lots might require that a minimum of 20 percent be between 5,000 and 7,000 square feet, with another 30 percent between 7,000 and 9,000 square feet, and the remainder over 9,000 square feet. Many stakeholders expressed frustration with unmaintained vacant parcels in new subdivisions and extended construction activity. Additional requirements could also dictate the disposition of those lots within the subdivision and regulate the timing of construction.

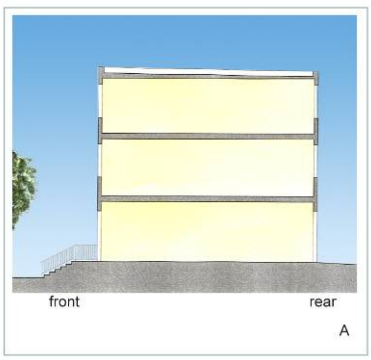
[14] A density bonus is a credit that allows a developer to build more units that would normally be allowed in that zoning district, in exchange for affordable housing, historic preservation, green building, or other community and public benefits that will be provided by the developer.

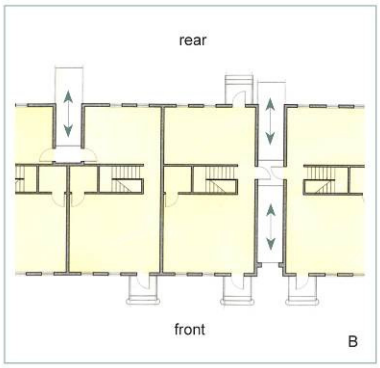
Figure 27 - View of a neighborhood that accommodates a mix of housing types
Credit: Dover, Kohl & Partners

Figure 28 - Detail from development concept plan for the new Middle School site in Waverly, showing large and small single-family homes, townhomes, and apartments
Credit: FEMA

Ensuring that All Housing is Accessible and Visitable

Concerns regarding accessibility were raised during the workshop. Visitability is an important consideration for sustainable development and ensures that those with mobility limitations are able to enter the first floor of every building and use the bathroom. This goal is more stringent than the Americans with Disabilities Act (ADA) accessibility regulations, which only apply to certain building types. It is impossible to predict within which homes a resident will develop a disability. Over a home's lifespan, it may accommodate many different families, each having different needs. Creating basic access at the time of construction costs relatively little compared to the cost of a future retrofit. The city could address the issue of visitability in the updated comprehensive plan and consider incentives for new construction to incorporate basic visitability features, which include zero-step entrances, first-floor interior doors with a minimum 32-inch clear passage, and a half or full bath on the first level. Visitability to residences can be achieved while maintaining an elevated finished floor. Several examples are illustrated below.





Figures 29, 30, & 31 - Accessibility can be accommodated elegantly in multifamily and attached residences, such as from a rear lane (A), between rows of townhomes (B), or beneath a stairway when the first level is raised above the sidewalk (C).
Credit: Dover, Kohl & Partners

Figure 32 - Example of homes with zero-step entrances
Credit: Dover, Kohl & Partners

Permitting the Construction of Accessory Dwelling Units

Permitting the construction of accessory dwelling units (ADUs), or "granny flats," on new and existing single-family home lots would, over time, increase the affordable rental housing stock. Such units have a wide range of benefits and provide homeowners with flexibility and a potential source of income. ADUs can be rented out, filling a much-needed segment of the affordable rental housing market and making homeownership more attainable through increased income generated by the rental property. ADUs can also allow aging parents or grown children to live independently yet nearby.

Careful regulation of the design and disposition of accessory dwelling units will benefit the character of existing neighborhoods. If introduced into the R1 zoning designation in Waverly, the following regulations could govern the design of ADUs:

- Required separation from the primary residence;
- Maximum allowable square footage;
- Maximum allowable footprint of the structure;
- Required location at the rear of the lot, behind the primary residence OR at the side of the lot if lot size and alley design are appropriate;
- Maximum height of the structure relative to the primary residence; and
- Architectural character.[15]

Feedback from the community and stakeholders during the workshop supported the idea of allowing ADUs in Waverly. Several of these units have been constructed in Waverly in recent years, albeit through unconventional means. Allowing these structures by-right would allow more property owners to take advantage of their benefits.

[15] More information about architectural character and ADUs and an example from Santa Cruz, California can be found at:

- EPA Smart Growth. National Award for Smart Growth Achievement 2004 Winners: Policies and Regulations, http://www.epa.gov/smartgrowth/sg_awards_publication_2004.htm#policies_reg. Accessed on October 7, 2010.
- City of Santa Cruz. Accessory Dwelling Unit Development Program, http://www.cityofsantacruz.com/index.aspx?page=1150. Accessed on October 7, 2010.

Figures 33 & 34- Examples of newly constructed ADUs above garages
Credit: Dover, Kohl & Partners

Designating a Historic District & Community Character Design Standards

Through the establishment of a historic district in Waverly, the city has the opportunity to simultaneously preserve and enhance its unique character, while promoting the reuse of its historic buildings. Grants recently made available to the city through the State Historic Preservation Office for the survey of structures downtown could lay the groundwork for establishing the boundaries of such a district while documenting Waverly's many historic assets.

Interviews with stakeholders prior to the workshop, as well as conversations with community members on site in May, revealed how underused many old mixed-use building along Bremer Avenue are. While many ground-floor retail areas are occupied, the upper stories sit largely empty, awaiting renovation and reuse. The "Big 6" Block on Bremer Avenue is a great example of downtown redevelopment that residents would like to see more of. An established historic district in town would open up additional funding sources, providing property owners with much-needed financial incentives to undertake rehabilitation work.

Figures 35 & 36 - A wealth of historic Main Street buildings, homes, and civic structures in Waverly are worthy of preservation.
Credit: Dover, Kohl & Partners

As part of the historic district, the city could create a set of Community Character Design Standards that lay out design specifications for public and private improvement projects and new projects that affect the built form and public realm within the city, including elements such as exterior

architectural design, additions, rehabilitation of existing buildings, new structures, parking lots, and streetscape and landscape design.[16] These standards could protect the architectural integrity of existing structures while promoting a coherent character throughout the district and complementing local traditions. The standards could govern a building's architectural elements and set the parameters for allowable materials, configurations, and construction techniques. Additionally, incorporating standards for parking and landscaping could enhance the context for new and existing buildings.

The city could encourage use of the Community Character Design Standards beyond the limits of the historic district on a voluntary basis. Incentives for adherence could include a streamlined and predictable approvals process, more relaxed parking requirements, and increased density allowances.

