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PLANNING AND ZONING COMMISSION MEETING

Tuesday, August 14, 2018 • 7:00 p.m.

West Branch City Council Chambers, 110 N. Poplar St.

Council Quorum May Be Present

1. Call to Order
2. Roll Call
3. Approve Agenda/Consent Agenda/Move to action.
4. Public Hearing/Non-Consent Agenda./Move to action.
 - a. Approve The Meadow, Part 4 Preliminary Plat. /Move to action.
 - b. Approve Comprehensive Plan, Chapter 10, Environmental Stewardship (renamed). /Move to action.
5. City Staff Reports
6. Comments from Chair and Commission Members
7. The next regularly-scheduled Planning and Zoning Commission Meeting – September 25, 2018 at 7:00 p.m.
8. Adjourn

Planning & Zoning Commission Members: Chair John Fuller, Vice Chair Ryan Bowers, Sally Peck, Gary Slach, Emilie Walsh, Tom Dean, Vacant • **Zoning Administrator:** Terry Goerd • **Deputy City Clerk:** Leslie Brick

Mayor: Roger Laughlin • **Council Members:** Jordan Ellyson, Colton Miller, Brian Pierce, Nick Goodweiler, Jodee Stoolman

City Administrator/Clerk: Redmond Jones II • **Fire Chief:** Kevin Stoolman • **Library Director:** Nick Shimmin

Parks & Rec Director: Melissa Russell • **Police Chief:** Mike Horihan • **Public Works Director:** Matt Goodale



The Meadows Subdivision Part 4, West Branch, Cedar County, Iowa

Beginning at the Southwest corner of Lot 16 of The Meadows Subdivision Part I, an official plat now in the City of West Branch, thence along the West line of said plat N26°31'49" W, 252.03 feet; thence along the West line of said plat N49°03'24" E, 58.95 feet; thence along the West line of said plat N40°56'36" W, 140.00 feet; thence along the West line of said plat S49°03'24" W, 35.36 feet; thence along the West line of said plat N40°56'36" W, 220.89 feet to the Southwest corner of The Meadows Subdivision Part Two, an official plat now in the City of West Branch; thence along the West line of said plat N32°16'00" W, 472.61 feet to the Northwest corner of said plat; thence N18°59'10" W, 119.27 feet; thence N86°38'50" E, 14.10 feet; thence N3°21'10" W, 140.00 feet; thence N3°10'20" W, 59.09; thence S86°49'10" W, 19.28 feet; thence N3°21'10" W, 134.57 feet to the North line of said Parcel G; thence along said North line S86°46'30" W, 758.80 feet to the East Right of Way line of Cedar Johnson Road; thence along said East Right of Way line S01°10'13" E, 546.71 feet; thence N88°40'47" E, 140.25 feet; thence S82°48'58" E, 112.82 feet; thence S58°47'20" W, 126.13 feet; thence S38°53'07" E, 499.31 feet; thence S32°11'27" W, 193.74 feet; thence Easterly 264.48 feet along a 300.00 foot radius curve concave North (chord bearing S83°05'16" E, 256.00 feet); thence N18°20'14" E, 66.00 feet; thence S18°22'35" E, 152.93 feet; thence N72°42'34" E, 95.16 feet; thence S44°57'07" E, 357.87 feet; S89°19'13", 340.01 feet to the East line of said Parcel G; thence along said East line N0°40'48", 377.06 feet to the Point of Beginning.

Described parcel contains 23.73 acres and is subject to easements and restrictions of record.

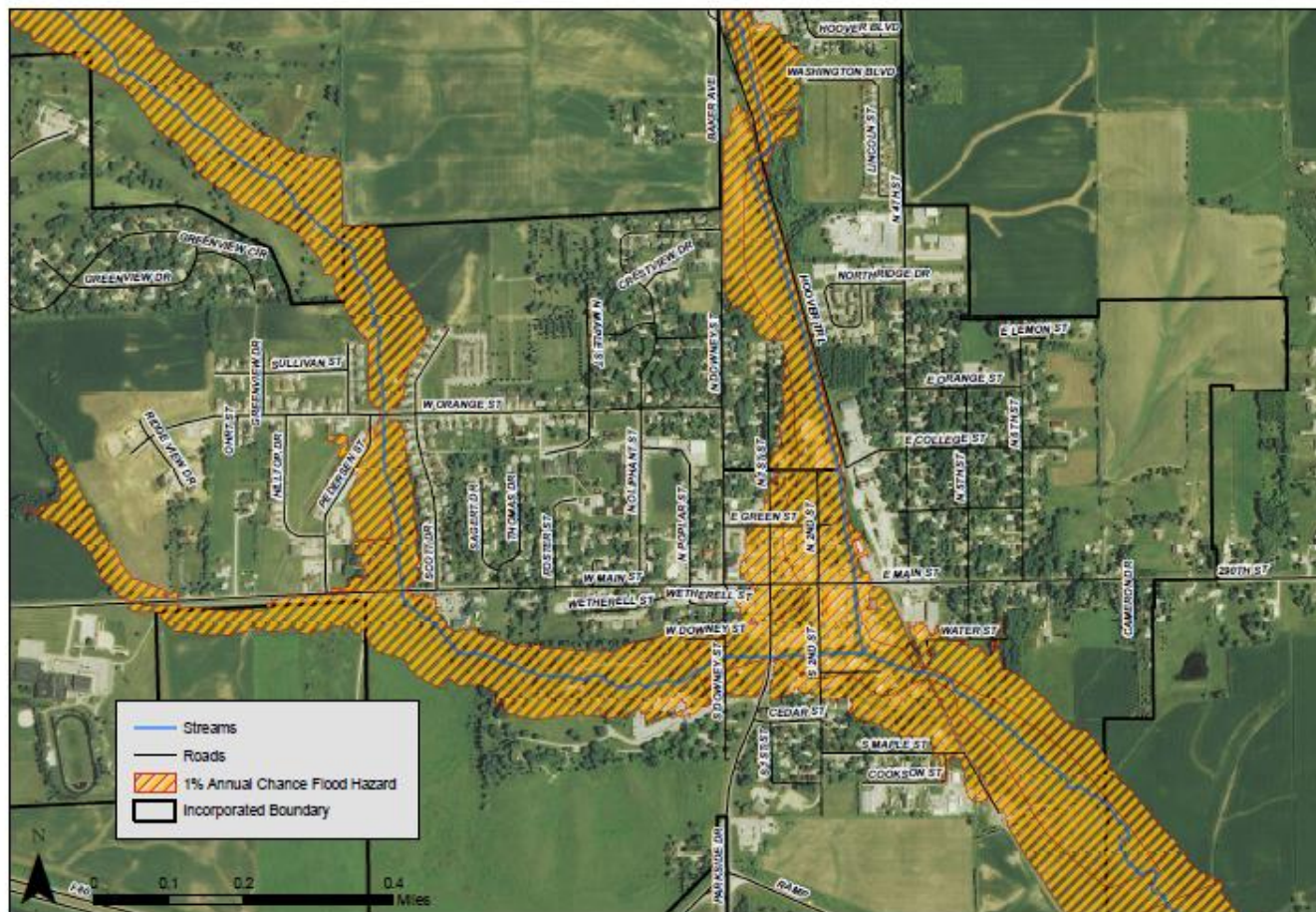
Curve Table			
Curve #	Length	Radius	Delta
C1	264.481	300.000	050.5121

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WEST BRANCH COMPREHENSIVE PLAN

Chapter 10: ENVIRONMENTAL STEWARDSHIP

FEMA's National Flood Hazard Map West Branch, IA



Introduction

Chapter 10 of West Branch's 2013 Comprehensive Plan dealt with hazardous mitigation. This is an important city topic, but there are other concerns that an updated plan should address. The chapter is now retitled "Environmental Stewardship" and covers the additional topics of:

- The National Flood Insurance Program
- Derelict and Abandoned Buildings
- Urban Forestry
- Electric Vehicle Charging Stations
- Solid Waste and Compost
- Light Pollution
- Green Energy
- Brownfield Redevelopment and Remediation
- Topsoil

Each topic is described, and recommendations are made for action.

Picture 10.1. West Branch Hoover Nature Trail



Source: Source: Cedar County Conservation Board
<http://cedarccb.org/hoovertail1.html>. Accessed June, 2018.

Goal 1: Increase Community Based Environmental Outreach

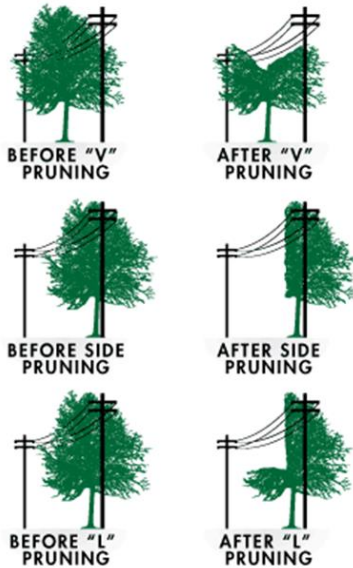


1. Publicize the federal flood insurance program so that residents become more aware and can participate if they choose.
2. Continue to partner with organizations such as Trees Forever and Alliant Energy and look for grant opportunities such as the Alliant “Branching Out” grants to increase the number and variety of trees in West Branch. This includes seeking opportunities that would allow the community to provide trees for private homeowners as well as to plant new trees in public spaces

3. Form a tree committee comprised of 6 to 7 community members to provide direction for future tree projects within the community.
4. Seek to become designated a “Tree City U.S.A.”

5. Establish a brownfields inventory by identifying possible brownfields sites. Coordinate with the East Central Brownfield Coalition (ECBC) to produce a brownfield land bank. These recommendations are especially pertinent to redevelopment of the Croell Cement site.

Goal 2: Improve Creative Guidelines



1. Research and adopt an ordinance to properly manage derelict buildings.
2. Adopt a tree policy meant to build a robust green infrastructure. This should encourage the community to complement and support other key goals established for a city in the Comprehensive Plan.
3. Expand and continue to diversity the City's tree-planting practice and canopy.
4. Continue to trim overhanging branches up to a height of 14 feet over every street and up to a height of 9 feet over every sidewalk in town annually.
5. Continue annual efforts to remove unhealthy trees on public ground that pose a hazard to nearby structures and passersby.
6. Continue annual efforts to monitor ash trees for signs of Emerald Ash Borer, and remove infected trees.
7. Continue to monitor developments in topsoil management. Consider adopting a best-practices ordinance.

Goal 3: Embrace Green Technological Advances

1. Pursue the instillation of one or two EV-2 Charging Stations within the next year.
2. Track green energy programs, particularly in the Midwest, and go on record as supporting and publicizing renewable energy programs. An example of such an energy program is “Solarize Johnson County”.



4. Investigate compost and recycling service for apartments.

3. Be attentive to the virtues of dark skies, and as opportunities present themselves take advantage of newer technologies in lighting to reduce light pollution in our city. In this effort, the City should coordinate with the West Branch School District.