[16] Examples of historic preservation guidelines and community character design standards in the state of Iowa can be found at:

- City of Iowa City. Iowa City Historic Preservation Handbook, http://www.icgov.org/site/CMSv2/file/planning/urban/histPres/bgprocess.pdf. Accessed October 8, 2010.
- City of Dubuque. Design Guidelines, http://www.cityofdubuque.org/index.aspx?NID=1295. Accessed October 8, 2010.
- Manchester Area Chamber of Commerce. Incentive Programs: Guidelines for Building Façade Maintenance and Renovation, http://www.manchesteriowa.org/incentives.html#guidelines. Accessed October 8, 2010.

Iowa's Statewide Urban Design and Specifications are also available at: http://www.iowasudas.org/index.cfm, Accessed October 8, 2010.

Section 4: Smart Planning Projects

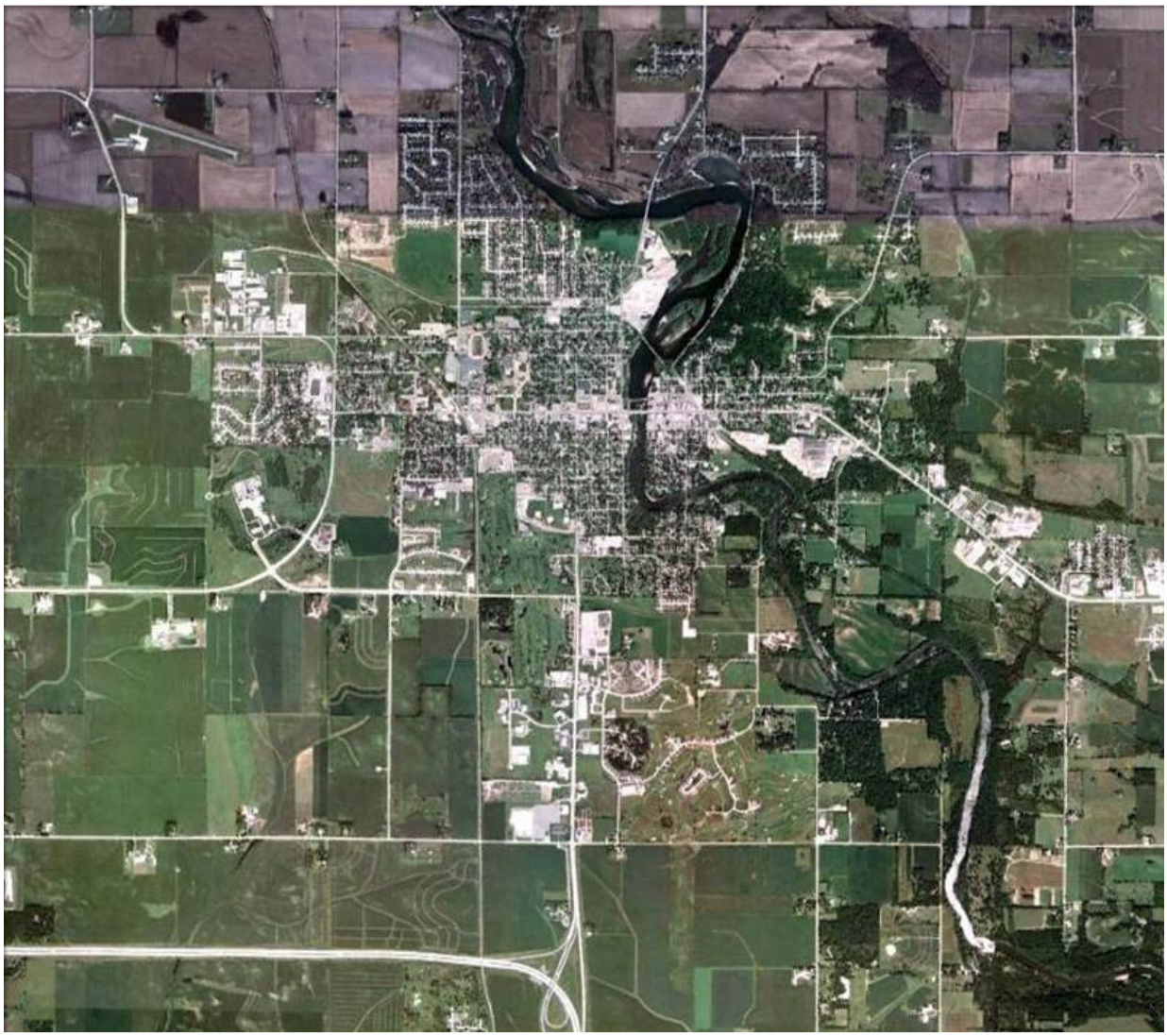


Figure 37 - Aerial view of Waverly
Credit: Google Earth

The following maps and drawings were created during the May 26-27 workshop to illustrate how many of the options in this memo could be implemented both community-wide and in specific areas of Waverly. The three site-specific projects were chosen for their opportunities to demonstrate multiple principles of smart growth in locations where change is expected to occur in the near future. The maps and drawings outlined in the following pages are conceptual only – they are ideas at this stage and not formal plans.

Smart Growth Principles

	Encourage community and stakeholder collaboration	Mixed land use	Create housing opportunities & choices	Strengthen and direct development toward existing communities.	Fosters distinctive communities and sense of place.	Preserve open space, farmland, etc.	Variety of transportation choices	Development decisions predictable, fair, cost effective	Walkable neighborhoods	Compact building design.
New Middle School										
Dry Run Creek										
10th Avenue SW Corridor Extension										

Iowa Smart Planning Principles

	Collaboration	Sustainable design	Housing diversity	Revitalization	Community character	Natural resources and agricultural protection	Transportation diversity	Efficiency, transparency, consistency	Clean, renewable and efficient energy	Occupation diversity
New Middle School										
Dry Run Creek										
10th Avenue SW Corridor Extension										

Matrix Legend

Green: Project achieves identified principles.

Yellow: Project partially achieves identified principles.

Figure 38 - Matrix showing the relationship of the three projects to the Smart Growth and Iowa Smart Planning Principles
Credit: FEMA

Community Analysis

The Community Analysis Map provides a conceptual analysis that lays out the basic context of the community. This map identifies and overlays key community features and elements such as floodplains, major roadways, schools, existing natural areas, and trails. This conceptual analysis ensures that planning team members and community stakeholders have a common understanding of the background information, issues, and opportunities for project development. This map could inform a community Growth Sector Plan.

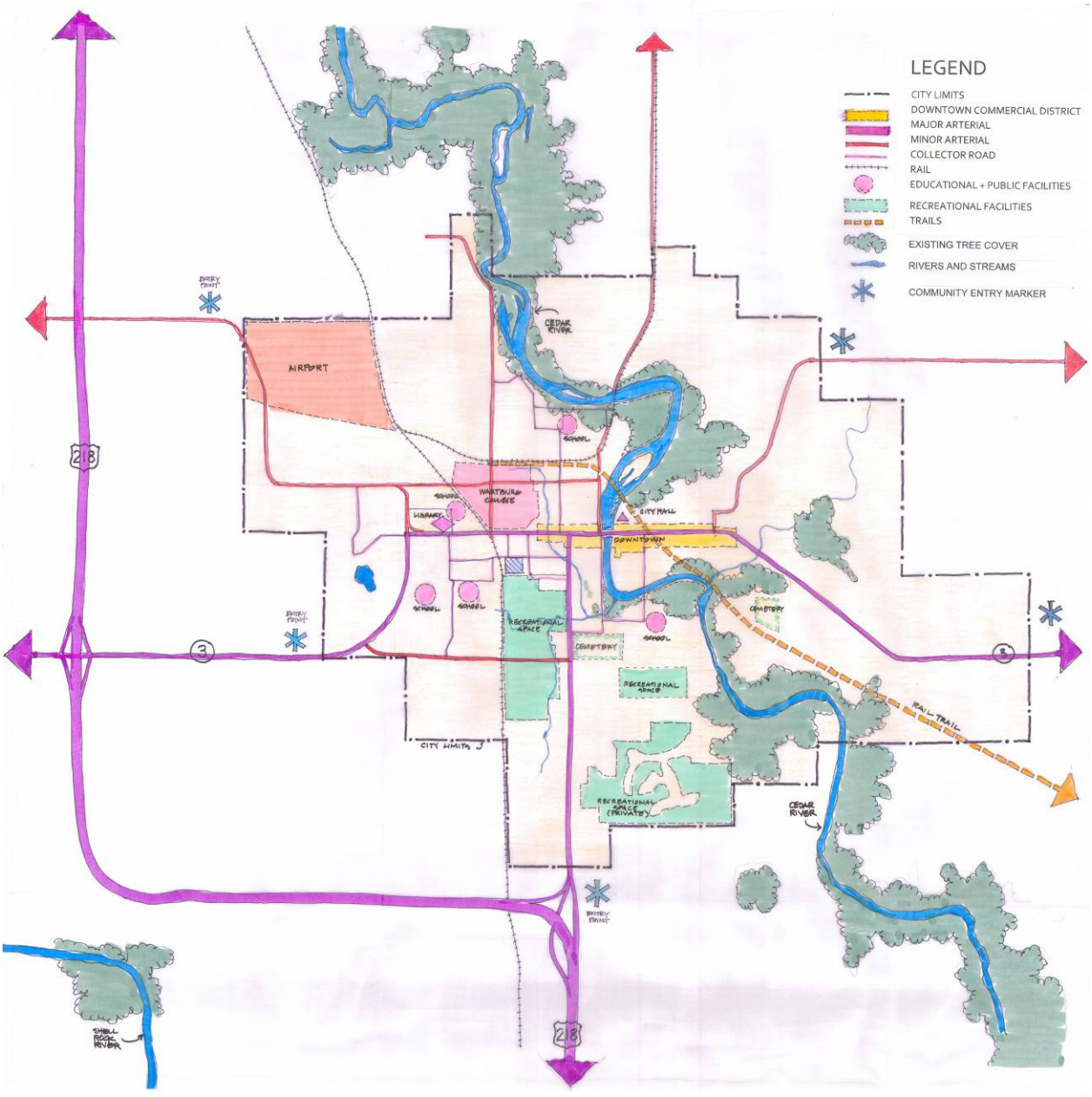


Figure 39 - Waverly Community Analysis Map
Credit: FEMA

City of Neighborhoods

The City of Neighborhoods Map (*figure 40)* depicts the city organized as a series of neighborhoods in order to highlight where the existing neighborhoods are and to identify future opportunities for building on those neighborhoods. The conceptual map provides a preliminary identification of existing, emerging, and potential future neighborhoods throughout the community. The concept emphasizes distinct edges and a defined core or "heart" for each neighborhood unit. The "heart" of the neighborhood is not necessarily the busiest intersection or retail area. It may be a civic building, a park, or a neighborhood facility.

Greenway and Trails Network

The Greenway and Trails Network (*figure 41*) is a preliminary concept that documents the existing open space and trail network, as well as future trails and connection opportunities. The map includes various civic and community facilities, which can become the basis for connecting neighborhoods, community facilities, and services. This map could inform a community Open Space Master Plan and Growth Sector Plan and would help the city outline priorities and future plans for creating a greenway and additional trails throughout the community.

Adoption of a Greenway and Trails Plan may be reinforced by incorporating greenway and trail acquisition and development into the city's Capital Improvements Program. The community could prioritize the acquisition and development of greenway and trail corridors that are vulnerable to development and complete gaps in the network based on the plan.

Project Areas

The Project Areas map (*figure 42*) depicts the three projects that the community identified for conceptual smart planning development opportunities. The projects include:

- Dry Run Creek Open Space Network;
- New Middle School Development Site; and
- 10th Avenue SW Corridor Extension.