National Flood Insurance Program

Nearly 650 Iowa communities currently participate in the National Flood Insurance Program (NFIP). To participate in the program, a community must adopt and enforce floodplain management ordinances meant to reduce damage from future flood events. In exchange, the NFIP makes federally-backed flood insurance available to homeowners, renters and business owners in these communities, regardless of whether their property is in the current floodplain or not. Community participation in the NFIP is voluntary, but there are many advantages to participating.¹

West Branch is participating in the FEMA National Flood Insurance Program.² Chapter 160 "Flood Plain Regulations" of the West Branch municipal code addresses and enforces floodplain management. Specifically, Chapter 160 Section 8 addresses flood damage minimization. Per FEMA, as of 3/31/2018, there were 26 homes in West Branch which had NFIP insurance. However, the Flood Hazard Map on the initial page of this chapter suggests that rather more homes in the city might be eligible for insurance. The total annual premium paid for policies in force ("premium written in-force") was \$38,435 and the total coverage amount for policies in force ("insurance in-force") was \$3,531,100.³ This is summarized in Table 10.1., following.



Picture 10.2. 2008 Flooding in Cedar Rapids, Iowa



Source: Time Magazine 2008.

<http://content.time.com/time/nation/article/0,8599,1815178,00.html>.

Accessed June 12, 2018.

Table 10.1. National Flood Insurance Program Statistics			
NFIP Policy Statistics as of 3/31/2018			
	Homes Insured	Total Written Premium In-Force	Total Insurance In-Force
West Branch, Iowa	26	\$38,435	\$3,531,100
State of Iowa	12,547	\$12,812,897	\$2,591,614,000
Source: Federal Emergency Management Association, 2018			

To purchase insurance, residents can contact an insurance agent or an insurer participating in the NFIP. It is not possible to buy the insurance directly from FEMA. To assist in finding an insurance agent, residents can call the NFIP referral call center at 800-427-4661. One local agent, Matt McCall State Farm (563-886-6120) in Tipton sells the NFIP policy. According to their estimate, annual premium quotes range from \$600 to \$4,000 per policy, which is determined based on location and value of the home.⁴

Recommendation: The City should publicize the federal flood insurance program so that residents become more aware and can participated if they so choose.

Derelict and Abandoned Buildings

There is currently no West Branch ordinance that deals with derelict and abandoned buildings. It is recommended the City research and adopt such a code to ensure all rehabilitations and demolitions of derelict or abandoned buildings are performed with sensitivity to the environment. As a reference, the Cedar Rapids code, Chapter 33A – “Moving or Demolition of Buildings; Use of Streets” addresses their process to deal with abandoned buildings. The code requires a permit to demolish or wreck a building. The chapter explains the application, issuance, validity, expiration and permit fees. The full code is available online and at the City of Cedar Rapids website “Building Services Codes”.⁵

Recommendation: The City should research and adopt an ordinance on derelict and abandoned building.

Urban Forestry

A core responsibility of any city administration is to provide for and maintain the community's infrastructure, which comprises the physical assets that support the city's basic functions. Many communities have started to think of infrastructure as having two components: gray infrastructure (buildings, roads, utilities) and green infrastructure (trees, shrubs, grass). Doing so recognizes that green infrastructure works in tandem with the gray infrastructure and impacts the functioning of systems critical to the community.

Another form of environmental stewardship is to increase the number of trees throughout the city. Trees yield many benefits to a community such as providing wind breaks, reducing home cooling costs, preventing erosion, adding value to properties and providing food for wildlife. A 2017 publication on the health and energy benefits of trees in cities is available at <https://www.nature.org/newsfeatures/pressreleases/urban-trees-can-save-tens-of-thousands-of-lives-globally.xml>. It should also be noted that trees enhance the historic nature of West Branch.

Picture 10.3. Urban Forestry Example



Source: Ten-year urban forestry action plan for the National Urban and Community Forestry Advisory Council and the Community of Practice: 2016-2026. <https://urbanforestplan.org/the-urban-forest/>. Accessed May, 2018.

City Forestry Data and Iowa DNR

West Branch is a community that embraces the benefits trees provide, as evidenced by planting additional trees each year. In the past four years, the city has planted over 200 trees. In 2014, approximately 140 trees were planted on the municipal cemetery grounds. In 2015, 45 trees were planted in Beranek Park. In 2016, approximately 35 trees were planted on Main Street. It is suggested that tree species diversity should be sought with these plantings. Ideally, the goal should be to achieve ISU Extension best practices for community tree cover: no more than 10% of public trees should be a single species, no more than 20% should be a single genus, and no more than 30% should be a single tree family.

In 2011, a report prepared by the Iowa Department of Natural Resources (IDNR) that inventoried and assessed trees in West Branch determined that the community's trees provide \$75,851 (\$81,887 in 2017, adjusted for inflation) in total annual benefits. The specific values can be viewed in Table 10.2. below. The report also contained recommendations for a maintenance plan that included removal of problem trees, planting and replacement, trimming activities, and monitoring/addressing incidents of Emerald Ash Borer. Current practices, as reported by Public Works Director Matt Goodale, meet or exceed all annual benchmarks recommended by IDNR.



Table 10.2. Value of Ecosystem Services Provided by Trees in West Branch		
Benefits	Value in 2011	Value in 2017 adjusted for inflation
Annual Storm water Benefits	\$21,115	\$22,795
Annual Air Quality Benefits	\$2,200	\$2,375
Annual Carbon Benefits	\$24,659	\$26,621
Annual Aesthetic Benefits	\$13,302	\$14,361
Total	\$75,851	\$81,887
Source: Calculated by IDNR, 2011		

The Public Works Department (PWD) performs all tree maintenance and coordinates all plantings. It has been popular to do larger plantings around Earth Day in the spring in order to engage the community. Students from local schools have helped support the successful plantings to date. In turn, this provides a great opportunity for relationship building between city employees and school-aged youth.

The PWD expects to continue to seek partnerships and grants to assist in acquiring additional trees. In the past, both Alliant Energy and Trees Forever have supported tree plantings throughout the community. There is a potential to establish a volunteer committee in West Branch which would assist the PWD with their tree planting initiatives.⁶

The town of Mt. Vernon (population 4,444) has established a “Sustainability Committee” to monitor, research, encourage and implement green and sustainability oriented and projects within the City. For example, they are currently looking into items such as EV charging stations, rain barrels, solar energy, and water quality for nearby streams.⁷

Recommendation: The City should monitor the Sustainability Committee in Mt. Vernon and consider adopting a volunteer tree and/or sustainability committee for the community.

Economic Environmental Incentives

As an economic development incentive and a welcoming gift to new homeowners it has been suggested that the city provide and plant a tree for each new house in town, if the owners desire it. Homeowners would be asked to pay a small portion of the tree cost and commit to tree maintenance.

There is an opportunity to become officially designated as a "Tree City USA". By doing so, the community would demonstrate its leadership and commitment to the environment and its residents who benefit daily from the cleaner air, shadier streets and improved beauty that urban forests provide. There are eighty such designated communities in Iowa, including smaller cities such as Tipton.

To qualify as a Tree City USA community, a town or city must meet four standards established by The Arbor Day Foundation and the National Association of State Foresters. These includes having a tree board, department, or committee, adopting a tree-care ordinance, establishing a community forestry department with an annual budget of at least \$2 per capita, and observing Arbor Day each year. Such a tree committee could report to the City's Recreation Commission or to the PWD. As a reference, the City of Marion has established a thorough City Code regarding tree care, planting and maintenance.⁸ If any additional staff are needed in order to fulfill these standards, there may be an opportunity to partner with nearby cities or Cedar County in order reduce costs.



Picture 10.4. Example of Neighborhood Trees



Source: Arbor Day Foundation.
<https://www.arborday.org/programs/treecityusa/>. Accessed June, 2018.

Environmental Incentive Recommendations

In West Branch, a tree policy meant to build a robust green infrastructure for the community can complement and support other key goals established for a city in the Comprehensive Plan. For this reason, the following policies are recommended to codify the informal policies – and, where appropriate, build upon their successes – as already practiced in West Branch presently.

Recommendations:

1. Continue to partner with organizations such as Trees Forever and look for grant opportunities like the Alliant “Branching Out” grants to increase the number of trees in the city. This includes seeking opportunities that would allow the community to provide trees to private homeowners as well as to plant trees in public spaces.
2. Expand tree-planting practice and continue to diversify the community tree canopy, planting fewer maples and increasing the number of other tree species.
3. Continue to trim overhanging branches up to a height of 14 feet over every street and up to a height of 9 feet over every sidewalk in town annually.
4. Continue annual efforts to remove unhealthy trees on public ground that pose a hazard to nearby structures and passersby.
5. Continue annual efforts to monitor ash trees for signs of Emerald Ash Borer, and remove infected trees.
6. Form a tree committee comprised of 6-7 community members to provide direction for future tree projects within the community.
7. Seek to become designated a “Tree City U.S.A.”
8. Integrate these measures into the West Branch Comprehensive Plan and other planning documents for the community as appropriate.



Picture 10.5. Alliant Energy Reaching Out



Source: Trees Forever. http://www.treesforever.org/App_ABO. Accessed June, 2018.

Electric Vehicle Charging Stations

As Electric Vehicle (EV) ownership increases, there will be a growing demand for EV charging stations. Currently, Alliant Energy is investing more in regional charging stations and EV charging infrastructure throughout the region. Providing public charging stations in West Branch could be an economic development tool to attract visitors, as well as demonstrate the community's leadership in environmental stewardship.

In 2018 Alliant started to offer rebates for community charging stations. Fast, level-2 stations for use by city employees or the public are eligible for \$1,500 from Alliant for a dual-prong unit. This amount will largely cover the equipment costs for non-networked charging stations, which means the city need only cover installation costs. Alliant can supply a field engineer to help identify locations where the installation costs would be lowest due to an adequate existing power supply. Rebates are available on a first-come basis for up to two stations. Additional support for charging stations may become available for mitigation activities from the state of Iowa resulting from a settlement from Volkswagen concerning settlements under the Clean Air Act being applied in 2018-19.⁹ The funds are to be administered by the Iowa Department of Transportation.

A charging station may attract regional residents as well as persons traveling through along I-80. While many EVs currently have fairly limited battery ranges, the next closest charging stations are Iowa City (North Dodge St. Hy-Vee) and Davenport. The east side of Iowa City has one of the highest densities of electric vehicle ownership rates in Iowa.¹⁰

The average charge time is 1 hour 38 minutes. This provides the user of the electric charging station with time to visit the shops and restaurants in downtown West Branch while they are waiting for their vehicle to charge. As a result, foot traffic in the area surrounding the charging station would be expected to increase. An ideal location for a charging station may be in the parking lot just south of the City offices, on the northwest corner of West Main and Poplar St, because of its proximity to the retail shops and restaurants. A future potential location is within the development of the Croell cement plant area. Another possibility would be the Hoover complex. Inquiries suggest there is interest on the part of the Department of the Interior, and funds available but the process to apply for the funds may be lengthy.