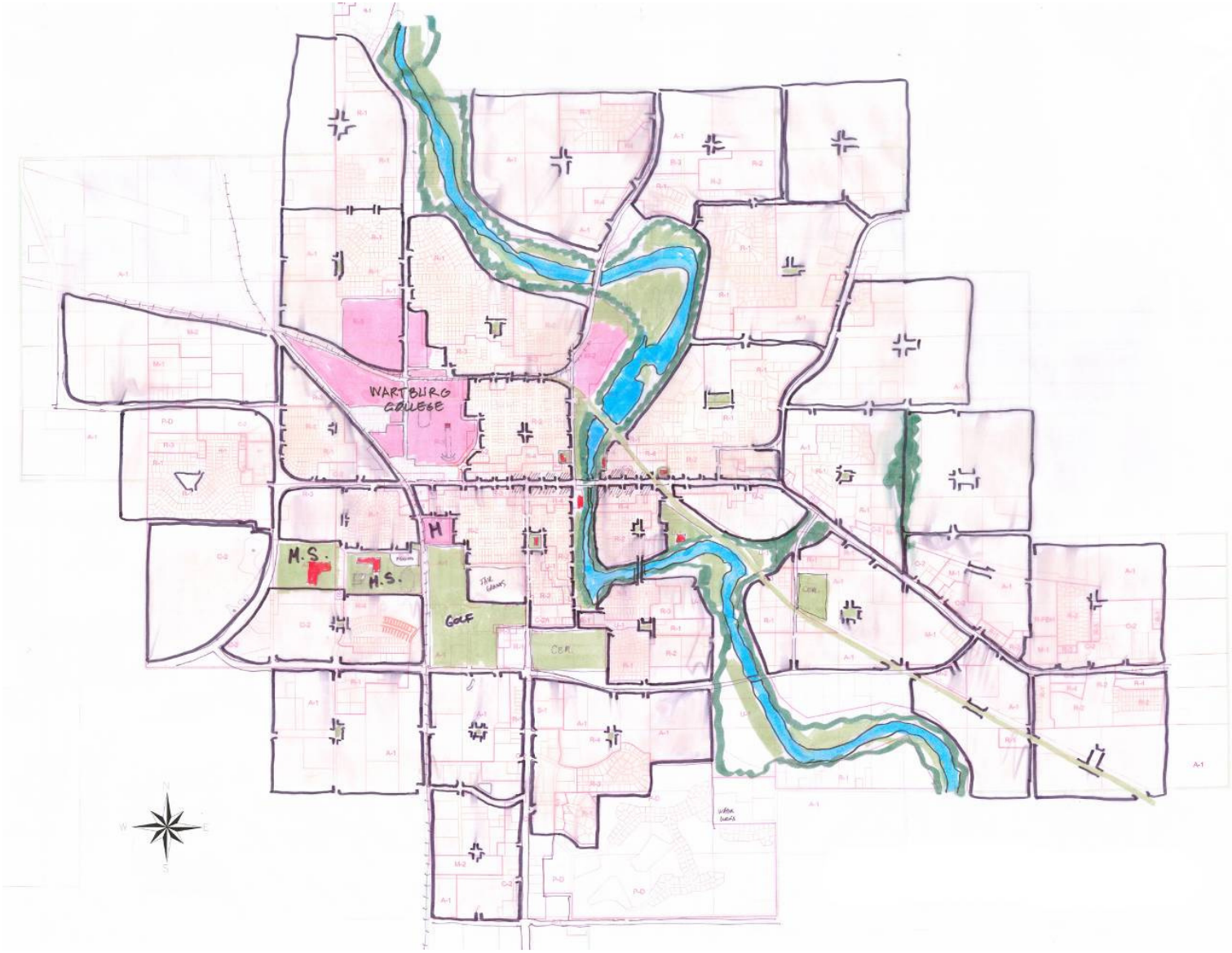


Figure 40 - Waverly City of Neighborhoods Map
Credit: FEMA

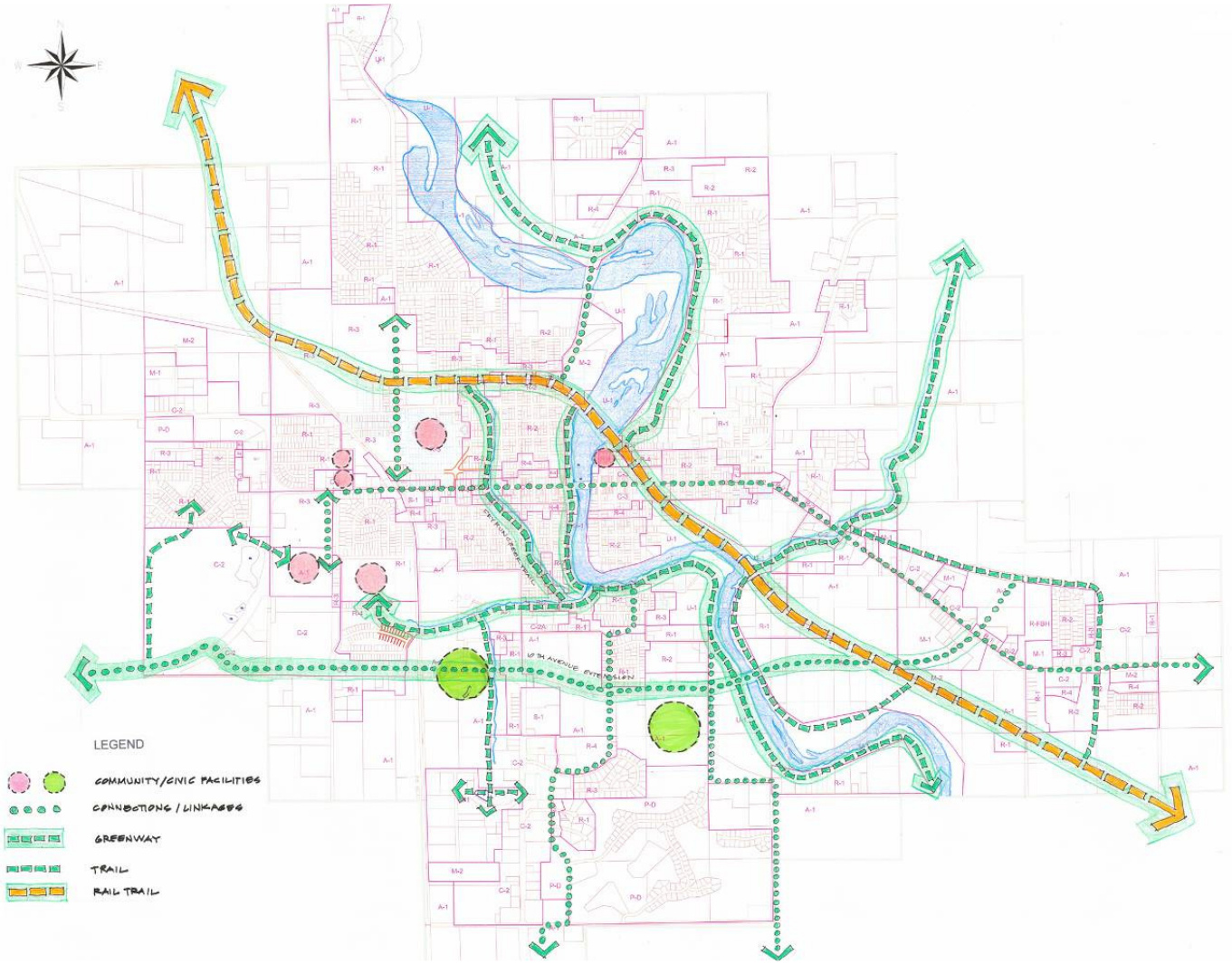


Figure 41 - Waverly Greenway and Trails Network Map
Credit: FEMA

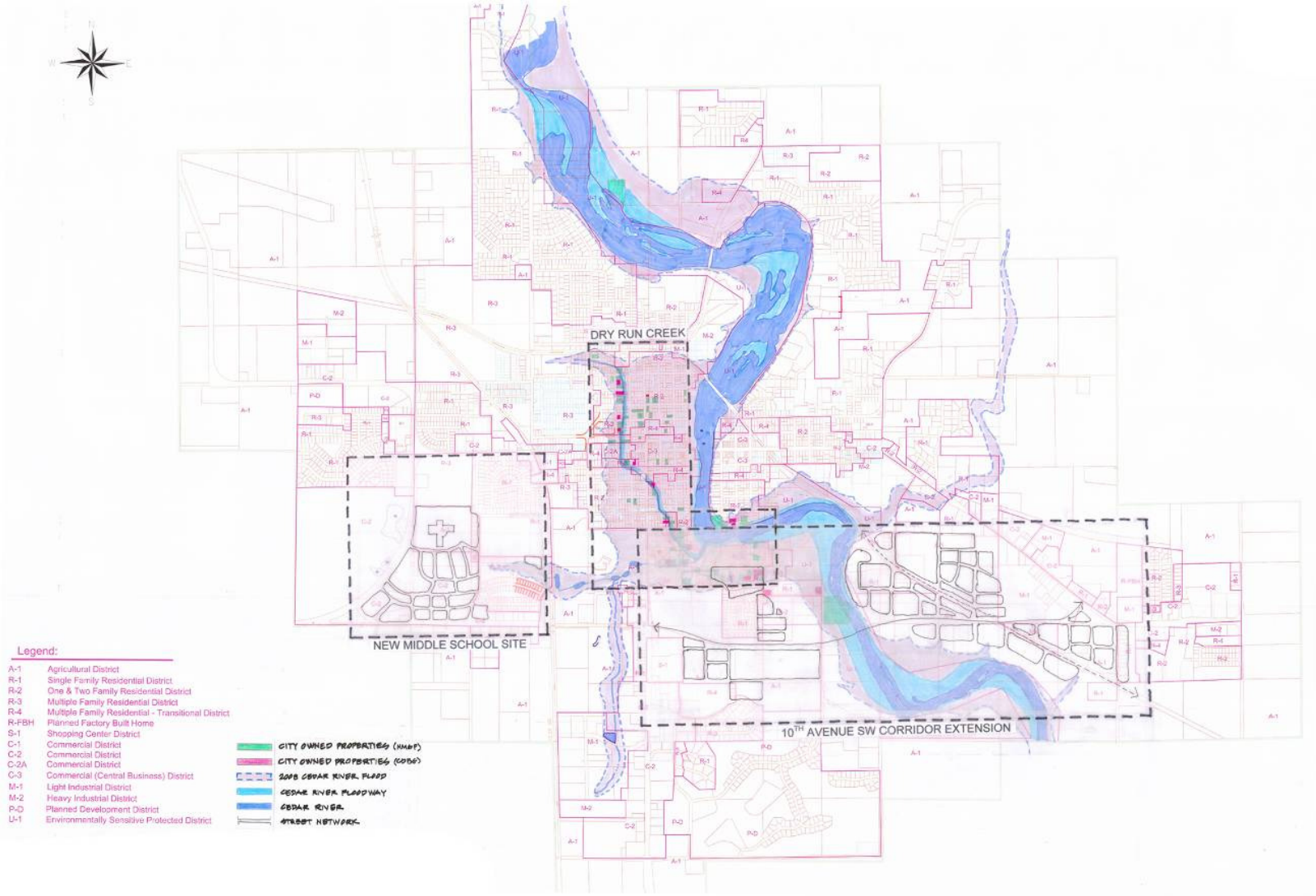


Figure 42 - Waverly Project Areas Map
Credit: FEMA

Dry Run Creek Open Space Network

This concept (*figure 43*) identifies creative opportunities to adaptively reuse properties that the city acquired as a result of the 2008 flooding. The concept maintains the general neighborhood and street network, proposes stormwater improvements along Dry Run Creek, and incorporates neighborhood-friendly design alternatives for vacant but unbuildable parcels. The concept encourages partnerships with residents, businesses, and civic organizations to "adopt" and maintain properties for community benefit. Adaptive reuse examples include:

- Open space and pocket parks;
- Community gardens;
- Pedestrian connections (sidewalks and trails);
- Civic spaces; and
- Innovative stormwater management and best management practices.

This map depicts the properties along Dry Run Creek that the city acquired using the Hazard Mitigation Grant Program (HMGP) and the Community Development Block Grant (CDBG) program, following the 2008 flooding.

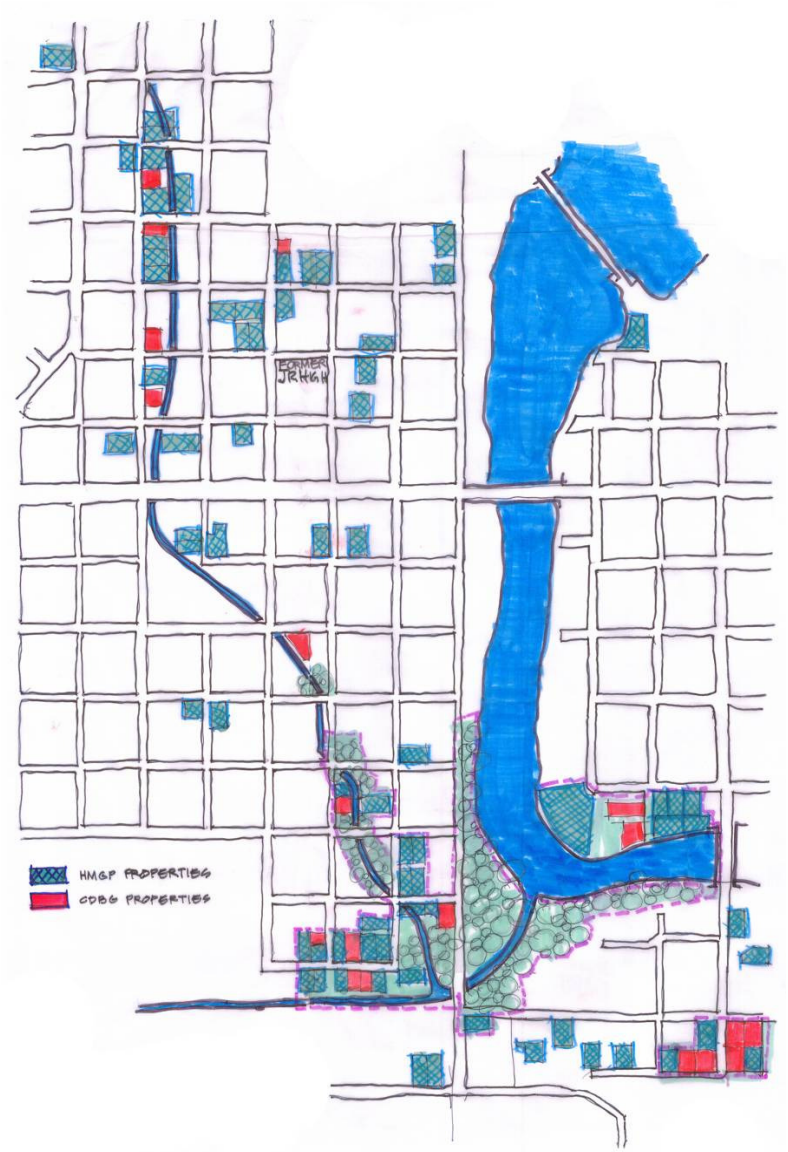


Figure 43 - City-owned properties map
Credit: FEMA

This concept plan *(figure 44)* illustrates creative and adaptive reuse opportunities for various properties along Dry Run Creek, including a pedestrian trail, community gardens, pocket parks, and stormwater management enhancements.