There are several options to select from with regard charging infrastructure, software and user rates. While some communities offer charging stations free to the user, others charge a small fee that is managed by a third-party contractor. Both Centerville (pop. 5,924) and Mt. Vernon (pop. 4,444) have worked with Alliant on their charging station programs, so the company has a good track record of working with smaller communities. Ames has two stations available for public use and charge \$2 per hour, or \$1 per hour for Ames residents.¹¹ According to ChargePoint data in 2015, the average charging session cost the hosting entity \$0.50.¹²

Recommendation: The City should pursue the installation of one or two EV 2 Charging Stations in 2018.

West Branch Solid Waste and Compost

The Current Recycling Program

Johnson County Refuse, a locally owned operation serving Johnson County and surrounding areas, provides garbage and recycling pickup every Friday morning in the City of West Branch. Garbage that cannot be recycled is placed in garbage bags or cans with one or two \$1.25 yellow stickers attached. These stickers can be purchased at the City Offices, Dewey's Jack & Jill, and Kum & Go, or year-round stickers can be purchased directly from Johnson County Refuse. Curbside recycling is mandatory in the City of West Branch. A monthly fee of \$4.75 is included in the water and sewer bill, and recycling bins are provided gratis to each residence. Service is not currently provided to apartment complexes.



Picture 10.6. Johnson County Refuse Recycling Action Picture



Source: Cedar Rapids Gazette 2015, "Rural Residents Face Limits to Recycling." <http://www.thegazette.com/subject/news/rural-residents-face-limits-to-recycling-20150214>. Accessed June, 2018.

Curbside Compost Pick-up

In efforts to become more sustainable and reduce volume at local landfill sites, communities have started implementing curbside pick-up programs for compost. The compost can then be used by residents for agriculture, horticulture, and erosion control. Today, in cities where curbside programs do not exist, residents can voluntarily bring their food scraps and other compostable material to a facility or can compost in their yard. The closest facility to West Branch is the Iowa City Landfill and Recycling Center. Here they collect commercial organics for composting, ultimately diverting organic material from the landfill. A 2017 statewide study found that approximately 30% of material in the landfill material was compostable material.¹³

An investigation was done to determine whether compost pick-up curbside might be possible for West Branch through Johnson County Refuse. As of 2017, the owners stated that curbside compost pick up service in West Branch was not feasible. They explained that the compost pick-up they currently provide to North Liberty is done because of the City's proximity to their facilities. They are currently not interested in expanding curbside compost pick-up service to other cities that use their solid waste/recycling services.

The City should continue to monitor the availability of curbside recycling options in the region.

Video 10.1. Composting Tips, Education, and Outreach



Source: City of Iowa City Organics. <https://www.icgov.org/foodwaste>. Accessed June, 2018.

Municipal Compost Examples

Two nearby municipalities that provide curbside composting services to residents are Iowa City and North Liberty. Iowa City provides the service to residents receiving City of Iowa City garbage, recycling, and yard waste services. These residents simply use the annual yard waste stickers (\$12.50) on a 20-35 gallon, upright garbage bin and place it on the curb on their normal garbage pick-up day. A list of accepted curbside items is below.

The City of North Liberty, like West Branch, uses Johnson County Refuse services for garbage and recycling. North Liberty residents receive curbside compost pick up along with solid waste and recycling services. This program is voluntary and residents must sign up with the City to be provided the pick-up service. As of 2017, there were 170 residents participating in the program. This program is different from Iowa City's because rather than having an annual sticker on a container, the participants put their compostable material in a North Liberty yard waste bag (\$1.65 each) and place it on the curb in the compost container (obtained from the city for a \$25 deposit). The material is transported to Iowa City's Commercial Compost facility.

Iowa City Compost Items

- All fruits and vegetable matter
- All grain products
- Non-liquid dairy products (no milk)
- Meat and seafood (raw or cooked, including bones and shells)
- Eggs and eggshells
- Pizza and used pizza boxes
- Coffee grounds/filters, tea and tea bags
- Leftovers, plate scrapings
- Spoiled foods
- Paper leftover containers from restaurants, but NOT plastic or foam containers
- Uncoated paper that has been in contact with food: napkins, paper towels, pizza boxes, uncoated paper plates, uncoated paper cups
- Small quantities of grease and fat
- Compostable service ware such as spoons, forks, plates, etc. that are certified ASTM D64001

North Liberty Compost Items

- Fruit and vegetables
- Meat (raw or cooked, including bones) and seafood (raw or cooked, including shells)
- Grains, bread and baked goods
- Dairy, eggs, coffee grounds and filters
- Mixed plate scrapings
- Wood produce crates
- Floral waste
- Leftovers past the point of re-serving
- Spoiled foods
- Paper that has been in contact with food such as:
 - Napkins
 - Parchment bakery tray liners
 - Pizza boxes
 - Uncoated paper plates

Compost Pilot Program

More locally, before the Iowa City curbside pickup was launched in March 2017, a pilot study of fifty participants was completed in 2014. They found that in 6 weeks, 1,000 pounds of material was composted rather than transported to the landfill under the then-available waste services.

There are only three facilities in the State of Iowa that accept food waste into their composting operations. These include Metro Waste Authority (Des Moines), Cedar Rapids/Linn County Solid Waste Agency, and Iowa City Commercial Composting facility.

Because Johnson County Refuse finds compost recycling infeasible, another option for the City of West Branch is to compost its own material. The Iowa DNR provides a helpful toolkit for communities interested in collecting and producing their own compost. If a parcel of land is available and enough residents are interested, a compost facility could easily be set up to meet the needs of the City. If material coming in is less than two tons per week, the in-house facility would meet the “Permit by Rule” exemption.¹⁴ If a curbside compost program collects more than two tons per week, the municipality must obtain the appropriate permit from the Iowa DNR. The final composted material could be used for City landscaping and soil quality restoration, or perhaps for use in a community garden. West Branch could also begin partnerships with local farmers or register with Iowa Department of Agriculture and Land Stewardship (IDALS) Feed and Fertilizer Division to legally sell the compost. The curbside pickup could be contracted out, while the City owns and operates the composting services, and would allow residents a solution to sustainably rid themselves of yard waste and food scraps.

Picture 10.7. Compost System Diagram.



Source: City of Glendale, California.
<http://www.glendaleca.gov/government/departments/public-works/integrated-waste-management/refuse-trash-recycling/backyard-composting>. Accessed June, 2018.

Apartment Solid Waste/Recycling Service

Iowa City passed a resolution (Nov. 2016) that requires all multi-family apartments and condominiums to provide recycling to their tenants. Landlords, apartment owners, managers and condo associations have until their next scheduled City inspection to comply. As such, the mandate will roll out through the end of 2018. The enforcement mechanism mirrors existing solid waste requirements and compliance will

be enforced in conjunction with the next rental permit renewal permit issuance.

Recommendation: City of West Branch take the opportunity of observing recycling in Iowa City to further investigate compost and recycling service for apartments.

Light Pollution

Astronomers have preached the virtues of dark skies for years. Modern cities, they say, use far more artificial light during nighttime than necessary, much of it emanating into the sky where it does no good.

So-called light pollution erases our view of stars and, to a degree, the wonder they bring at our place in the cosmos. High-intensity lights at night can actually do harm to humans, by suppressing hormones that help people fall asleep. For these reasons cities have begun replacing sodium high-pressure street lights with dark-sky-compliant LED bulbs.

Recommendation: West Branch be attentive to the virtues of dark skies, and as opportunities present themselves take advantage of newer technologies in lighting to reduce light pollution in our city. In this effort, the City should coordinate with the West Branch School District.



Green Energy

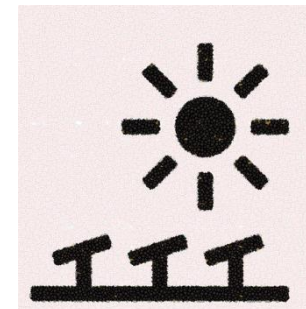
Small cities may find it difficult to envision a future in which their energy consumption is more “green” than today, but many larger U.S. cities are making strides towards reducing the environmental impacts of the energy they consume. In 2017, over 20 cities had determined they would transition fully to renewable energy by various future periods of time. One such Midwestern city is Madison, Wisconsin.¹⁵

Communities need not be large to benefit from policies aimed at energy efficiency and green energy. The town of Columbus, Wisconsin has a population just under 5,000 residents and has adopted energy policies that have resulted in cost savings for municipal buildings, added to the quality of life within the community, and served as an important economic development tool. Efforts within Columbus began with several energy-efficiency projects for city facilities, including the public works department, senior center, police station, fire department, city hall and library. This included converting to LED lighting and energy-efficient windows. A solar array was installed at the community high school and integrated into industrial arts curriculum. The community also committed to reducing its non-renewable energy usage 25% by 2025. Steve Sobiak, the former economic development director for Columbus, credits the energy efficiency programs as a major factor in the decision by Enerpac to expand its manufacturing operations in Columbus rather than relocate to another community.¹⁶

Some residents in West Branch receive energy from Linn County REC rather than from Alliant. Most of the housing in West Branch that uses Linn County REC is located near the golf course in the Bickford and Greenview Drive neighborhoods. Linn County REC follows state regulations for interconnecting with alternative renewable energy systems such as solar. Nearly 60% of Linn County REC "Generation Mix" electricity is from carbon free sources. Their generation mix is composed of coal, nuclear, hydro, landfill gas generation, wind, natural gas, and oil resources.¹⁷

A relatively new program, Solarize Johnson County, has been established to promote solar energy in the region. Offered by Johnson County, homeowners throughout West Branch may participate in the program to pool their buying power and secure significant discounts that make installing solar more affordable.¹⁸ There have been two meetings in West Branch to date, which have received a fair amount of interest. In 2018, California passed a requirement for all new homes to have solar power.¹⁹

Recommendation: The West Branch Planning and Zoning Commission should monitor green energy activities, particularly in the Midwest. West Branch may also wish to go on record as supporting and publicizing renewable energy programs engaged in by its largest energy supplier, Alliant Energy.



Brownfield Redevelopment Policy

Brownfields are defined by the U.S. Environmental Protection Agency (EPA) as “property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” However, brownfield assessment and redevelopment is often hindered by confusion as to what is and is not a brownfield (a small, abandoned gas station may be, while an active manufacturing site often is not). The stigma associated with contaminated sites further compounds the problem, creating barriers to redevelopment.

Although generally assumed to be an urban problem, brownfield sites are pervasive across the U.S. and pose particular challenges in rural areas where many developers find it easier to build in the ample greenspaces on the outskirts of town rather than redevelop closer in. Brownfield sites in Iowa commonly take the form of former filling stations with underground storage tanks and older commercial spaces suspected of containing asbestos. Although concerns about these sites can leave them sitting empty and unused, communities may not realize they are brownfields and, as such, eligible for site assessment and cleanup funds through the EPA. In the majority of cases, environmental site assessments (ESAs) are sufficient to remove the stigma of contamination.