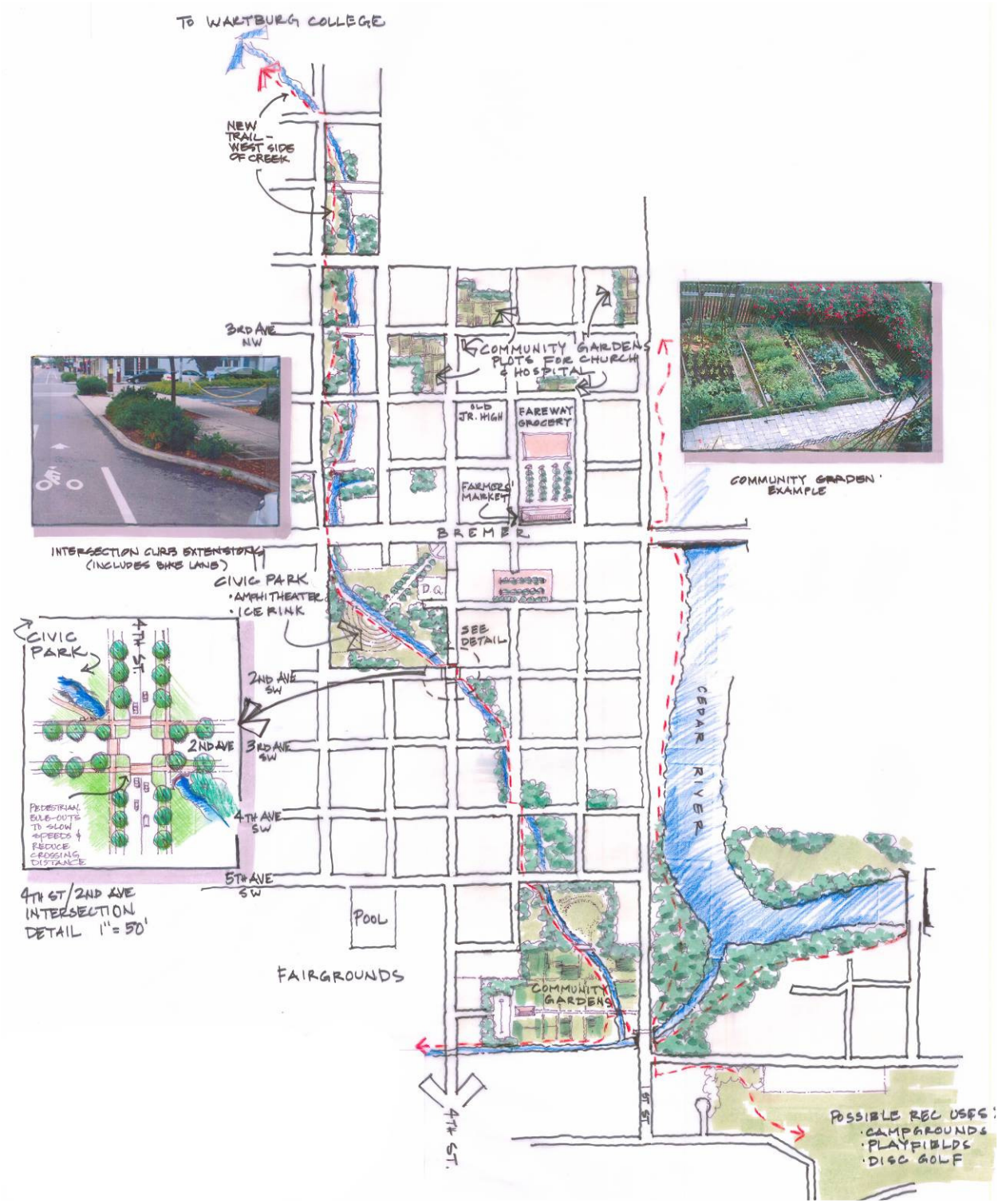


Figure 44 - Dry Run Creek Open Space Concept Plan
Credit: FEMA

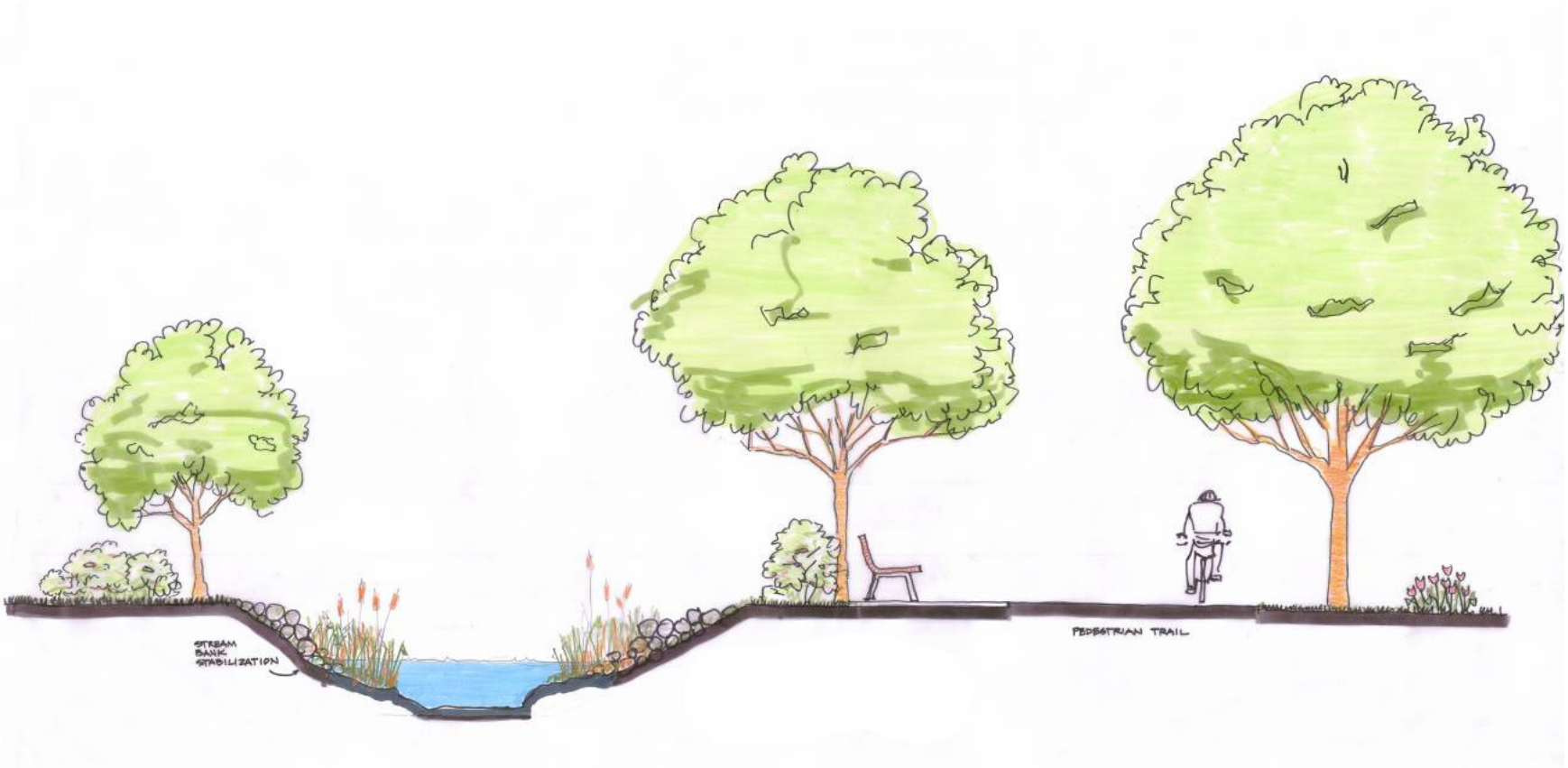


Figure 45 - Dry Run Creek Trail Section. An example of what some portions of Dry Run Creek could look like by incorporating channel improvements, stream bank stabilization, native vegetation, and pedestrian trails.
Credit: FEMA

Figure 46 - Existing conditions. A photograph of Dry Run Creek in its existing form.
Credit: FEMA

Figure 47 - Concept sketch. A sketch of how the creek may appear after stormwater, landscape, and trail improvements.
Credit: FEMA

These concepts (*figures 45, 46, and 47*) for the area around Dry Run Creek demonstrate many of the green infrastructure options discussed in Section 2 of this report. The Dry Run Creek open space network, which links many of the city-owned parcels, could become the centerpiece of a citywide Open Space Master Plan. The proposed network integrates community gardens, trails, and a greenway through the heart of Waverly. Restored open space along the creek could help treat runoff from a large area of town before it reaches the Cedar River. The amenities created through the new network could add value to surrounding properties, prompting additional investment and infill development in the area.

10th Avenue SW Corridor Extension

This project provides an overall concept for improving community connectivity, extending the transportation network, and accommodating future growth and development. The proposed 10th Avenue SW Corridor is a parkway-boulevard that accommodates pedestrians, cyclists, and vehicles and crosses the Cedar River. The project concept includes the following key elements:

- Targets development in incorporate potential growth areas within city limits;
- Encourages neighborhood connectivity while accommodating pass-through traffic;[17]
- Provides emergency transportation access across the Cedar River;
- Connects streets between existing and future neighborhoods;
- Uses a traditional, efficient, compact, and walkable community block pattern;
- Includes residential neighborhoods with frontage along and indirect vehicle access to the parkway-boulevard; and
- Promotes development out of flood-prone areas.

The drawings for the 10th Avenue SW Corridor Extension illustrate many of the options discussed in this report. In particular, this study area shows how complete streets could be used both at the neighborhood and citywide scales. The drawings demonstrate the ways in which the character of 10th Avenue can change from a higher speed parkway to a slower and narrow roadway, depending on the context. Preservation of open space along the Cedar River, as well as many new parks and trails, dovetails with the option to create a new Open Space Master Plan. New construction within the block and street network suggested by the plans would support a wide range of housing types and uses.

[17] This concept is not intended or proposed as a vehicular bypass.

This image (*figure 48*) depicts an overall concept for the 10th Avenue SW Corridor, from 4th Street SW to East Bremer Avenue / Highway 3. The concept identifies a parkway-boulevard corridor, a proposed development and block pattern, connections to the existing street network, and connections to existing facilities and services.

Figure 48 - Concept Plan
Credit: FEMA

This image (*figure 49*) depicts a section of the proposed parkway-boulevard for the 10th Avenue Extension, illustrating where the local street, parkway, sidewalks, rail trail, and walking/bike paths could be located. The design incorporates a pedestrian, vehicular, and open space corridor within a neighborhood development pattern. The parkway provides a park-like setting along a corridor that is convenient for pedestrians, cyclists, and vehicles alike.

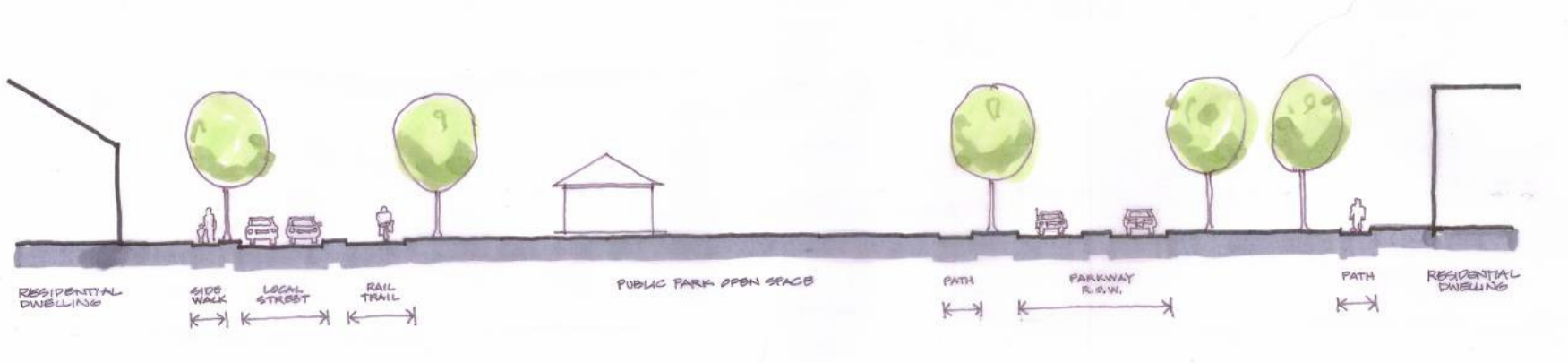


Figure 49 - Parkway Section
Credit: FEMA

Two concept plan examples – at grade and an overpass – of the intersection of the Waverly Rail Trail with the proposed 10th Avenue SW Parkway Corridor are illustrated on the following pages.