Picture 10.8. Croell Redi Mix Site in West Branch



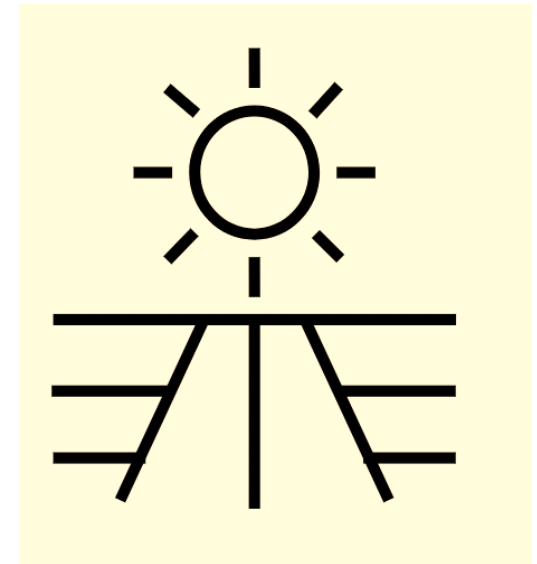
Source: Google Maps August 2013. Accessed June, 2018

Financial Help with Brownfields

The East Central Intergovernmental Association (ECIA), which serves governments in a five-county area of eastern Iowa – including the government of West Branch – in 2016 received a \$600,000 grant from the EPA to support ESA activities in its service area. These funds must be used by 2019. To help disburse the grant money, ECIA has formed the East Central Brownfields Coalition (ECBC) with the intention of identifying brownfield sites and assisting with their redevelopment. More about ECBC can be found here: ecia.org/Brownfields/coalition and here: <http://ecia.org/Brownfields/>.

Participating in the ECBC can complement and support key goals outlined in the West Branch Comprehensive Plan, particularly goals related to downtown revitalization and business development in Chapter 7, Economic Development. For this reason, the following policies are recommended for West Branch in regards to brownfield sites within its jurisdiction:

- 1) Create an inventory of potential brownfield sites within West Branch in cooperation with ECIA and ECBC. A group of graduate students from the University of Iowa recently developed software available through ECIA to help communities create a brownfield inventory, assess redevelopment potential, identify priority sites, and request grant funding for ESAs.
- 2) Work with owners of unused commercial sites to determine whether they may be brownfield sites, assist with creating redevelopment plans, and apply for assistance from ECBC for those owners willing to consent to environmental site assessment.
- 3) Integrate brownfield assessment and redevelopment goals into the West Branch Comprehensive Plan, situating these policies within the context of broader economic development and environmental priorities.
- 4) Coordinate efforts with ECBC to obtain and convey brownfield sites to a brownfield land bank for redevelopment.



Recommendation: Embrace the above four recommendations on a brownfields inventory, determination of possible brownfields sites, and coordination with ECBC to produce a brownfield land bank. These recommendations are especially pertinent to redevelopment of the former Croell Cement site.

Topsoil Concerns in East-Central Iowa²⁰

Over the past several years, Johnson and Linn County, Iowa, municipalities have held an array of debates about dirt, or more specifically, topsoil. Topsoil is defined as the upper, outermost layer of soil containing the majority of a plant's roots.²¹

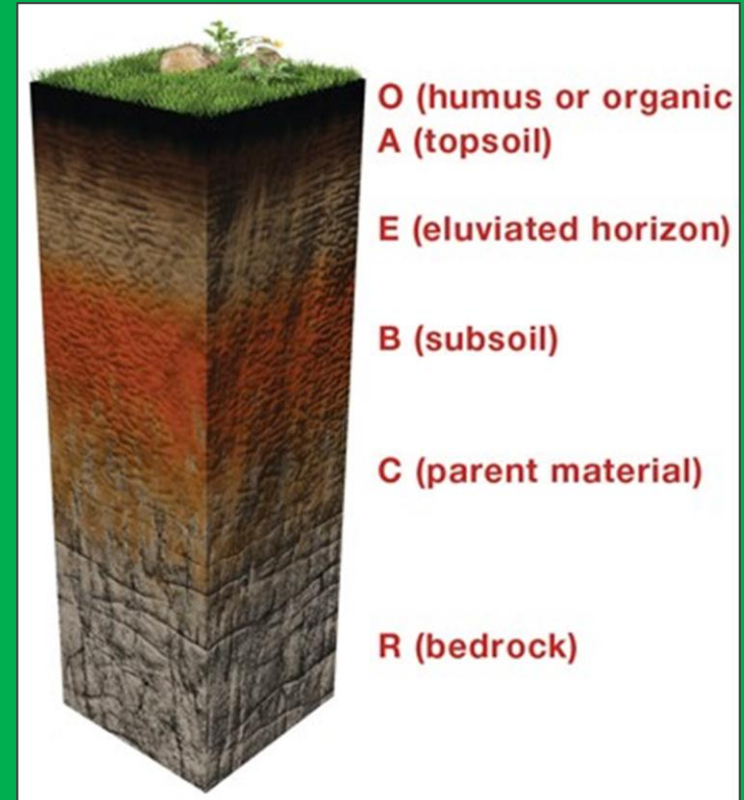
Iowa, historically a prairie state, is known and valued for its deep, nutrient-rich topsoil. When land is developed for construction, developers typically grade that land, altering the topography to make it suitable for buildings and infrastructure, and accommodating to storm water drainage requirements. During this process, topsoil is often compacted and stripped from the land. Contractors may then sell the topsoil to excavation companies or dispose of it. As buildings near completion, grass turf is generally placed directly on the top of the exposed and compacted land.

Why is this a problem?

When there is very little to no topsoil foundation, and a compacted surface area, grass turf roots cannot adequately establish themselves in the ground. This makes it challenging for a homeowner to grow vegetation on his or her lawn. It also hinders rainwater from infiltrating the ground at maximum capacity and increases the chance that water will run off the land. Such runoff, combined with runoff from paved land, stresses the storm sewer system. In addition, runoff carrying added chemicals is introduced to Iowa waterways. The turf is more easily eroded, so homeowners may face turf replacement or soil aeration costs.

In short, a lack of post-construction topsoil regulation reduces the ability of the land to hold vegetation, may inconvenience the homeowner, contributes to major and minor flooding events, and can pollute Iowa's water supply.

Picture 10.9. The Horizons on Soil Graphic.



Source: Soil Science Society of America. <http://www.soils4kids.org/about>. Accessed June, 2018.

State Regulation

For these reasons, in October 2012, Iowa was inspired by the Environmental Protection Agency (EPA) and the Iowa Department of Natural Resources to adopt a state topsoil rule. The state worked together with homebuilders to write a rule requiring developers to maintain up to four inches of topsoil on a site if the site had that much topsoil before construction started. If the site had less, only that prior amount needed to be maintained.²² In 2013, developers stated the topsoil regulation was too costly and proposed a change. In 2015, the state Environmental Protection Commission voted to set aside the four-inch topsoil rule. Instead, communities may adopt their own topsoil rules, if they choose. Two nearby cities have adopted such rules.

Coralville, Iowa's Topsoil Ordinance

Coralville's topsoil ordinance is within Chapter 159 of the Code, listed as part of the post-construction storm water ordinance that new development applications must meet. The topsoil regulation states that *site design shall address the preservation and replacement of existing topsoil in an uncompact manner*, and that *existing topsoil must be preserved and reapplied on site in a uniform and uncompact manner*.²³ This simple language is phrased similarly to the DNR staff's originally proposed wording for the state regulation in 2012. If little or no topsoil is present before construction, builders can use a variety of options (such as inexpensive compost mixtures, etc.) to recover the site. Coralville's topsoil requirement is only one piece of their vigorous post-construction storm water ordinance.

North Liberty, Iowa's Topsoil Ordinance

North Liberty's topsoil regulation is codified as part of its required storm water management permit. It states that *topsoil shall be preserved at all construction sites unless land use precludes the practice*, and requires developers to conduct soil testing to determine the original existing depth of the topsoil before site disturbance. This original topsoil depth must then be replaced at the project's end.²⁴ Other relevant requirements meant to address issues with storm water runoff include: builders are not allowed to export any topsoil away from site; topsoil must be set aside and not be mixed with clay during construction; and, the builder must till the site's compacted clay at the project's end.

North Liberty chose to exclude the 4-inch minimum that was originally part of the state's 2012 topsoil regulation, in order to prevent developers importing new dirt onto sites where four inches did not exist to begin with. However, typical sites in North Liberty have been reported to have anywhere from 5 to 24 inches of topsoil. As a result, many believe that North Liberty's regulation will prove to be sufficient.²⁵

Enforcement of the topsoil ordinance will fall to North Liberty's building department in conjunction with its contracted engineering firm. A city inspector will assess site topsoil depths at a project's end to ensure it complies with the initial permit documentation.

Pros and Cons of Topsoil Regulation

Costs of topsoil regulations

Developers' primary argument against topsoil regulation is that it's too challenging and costly to comply. They emphasize their concern with making homes affordable for buyers, and declare that topsoil regulation adds costs to construction. In an appeal to homebuyers, developers emphasize that instead of developers sacrificing profits for topsoil replacement, it's the homeowners who will have to pay for replacement through increased housing prices.²⁶

However, so far in debates over regulation no one seems to be able to agree on *how much* extra cost it will require. City officials in Cedar Rapids estimate that a 4-inch topsoil requirement could add \$1,000 to \$1,500 to a new home's cost.²⁷ Developers are conflicted: some say an 8-inch restoration on a 0.4 acre home lot would cost \$3,300 at most, while others estimate \$10,600 for an 8-inch restoration, and \$7,375 for 4-inches restoration on the same 0.4 acre lot.²⁸ In reality, the cost of topsoil replacement varies according to each individual site's grading, compaction, soil conditions, and the practicality of the developer to stockpile the site's topsoil during construction.

Others interpret topsoil regulation differently. Dan Holderness, the Coralville City Engineer states: "topsoil regulation protects unsuspecting new homeowners who are unfamiliar with construction process and the importance of topsoil."²⁹ Some point out that topsoil replacement is a *need* comparable to windows and plumbing that should not be considered an option that impairs affordability. In addition, it is to be noted that developer acceptance of topsoil regulation may depend on the type of developer. Residential developers construct and then transfer ownership to homebuyers, making them less likely to accept any "added costs" of topsoil replacement. On the other hand, commercial developers often maintain ownership of the property after development and prefer to have an attractive, low-maintenance lawn, which makes them more likely to support topsoil regulation.

Some developers argue that most new homebuilding happens at the edge of the city where storm water practices such as detention basins are already required to detain runoff.³⁰ While this may be true, storm water detention basins are intended to accommodate only the runoff from impervious surfaces. They may become overwhelmed when required to handle additional run-off from grass surfaces. An overwhelmed sewer system results in additional infrastructure costs for the municipality. Developers are quick to point out the increased costs to the homeowner. However, they fail to recognize that the combined impact of topsoil runoff from multiple developments can strain a city's sewer system, resulting in increased costs for the city and its taxpayers. For example, Cedar Rapids' storm sewer system has a backlog of 90 projects totaling \$50 million.³¹ Finally, topsoil provides environmental services, such as increased vegetation health, water quality, and infiltration, which not all storm water detention basins are built to handle.



Willingness to Purchase Homes

In a recent debate between Cedar Rapids developers and city staff on topsoil regulation, developers argue that topsoil regulation will prevent people from wanting to live in Cedar Rapids. City officials in nearby Marion and Hiawatha are closely following the Cedar Rapids topsoil debate, from the contrary view that Cedar Rapids has the potential to make the city a regional leader in topsoil regulation.³²

Good topsoil provides a substantial foundation for grasses and other vegetation. A homeowners' quality of life can increase with the ability to grow healthier, low-maintenance lawns that better support garden, trees, landscaping, and prevent localized flooding. Despite being short-lived, the state's topsoil ordinance has already served to educate prospective homebuyers on the benefits of having topsoil on their lawn. Thanks to the rule, homebuyers have begun asking about topsoil and soil quality as they decide on which homes to buy.³³ Publicity on this issue has brought to light stories from residents, who describe their challenges with attempting to grow vegetation on a foundation of compacted clay, gravel, and no topsoil. Although topsoil replacement may add upfront costs to the house, the cost for an owner to continually aerate the soil over their years of ownership may be much higher. It is possible that by rejecting a topsoil ordinance, Cedar Rapids could actually deter residents from purchasing homes within its boundaries.

Picture 10.10. An Example of a Well Maintained Lawn



Source: Atlanta Lawn Care Services, 2013.

The above picture helps explain why better topsoil may be more desirable to future homeowners who wish to have high quality landscaping and gardening.

Improved Water Quality and Reduced Flooding

While a healthy supply of topsoil allows the proper establishment of vegetation, other benefits accrue community wide. Lawns will require less chemical treatment, increase water infiltration into the ground, and slow and reduce storm water runoff and erosion. This helps prevent and mitigate flash flooding events and the contamination of waterways.

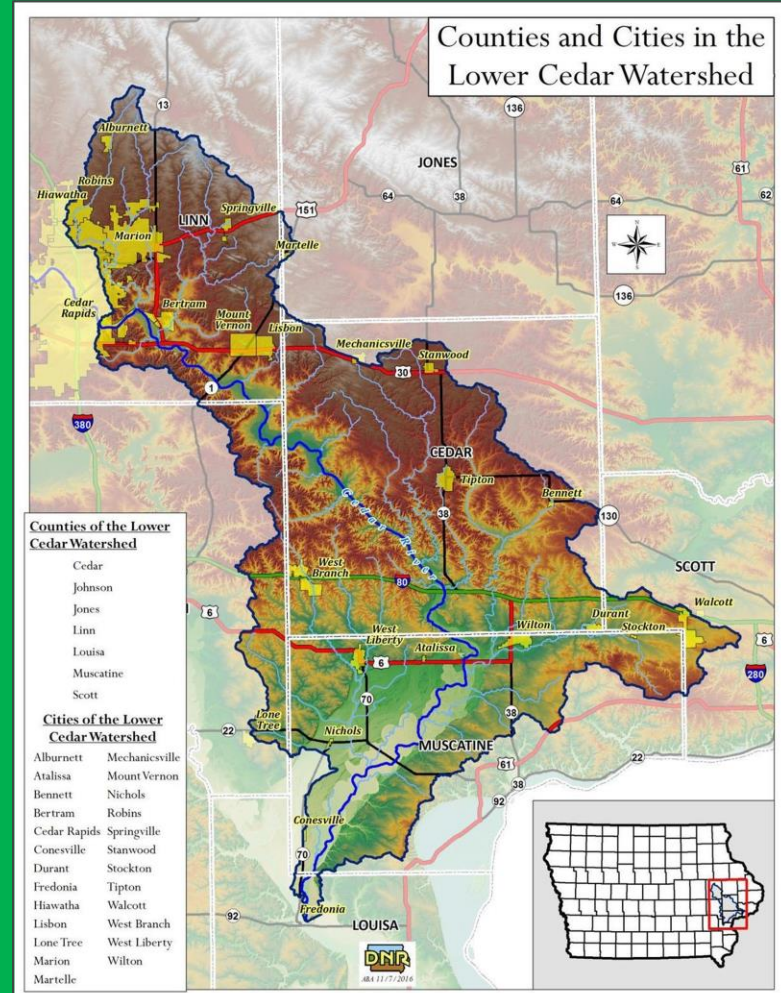
Although topsoil regulation cannot single handedly reverse Iowa's impaired water situation or prevent flooding events, it is a piece in the large picture of regional and community sustainability. While improving the water quality and runoff from a single development may not make much difference, improving the water quality and runoff from hundreds of developments does make a difference. In addition, because Iowa communities are asking farmers to improve the way they handle runoff, it's appropriate that municipal residents also contribute.³⁴

Strategies for Preservation and Replacement of Soil

Best management practices for topsoil involve both the preservation of the construction site's native soil, and the restoration of soil disturbed or removed by development to a state as close as possible to the original site. Although best management practices for topsoil may vary by location, the following methods have been adopted by a variety of state and local governments across the nation.

Builders can restore soil to meet topsoil replacement rules in a variety of ways. Most regulations and best practices suggest the four options described below. Strategies can be used individually or in combination at a single site.³⁵

Picture 10.11. Counties Located in Lower Cedar River Watershed



Source: Muscatine Journal 2017, "Muscatine County approves creation of Lower Cedar Watershed Authority".

Topsoil Composition

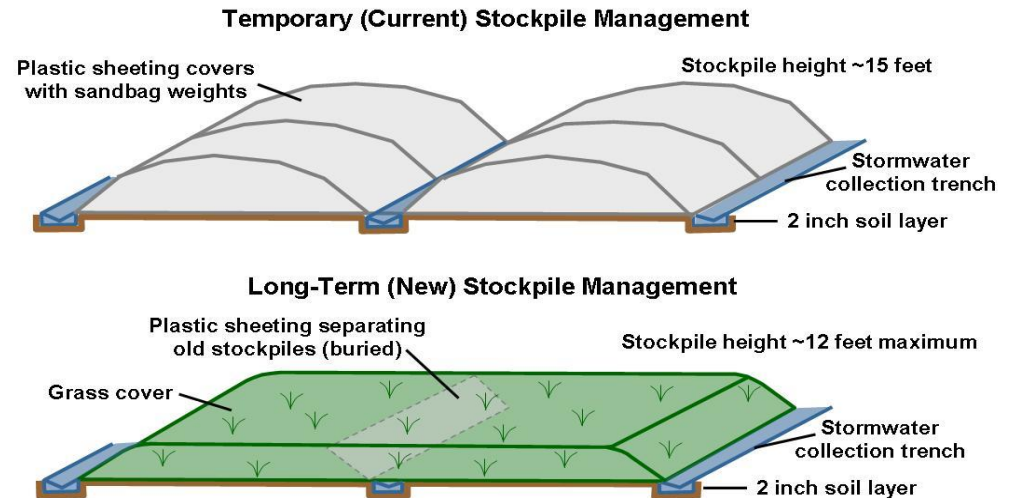
Material that should *not* be mixed in topsoil includes: wood bark, wood fiber, grass hay, or grain straw. Topsoil may be mixed with organic material such as “compost and rock mulch for added slope protection and to improve the growing capability of seeded and planted vegetation.”³⁶

Reusing Stockpiled Topsoil

Stockpiling topsoil can result in the disruption and loss of beneficial soil microorganisms if stockpiled over a length of time (+/-6 months). If topsoil is stockpiled prior to placement, the top one foot of the stockpile material should be mixed with the remainder of the stockpile to ensure that living organisms are distributed throughout the topsoil material at the time of final placement.³⁷

Following construction, stockpiled topsoil should be uniformly redistributed for placement to a depth of 6 inches. Placed topsoil should be cat-tracked vertically to the slope to compact the topsoil and to create horizontal pockets (safe sites) to hold seed and water.³⁸

1. Plan site development to leave native soil undisturbed and protect from compaction during construction. Fence off areas that do not need to be stripped, logged or graded and protect these areas from disturbance;
2. Amend the existing soil by rototilling compost into the existing soil;
3. Import topsoil mixes with 5-10% organic matter for turf areas and planting beds;
4. Stockpile, reapply, and amend original-site soil.



Source: <http://ecologywa.blogspot.com/2013/08/around-sound-work-underway-at-rayonier.html>

Restoring Original Site Soil Moisture

Some municipal, county, and state regulations require that unless covered by an impervious surface, areas cleared and graded be restored with an original soil moisture holding capacity equivalent to that of the original undisturbed native site soil.³⁹

Restoring Original Site Organic Matter Content and pH

Best practices suggest that replaced topsoil have an 4-5% organic matter content (dry weight) for turf applications, 8-13% organic content for planting, and a pH that is suitable for the proposed landscape plants.⁴⁰

Replacement Thickness

Several regulating agencies, such as the state of Minnesota, the City of Seattle, and King County, Washington, require that a minimum of four to eight inches thick of soil be restored to the site. In addition, they recommend that that compacted subsoil be tilled or plowed before the placement of topsoil.⁴¹ Leaving the topsoil in a roughened condition reduces erosion and creates a safe environment for seeds to establish and grow. In addition, best practices recommend that subsoils below the topsoil be scarified at least four inches.⁴²

Picture 10.12. Soil



Source: London Lawn Turf 2018. <https://www.londonlawnturf.co.uk/turf-lawn-seeding-soil.html>. Accessed, June, 2018.

Topsoil Conclusion

The debate on topsoil replacement regulation for construction sites need not be “another tired showdown between builders and environmental interests. It can and should be a cooperative model that seeks and values input from a broad array of citizens, not just those able to wield clout behind the scenes.”⁴³

Topsoil replacement regulation’s potential front-end cost impact on an individual lot is important. But also important are the burdens for homeowners who must struggle with an unproductive yard. Perhaps more important are the broader costs, borne over time by all city residents, associated with soil runoff, water quality, and the wear and tear of the municipal sewer systems that must handle quantities of runoff from inefficient land.

Employing best management practices for topsoil preservation and replacement, can help moderate development’s impact on the land. A city can be both open to development and interested in maintaining its land in a way that provides social, economic, and environmental benefits through carefully construed topsoil regulation.

Recommendation: West Branch continue to monitor developments in topsoil management, to the end of adopting a best-practices ordinance.

Picture 10.13. Soil – Hummus



Source: Cherry Hill screened top soil 2016. <https://www.cherryhillinc.com/top-soil-rock-stone-process-aggregate>. Accessed June, 2018.

Storm Water Management

Best Management Practices

West Branch has developed the Storm Water Quality Best Management Practices Reimbursement program to promote residential installation of storm-water quality BMPs and improve water quality. Financial assistance is given to applicants who install BMPs on their property that improve the quality of storm-water runoff entering the City storm sewer system, creeks or streams. Typical projects include rain gardens, bio-retention, rain barrels, and pervious paving systems, among other practices.⁴⁴

Recommendation: West Branch should monitor the program's effectiveness and make adjustments as warranted.