- At-Grade Crossing Concept (*figure 50*): The Waverly Rail Trail crosses the 10th Avenue Parkway at grade. A variety of traffic-calming or control measures may be used to ensure a safe and efficient intersection design. Examples include signalization, stop sign, pedestrian-activated light, narrowing, chicane,[18] rumble strips, or speed humps. A neighborhood / community park signifies the intersection of the trail and parkway.
- Overpass Crossing Concept (*figure 51*): The Waverly Rail Trail crossing is separated from 10th Avenue Parkway using an elevated pedestrian bridge, allowing continuous trail flow for users. An at-grade intersection crossing is still provided to allow access among neighborhoods. A neighborhood / community park signifies the intersection of the trail and parkway.

[18] A chicane is a roadway feature that creates bump-outs and extra turns in the roadway, and is typically used as a traffic calming measure.

Figure 50 - At-grade crossing of the Waverly Rail Trail
Credit: FEMA

Figure 51 - Overpass crossing of the Waverly Rail Trail
Credit: FEMA

New Middle School Development Site

This preliminary project concept illustrates an opportunity to develop the property adjoining the new middle school. The conceptual design integrates a mixed-use development into a similar community street network and block pattern. The layout accommodates single-family, multifamily, office, neighborhood retail, and civic uses, while incorporating a variety of housing types based on lot size, massing, and building type. Stormwater management and drainage easements are integral components of the neighborhood and allow connections to surrounding schools, neighborhoods, and services. This concept accommodates future growth and development within the existing city limits.

This concept (*figure 52*) depicts a mixed-use development plan to complement the surrounding development including the nearby schools.

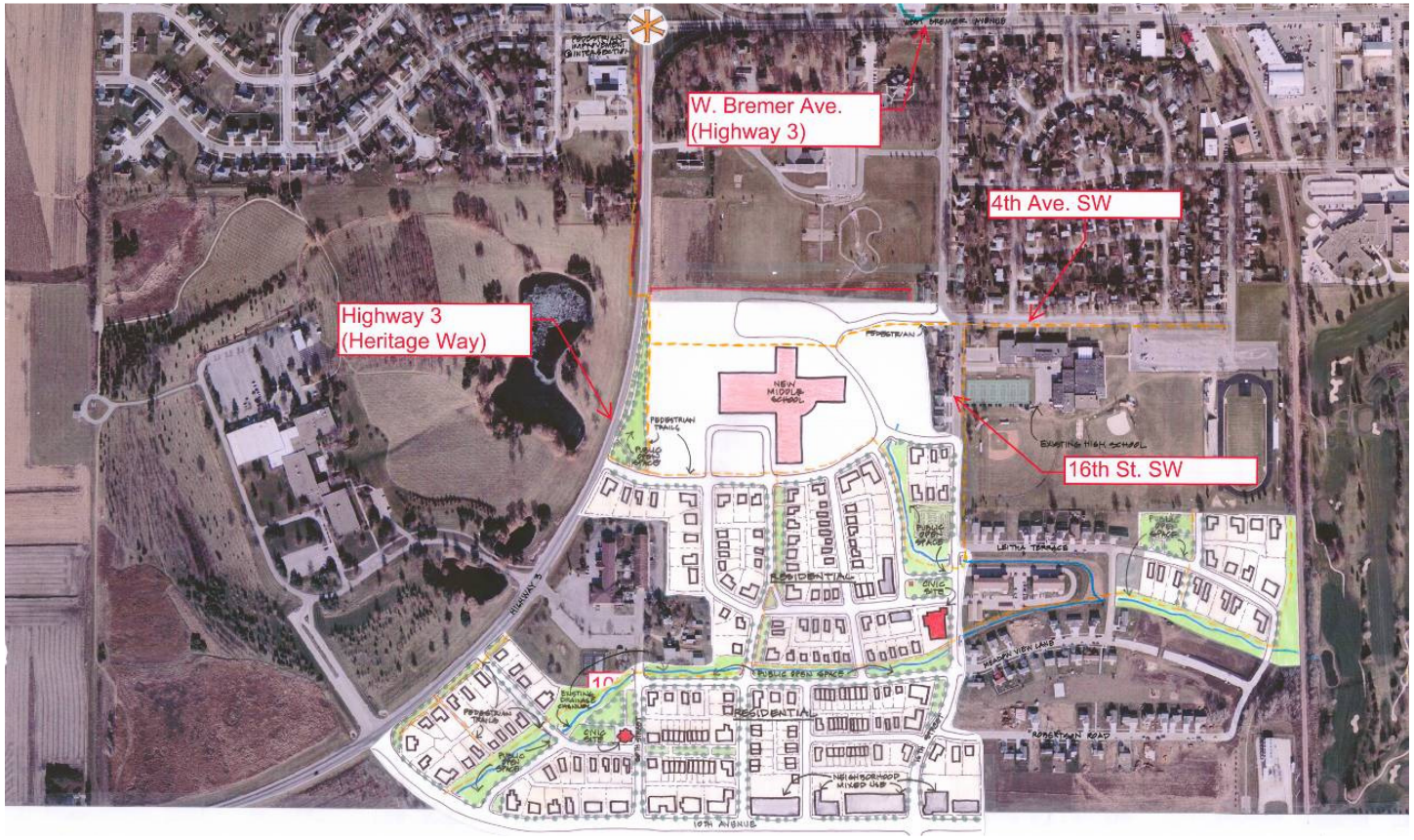


Figure 52 - Concept Plan
Credit: FEMA

This neighborhood concept plan demonstrates the potential for implementation of many of the options discussed in this document. A network of complete streets with varying character provides the framework for a pedestrian, bicycle, and transit-friendly neighborhood. Natural flowways have been left largely undisturbed, and the resulting greenways/trails could fit into a city-wide Open Space Master Plan. Spaces for small community gardens have also been set aside. The concept plan shows a wide range of housing types and uses, including special sites for civic structures, which supports the community's desire for greater building diversity. Most lots are served by rear lanes, which facilitate the construction of accessory dwelling units behind single-family homes and townhomes. Stormwater management for the site could use several smaller, incremental techniques, such as those discussed in Section 2 of this report. The images below demonstrate the character and mix of housing/building types envisioned in this new neighborhood. New development should be designed in a way that promotes compact development and a variety of housing options. It should also reflect Waverly's character.

Figure 53 - Townhomes
Credit: Dover, Kohl & Partners

Figure 54 - Townhomes
Credit: Dover, Kohl & Partners

Figure 55 - Duplex
Credit: Dover, Kohl & Partners

Figure 56 - Single family homes around a common green space
Credit: Dover, Kohl & Partners

Figure 57 - Mixed-Use
Credit: Dover, Kohl & Partners

Figure 58 - Apartments
Credit: Dover, Kohl & Partners