Permeable Pavers

Permeable pavers transform traditional transportation surfaces to allow water to soak down through the gaps between pavers and percolate into the soil. This system recharges the ground water, filters out pollutants, and cools the water while releasing it slowly. Benefits include a reduction in the volume of runoff and amount of pollutants in storm-water treatment facilities and streams, as well as no ponding of water in periods of freeze and thaw.⁴⁵

Several small towns in Iowa have successfully implemented permeable pavers. By example, West Union (population 2,395) has converted their entire business district, approximately six blocks, from store front to store front.⁴⁶ ⁴⁷ Charles City (population 7,500) has converted 26 blocks to permeable pavers, including a new planned unit development.⁴⁸ Hills (population 808) has installed permeable pavers for parking along their main commercial street.⁴⁹

Picture 10.14. Storm Water BMPs



Source: West Branch Iowa, Storm Water Best Management Practices. https://westbranchiowa.org/sites/default/files/Stormwater_BMP_Program_Form_Final.pdf. Accessed July, 2018.

Picture 10.15. Permeable Pavers in Downtown West Union, Iowa



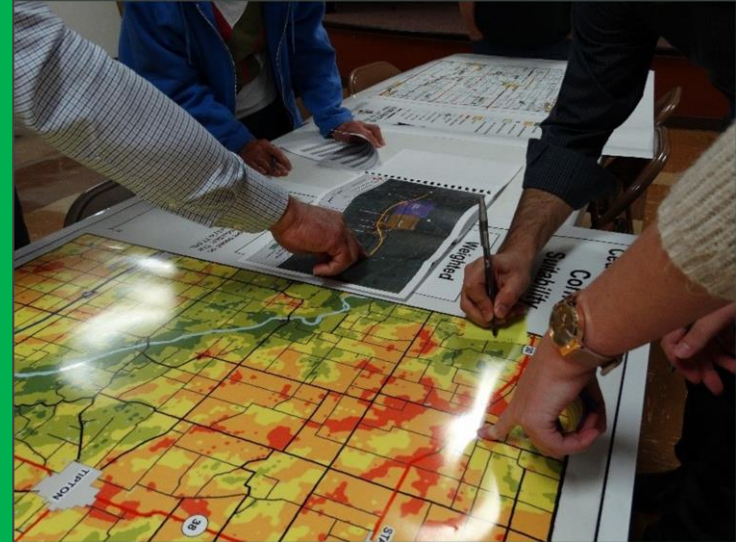
Source: Rain Scaping Iowa. www.rainscapingiowa.org Accessed July, 2018.

Hazard Mitigation

Hazard Mitigation is critical to the comprehensive planning process, and hazard concerns are integrated throughout this document. In order to facilitate review of the West Branch plan for compliance with Iowa's smart planning grant parameters, this section uses the "safe growth audit questions" from the FEMA publication Hazard Mitigation: Integrating Best Practices into Planning as a framework to collect and present the hazard mitigation elements of this plan. The West Branch comprehensive plan focuses primarily on flooding issues for its hazard mitigation recommendations, as this is the hazard most likely to be affected by the decisions of the comprehensive plan (namely, land-use and environmental decisions).

The efforts to minimize the impact of hazards in West Branch should be evaluated annually and be considered an on-going effort. The questions below will help the City of West Branch address and identify ways to minimize devastation from hazards.

Picture 10.16. 2017 Cedar County Community Workshop at Mechanicsville, Iowa



Source: Adam Kofoed, Cedar County Planning Team at Iowa Initiative for Sustainable Communities. Fall. 2017.

Land-Use

Does the future land-use map clearly identify natural-hazard areas?

Map 10.1 shows the planned future land-use with the current floodplain. Development should be discouraged in the floodplain.

Do the land-use policies discourage development or redevelopment within natural-hazard areas?

Yes, as described above, existing structures in the floodplain areas are noted and mitigation continues to be processed through an ongoing cost- benefit analysis.

Does the plan provide adequate space for expected future growth in areas located outside of natural-hazard areas?

Map 10.2 shows the planned future land-use for the City of West Branch. With redevelopment of existing sites and looking at infill lots as the first priority of development there is adequate land outside of natural-hazard areas for development

Transportation

Does the transportation plan limit access to hazard areas?

Yes. The transportation plan does not encourage access to hazardous area. For example, any new roads and streets proposed for growth areas would be discouraged not to enter the floodplain, but rather would access higher ground.

Is transportation policy used to guide growth to safe locations?

Yes. Proposed new roads would connect to areas of town that have areas of non-hazard land available for development. Providing access to these areas will encourage development in safe areas. The West Branch floodplain ordinance stipulated that subdivisions should have means of access during flood.

Are movement systems designed to function under disaster conditions (e.g., evacuation)?

Yes. One of the primary features of the set of proposed transportation changes (Chapter 9) is the provision of multiple access routes to all developed areas, and accommodation of multiple modes of transportation, including auto, bike, and pedestrian. By limiting single access developments (such as dead-end cul-de-sacs), the proposed system allows for greater evacuation possibilities. Most new growth areas have multiple street outlets and all new growth areas have at least one proposed street connection to the existing street network that does not cross a floodplain. A more connected street system also makes safety services such as ambulance/fire service more efficient. Providing multiple mode choices improves safety by allowing options for evacuation and mobility during disaster conditions, particularly for those without vehicles. Proposed street extensions also reduce the load on existing streets, which increases mobility for safety purposes such as ambulance/fire service and other emergency services.

Environmental Management

Are environmental systems that protect development from hazards identified and mapped?

Yes. Map 10.1 shows floodplains and wetlands. These areas contribute to the natural drainage system that can help prevent flooding in developed areas by moving and dispersing storm water properly.

Do environmental policies provide incentives to development that is located outside of protective ecosystems?

Yes. The future land-use map (Map 10.2) located new development in areas outside of protective ecosystems and shows areas inside those eco systems as non-developable (greenways). This map is presented as a guide for the planning and zoning commission and city council in deciding where new development should be allowed. Additionally, the City of West Branch floodplain ordinance places restriction on development in the floodplain.

Public Safety

Are the goals and politics of the comprehensive plan related to those of the FEMA Hazard Mitigation Plan?

Yes. The goals and policies of the comprehensive plan are in agreement with the 2011 Cedar County, Iowa Multi-Jurisdictional Hazard Mitigation Plan (HMP). The comprehensive plan primarily addresses floodplain issues, as this is the hazard most likely to be affected by the decisions of the comprehensive plan (namely, land-use and environmental decisions). The land-use plan and storm-water plans in this document correlate directly to several mitigation actions identified in the Cedar County HMP that are fully outlined on the following page. Cedar County in general, has had significant issues with flooding in the past decade and many of the County's mitigation goals are related to flooding, which in turn become crucial to this comprehensive plan in terms of zoning, construction, roads and watershed preservation and restoration. Other factors that correlate from the HMP to the comprehensive plan are in terms of necessary safety systems that relate to mitigation, such as fire and safety personnel, systems and equipment.

Is safety explicitly included in the plan's growth and development policies?

Yes. Public Safety facility development is covered in chapter 12, while safety concerns regarding natural hazards are referenced as part of the "Comprehensive Planning Principles" and "preservation of Natural Areas" in chapter 5.

Does the monitoring and implementation section of the plan cover safe-growth objectives?

Yes. Chapter 14 outlines a plan and broad timeline for implementation of the safe-growth objectives, including: new residential developments connect well to existing neighborhoods, and guide growth to non-hazard areas of the city. Chapter 14 also provides possible funding sources to help the City of West Branch accomplish these goals.

Other Hazards

While avoiding floodplain development is one of the biggest hazard prevention the City of West Branch can do, being aware of other hazards is important too. Even though there is little the City of West Branch can do to prevent natural disasters caused from tornadoes, windstorms, hailstorms, and thunder and lightning being aware of these hazards and have a storm preparedness plan in place can reduce the chaos if such a storm strikes the City of West Branch. The City should also be aware of manmade hazards from brownfields, and interstate highway for example. Having an understanding of these potential hazards and having a response plan in place if such a hazard occurs can limit the destruction caused by these manmade hazards. An investigation of possible brownfield sites in the City could be done so the City has a better understanding of where these potential hazards are. For a comprehensive look at all the potential hazards the City of West Branch could be exposed to please refer to the Cedar County, Iowa Multi-Jurisdictional Hazard Mitigation Plan January 2011.

Specific action steps for hazard mitigation from the Cedar County multi-jurisdictional hazard mitigation plan included in the comprehensive plan:

Storm Water System and Drainage Improvements – these improvements can serve to more effectively convey runoff within cities and towns, preventing interior localized flooding. May also reduce the risk of illness/disease by eliminating standing water.

Stream Bank Stabilization/Grade Control Structures/Channel Improvements – which can serve to more effectively protect structures, increase conveyance, prevent down cutting, and provide flooding benefits.

Drainage Study/Storm Water Master Plan – Protective steps to identify all potential problems/issues can lead to effectively addressing improvements and prioritizing the projects to improve conditions. These improvements can serve to more effectively convey runoff within jurisdictions, preventing interior localized flooding resulting in damages. This ensures that the most beneficial projects are done first and could possibly eliminate the need for others.

Flood-prone Property Acquisition – Voluntary acquisition and demolition of properties prone to flooding will reduce the general threat of flooding for communities. Additionally, this can provide flood insurance benefits to those communities within the NFIP.

Drainage Districts – Improve land for agricultural and sanitary purposes on a regional basis.

Map 10.1. Flood Risk

Regulation and Enforcement Updates

Ensures that no new structures built will be vulnerable to flooding. Reducing damages and health risks associated with flooding.

Floodplain Management

Continue compliance with the NFIP. Good standing enables participants to apply for PDM and HMGP cost-share.

Civil Service Improvements

Having appropriate and up to date equipment along with adequately trained and numbered personnel increases safety and reduces the risk of damage.

National Flood Hazard Map⁵⁰
West Branch, Iowa

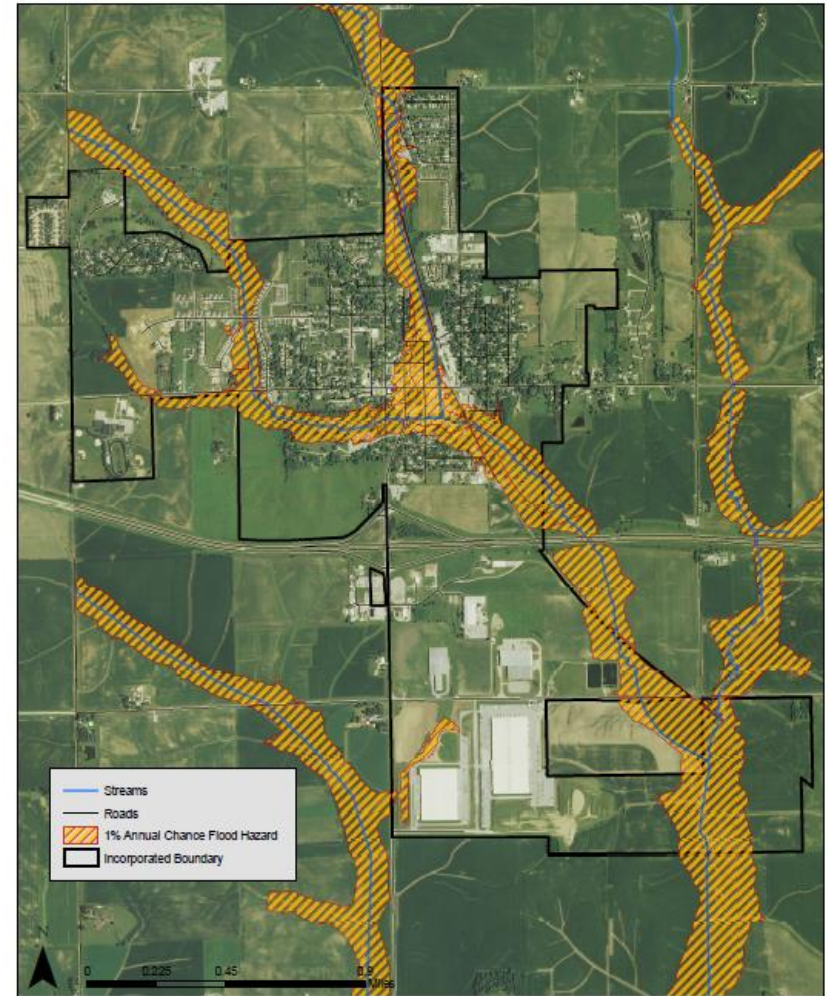
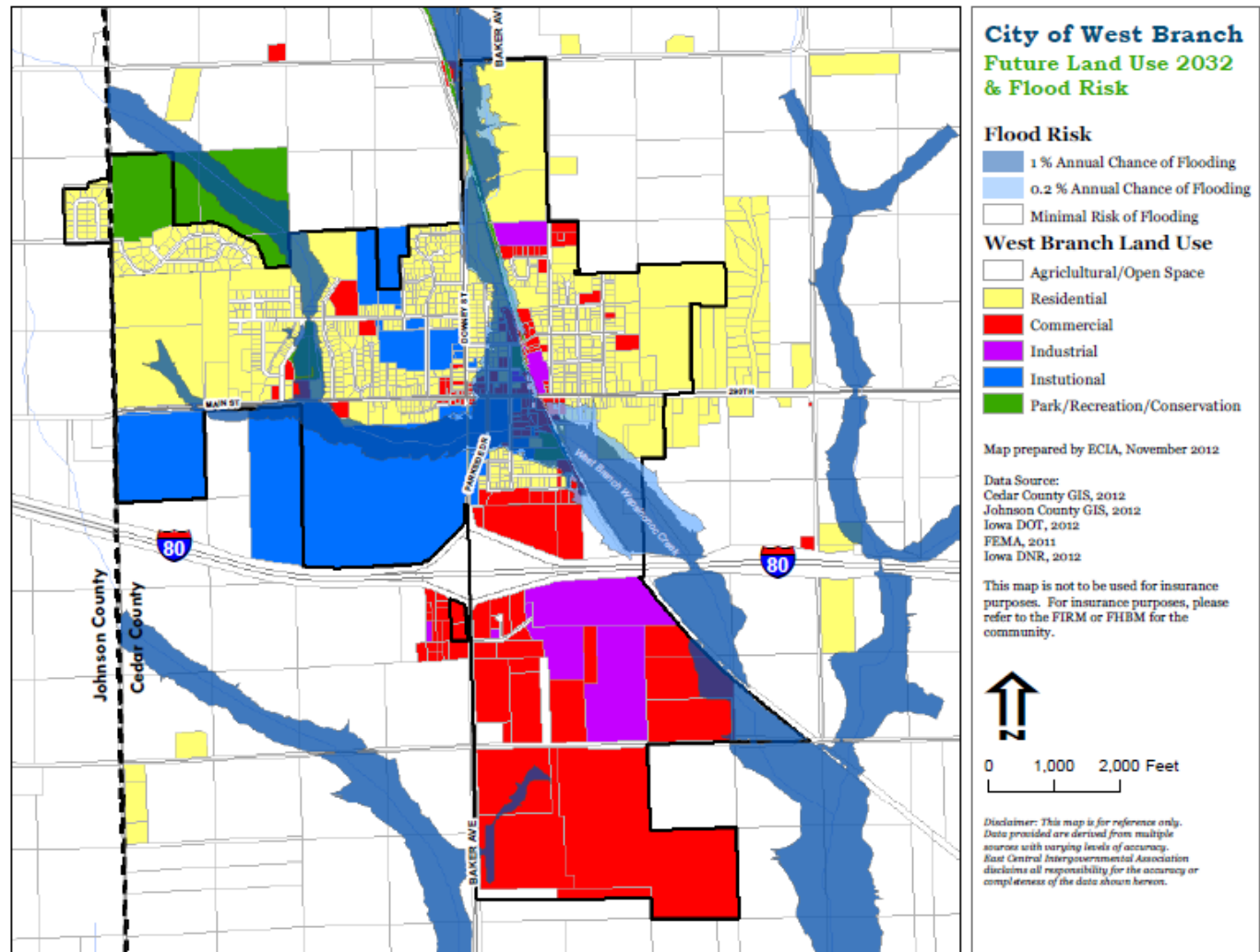


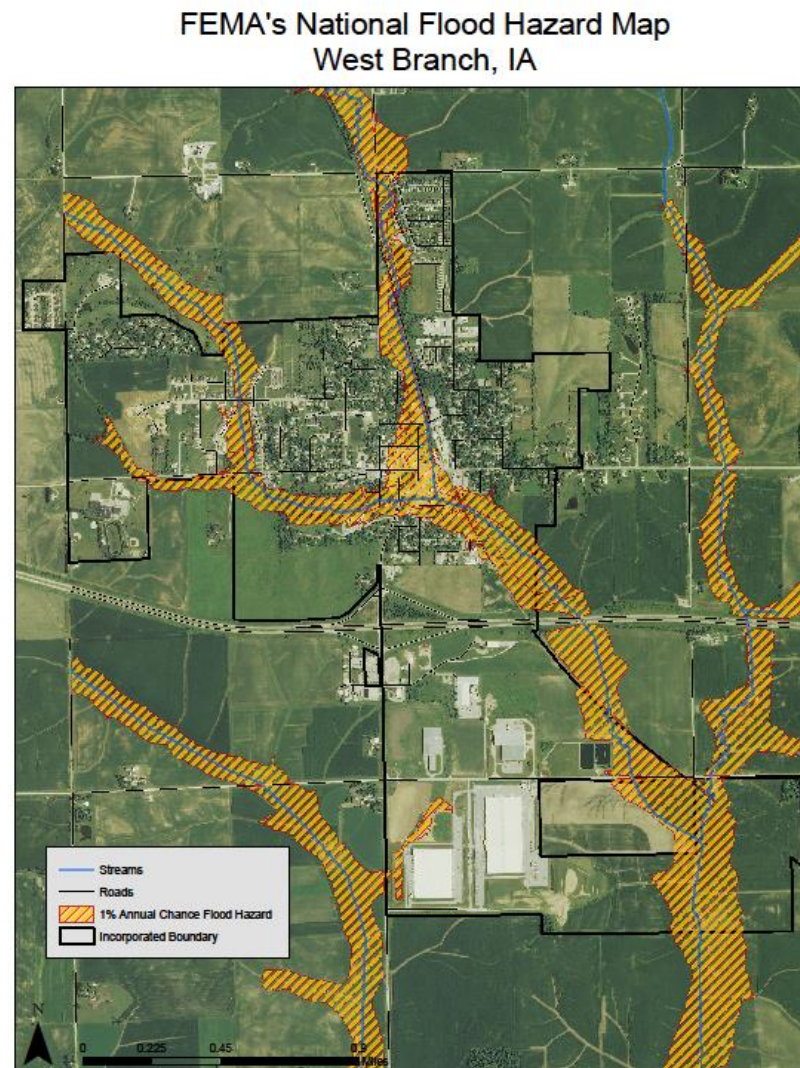
Figure 1: Source: Iowa GIS Data Repository, Iowa Counties Information Technology.
Compiled by Tara Cullison.

10.2. Future Land-use With Flood Risk



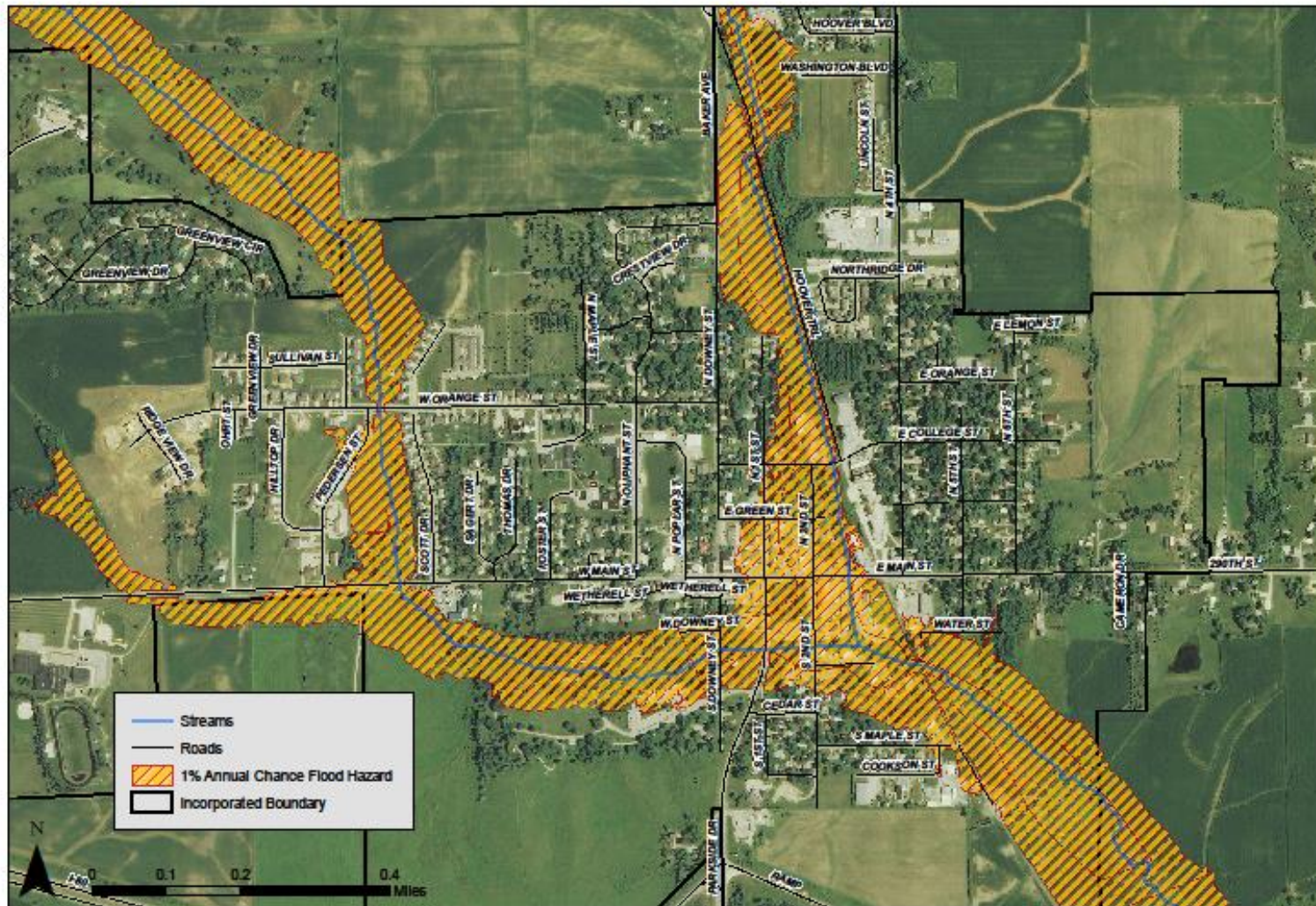
Appendix

Appendix 1 – FEMA Flood Hazard Maps



Appendix Figure 1: Source: Iowa GIS Data Repository, Iowa Counties Information Technology. Compiled by Tara Cullison.

FEMA's National Flood Hazard Map
West Branch, IA



Appendix Figure 2: Source: Iowa GIS Data Repository, Iowa Counties Information Technology. Compiled by Tara Cullison.

FEMA's National Flood Hazard Map
West Branch, IA



Appendix Figure 3: Source: Iowa GIS Data Repository, Iowa Counties Information Technology. Compiled by Tara Cullison.

References

- ¹ (Iowa Department of Natural Resources, 2017) <http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Flood-Plain-Management/National-Flood-Insurance-Program>.
- ² (Federal Emergency Management Association, 2018) <https://www.fema.gov/cis/IA.html>.
- ³ (Federal Emergency Management Agency, 2018) <https://bsa.nfipstat.fema.gov/reports/1011.htm#IAT>.
- ⁴ This estimate is based on a phone call between the author and insurance agency in November, 2017.
- ⁵ (City of Cedar Rapids, 2017) http://www.cedar-rapids.org/local_government/departments_a_-_f/building_services/building_and_trades/codes.php
- ⁶ Such a West Branch Tree Committee existed in the 1990s, and held plant sales to support tree purchases, with plants supplied by local residents. City staff planted the trees. Currently West Branch High School sells annual plants in the spring to support their Future Farmers chapter.
- ⁷ "Sustainability Committee." City of Mount Vernon. April 7, 2017. Accessed July, 2018. <https://www.cityofmtvernon-ia.gov/index.asp?SEC=5A370E3E-72E2-4B7D-A2CB-EF1D28283397&DE=6EBA2186-84EA-4BE9-85CC-59DF680ACA82>.
- ⁸ (City of Marion, 2017)
- ⁹ "Volkswagen Clean Air Act Partial Settlements." Iowa Department of Transportation. July, 2018. <https://www.iowadot.gov/vwsettlement/>.
- ¹⁰ "Advancing Iowa's Electric Vehicle Market." Iowa Economic Development Authority. July 2016. <https://www.iowaeconomicdevelopment.com/userdocs/documents/ieda/AdvancingIowaElectricVehicleMarketReport.pdf>
- ¹¹ "Electric Car Charging Stations Installed at Bandshell Park and City Hall." City of Ames. June 18, 2018. <https://www.cityofames.org/Home/Components/News/News/4961/2106>
- ¹² "Advancing Iowa's Electric Vehicle Market." Iowa Economic Development Authority. July 2016. <https://www.iowaeconomicdevelopment.com/userdocs/documents/ieda/AdvancingIowaElectricVehicleMarketReport.pdf>
- ¹³ "2017 Iowa Statewide Waste Characterization Study." SCS Engineers. Prepared for Iowa Department of Natural Resources. www.iowadnr.gov/Portals/idnr/uploads/waste/wastecharacterization2017.pdf. Accessed June, 2018.
- ¹⁴ "Permitted Organic Composting Facilities." Iowa Waste Reduction Center. June 2018. <https://iwrc.uni.edu/regulatory-information/food-waste-composting/permitted-facilities>.
- ¹⁵ <https://nextcity.org/daily/entry/madison-100-percent-clean-energy-goal>
- ¹⁶ <http://www.cityofcolumbuswi.com/2208/Columbus-An-Energy-Sustainability-Leader>
- ¹⁷ <https://www.linncountyrec.com/service-and-reliability/renewable-installation/>
- ¹⁸ "Solarize Johnson County." Accessed July, 2018. <https://www.growsolar.org/solarize-johnson-county/>.
- ¹⁹ "California Will Require Solar Power for New Homes". Penn, Ivan. May 9, 2018. <https://www.nytimes.com/2018/05/09/business/energy-environment/california-solar-power.html>.
- ²⁰ Prepared for West Branch, IA Planning and Zoning Commission meeting February 23, 2016, by Katie Gandhi with proofreading by Jason Shallcross, Urban and Regional Planning graduate students at the University of Iowa, with review and revision by John Fuller.
- ²¹ <http://www.merriam-webster.com/dictionary/topsoil>
- ²² "Does Cedar Rapids Need to Talk Topsoil?" Smith, Rick. *The Gazette*. July 2015. <http://www.thegazette.com/subject/news/business/does-cedar-rapids-need-to-talk-topsoil-20150708>
- ²³ Coralville, IA's Post-Construction Stormwater Ordinance. <http://www.coralville.org/DocumentCenter/View/3205>
- ²⁴ <http://northlibertyiowa.org/wp-content/uploads/2012/08/Iowa-Stormwater-Regulation-update-oct-12.pdf>
- ²⁵ <http://www.northlibertyleader.com/content/ordinance-seeks-mitigate-lack-good-topsoil-new-construction-sites>
- ²⁶ "Cedar Rapids, Builders at Odds Over Topsoil Costs." Morelli, B.A. *The Gazette*. January 2016. <http://www.thegazette.com/subject/news/government/cedar-rapids-builders-at-odds-over-topsoil-costs-20160127>
- ²⁷ "Cedar Rapids Contends With Builders On Proposed Topsoil Rule Aimed to Prevent Flooding." Smith, Rick. *The Gazette*. November 2015. <http://www.thegazette.com/subject/news/government/cr-contends-with-builders-on-proposed-topsoil-rule-aimed-to-prevent-flooding-20151111>

-
- ²⁸ “Cedar Rapids, Builders at Odds Over Topsoil Costs.” Morelli, B.A. *The Gazette*. January 2016. <http://www.thegazette.com/subject/news/government/cedar-rapids-builders-at-odds-over-topsoil-costs-20160127>
- ²⁹ “Does Cedar Rapids Need to Talk Topsoil?” Smith, Rick. *The Gazette*. July 2015. <http://www.thegazette.com/subject/news/business/does-cedar-rapids-need-to-talk-topsoil-20150708>
- ³⁰ “Cedar Rapids Contends With Builders On Proposed Topsoil Rule Aimed to Prevent Flooding.” Smith, Rick. *The Gazette*. November 2015. <http://www.thegazette.com/subject/news/government/cr-contends-with-builders-on-proposed-topsoil-rule-aimed-to-prevent-flooding-20151111>
- ³¹ <http://www.thegazette.com/subject/opinion/blogs/24-hour-dorman/cr-mulls-coralville-runoff-rule-20150917>
- ³² “Digging in.” Staff Editorial. *The Gazette*. January 2016. <http://www.thegazette.com/subject/opinion/staff-editorial/digging-in-20160124>
- ³³ “Does Cedar Rapids Need to Talk Topsoil?” Smith, Rick. *The Gazette*. July 2015. <http://www.thegazette.com/subject/news/business/does-cedar-rapids-need-to-talk-topsoil-20150708>
- ³⁴ “Cedar Rapids Contends With Builders On Proposed Topsoil Rule Aimed to Prevent Flooding.” Smith, Rick. *The Gazette*. November 2015. <http://www.thegazette.com/subject/news/government/cr-contends-with-builders-on-proposed-topsoil-rule-aimed-to-prevent-flooding-20151111>
- ³⁵ Achieving the Post-construction Soil Standard. King County, Washington. <https://your.kingcounty.gov/solidwaste/greenbuilding/documents/Post-Construction-Soil-Standard.pdf>
- ³⁶ <http://itd.idaho.gov/enviro/Stormwater/BMP/PDF%20Files%20for%20BMP/Chapter%205/PC-33%20%20Topsoil%20Management.pdf>
- ³⁷ <http://itd.idaho.gov/enviro/Stormwater/BMP/PDF%20Files%20for%20BMP/Chapter%205/PC-33%20%20Topsoil%20Management.pdf>
- ³⁸ http://www.seattle.gov/util/cs/groups/public/@spu/@usm/documents/webcontent/spu01_006396.pdf
- ³⁹ http://www.dnr.state.mn.us/water_access/bmp/soil_retention_bmp.html
- ⁴⁰ http://www.seattle.gov/util/cs/groups/public/@spu/@usm/documents/webcontent/spu01_006396.pdf
- ⁴¹ Achieving the Post-construction Soil Standard. King County, Washington. <https://your.kingcounty.gov/solidwaste/greenbuilding/documents/Post-Construction-Soil-Standard.pdf>
- ⁴² <http://www.snohomishcountywa.gov/DocumentCenter/Home/View/8110>
- ⁴³ “Digging in.” Staff Editorial. *The Gazette*. January 2016. <http://www.thegazette.com/subject/opinion/staff-editorial/digging-in-20160124>
- ⁴⁴ “City of West Branch Stormwater Quality BMP Reimbursement Program.” City of West Branch. July, 2018. https://westbranchiowa.org/sites/default/files/Stormwater_BMP_Program_Form_Final.pdf.
- ⁴⁵ “Permeable Pavers.” Clean Water Iowa. Accessed July, 2018. <https://www.cleanwateriowa.org/permeable-pavers>.
- ⁴⁶ “Permeable Pavers: Transportation and Stormwater Infrastructure”. Rainscaping Iowa. Accessed July, 2018. http://www.rainscapingiowa.org/documents/filelibrary/permeable_pavement_systems/PermPavemtBrochure_1CDC21254C1A6.pdf.
- ⁴⁷ “A Sustainable Vision for West Union”. Conservation Design Form and Conservation Research Institute. September 12, 2008. Accessed July, 2018. http://www.westunion.com/uploads/PDF_File_67184288.pdf
- ⁴⁸ “Iowa Water Conference 2016: Permeable Paving and Riverfront Development.” Diers, Steven and Fallis, John. March 23, 2016. Accessed July, 2018. <http://www.water.iastate.edu/sites/www.water.iastate.edu/files/iowawatercenter/Breakout%20Diers%20Charles%20City.pdf>.
- ⁴⁹ “Hills debuts permeable pavers to slow runoff, improve water quality”. Arnold, Madison. June 27, 2018. Accessed July, 2018. <http://www.thegazette.com/subject/news/government/hills-debuts-permeable-pavers-to-slow-runoff-improve-water-quality-20180627>.
- ⁵⁰ FEMA Map Shapefiles and ArcGIS Software