CITY OF WEST BRANCH IOWA

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PLANNING AND ZONING COMMISSION MEETING
Tuesday, April 18, 2017 • 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.
    a. Approve minutes from the March 28, 2017 Planning and Zoning Commission Meeting.
4. Public Hearing/Non-Consent Agenda
    a. Discussion on Complete Streets
    b. Discussion on Urban Tree Policy
    c. Approve Proposed revision to peer cities for West Branch Comprehensive Plan
5. City Staff Reports
6. Comments from Chair and Commission Members
7. The next regularly-scheduled Planning and Zoning Commission Meeting – May 23, 2017 at 7:00 p.m.
8. Adjourn

(These minutes are not approved until the next Commission meeting.)

City of West Branch Planning & Zoning Commission Meeting
March 28, 2017
West Branch City Council Chambers, 110 North Poplar Street

Chairperson John Fuller opened the meeting of the Planning & Zoning Commission at 7:01 p.m. welcoming the audience and following City Staff, Deputy City Clerk Leslie Brick, Zoning Administrator Terry Goerdt, and Park & Recreation Director Melissa Russell. Interim City Administrator Nick Shimmin arrived at 8:00 p.m. Commission Members LeeAnn Aspelmeier, Ryan Bowers, Sally Peck, Gary Slach and Emilie Walsh were present. Commission Member Tom Dean was absent.

Approve Agenda/Consent Agenda/Move to action.
Approve the agenda for the March 28, 2017 Planning and Zoning Commission Meeting.
Bowers proposed that the Hilltop Site Plan be changed to a move to action item. Aspelmeier said she would second that proposal.
Motion by Bowers, second by Aspelmeier to approve the agenda with the suggested change. AYES: Bowers, Aspelmeier, Fuller, Walsh, Peck, Slach. NAYS: None. Absent: Dean. Motion carried.
Approve minutes from the February 28, 2017 Planning and Zoning Commission Meeting.
Motion by Bowers, second by Slach to approve the minutes. Absent: Dean. Motion carried on a voice vote.

Public Hearing/Non-Consent Agenda

Approve Hilltop Drive Site Plan./Move to action.
City Engineer Dave Schechinger reviewed some changes to the plan based on resident feedback to preserve parking on Hilltop Drive. Schechinger said the developer had addressed all of the concerns related to parking, landscaping, and storm water as previously expressed in previous meetings. Aspelmeier commented that she was happy that the parking concerns were addressed. Matt Adam, attorney with Simmons, Perrine, Moyer, Bergman, PLC., and developer for Hilltop Drive was present for questions.

Mike Owen, 166 Hilltop Drive thanked the developer for the modifications but stated that he felt more changes could be made. Owen also expressed his concern over what he felt was a lack of communication on this development between the city and the affected residents. Owen went on to state that although he was in favor of development, he was not in favor of this site plan. Owen asked the commission to defer making a decision at this meeting and give this project additional consideration.

Kris McManis, 606 W. Orange Street expressed his concern on the volume of residents on the private drive portion of the site plan and cited that light pollution was his main concern. McManis said the additional parking spots for the private drive face the rear of his house and said that headlights would shine into his home on a regular basis.

Jean McManis, 606 W. Orange Street, stated that flooding issues in this area are her concern. McManis commented that there is a low spot at the rear of her property which holds water now and that she is concerned that the run off will be worse. She also felt this plan is too dense for the size of the lot.

Brian Driscoll, 701 W. Orange Street spoke in favor of development, but reiterated the *right* development. He also stated the obvious that with development comes traffic. Driscoll said the reason he moved his family to West Branch was to be in a thriving community with a younger population. He encouraged the commission to make sure that some of the past issues with other developments don't repeat themselves, but not to hold development up for a developer who has committed to doing things right.

Aspelmeier questioned the number of units the property is zoned for compared to the number proposed for this development. The developer responded that the maximum number of units per lot is twelve and that there are three lots, totaling 36 units. Their proposal is nineteen units. Fuller asked Schechinger to address resident concerns regarding flooding. Schechinger said that an existing 6-8 inch drain pipe would be upgraded to an 18 inch drain pipe that will carry the water underground to Lions Field. Bowers asked to review details on the landscaping plans and if they addressed the light pollution concern.

The developer responded that the additional parking spaces could be removed if that was an issue. They were added to accommodate less on street parking on Hilltop. Goerdt suggested adding arborvitaes as a possible screening. Walsh asked the developer if they would accommodate this request. The developer responded that they had met all of the city requirements and were not prepared to accommodate additional requests at this time.

Slach gave his comments on the treatment of developer's and said that if the developer meets all of the requirements set forth by the city and the city votes the project down, it may deter the developer to return.

Motion by Bowers, second by Peck to approve the revised Hilltop Drive Site Plan as proposed. AYES: Bowers, Peck, Aspelmeier, Fuller, Walsh, Slach. NAYS: None. Absent: Dean. Motion carried.

Approve Croell Redi-Mix Grading and Erosion Control Plan./Move to action.
Motion by Aspelmeier, second by Bowers to approve the Croell Site Plan. AYES: Aspelmeier, Bowers, Slach, Peck, Walsh, Fuller. NAYS: None. Absent: Dean. Motion carried.

Discussion on Update to the West Branch Comprehensive Plan.
Fuller provided an update on the comprehensive plan review. He also provided information on peer cities and proposed a community tree policy for West Branch. Fuller asked the commission members to review the information and prepare to discuss at the next meeting. Fuller also mentioned a recent discussion regarding street widths in new developments and proposed the city adopt a complete streets policy. Councilperson Tim Shields addressed the commission in favor of a review of the city's current ordinance on street widths. City Engineer Dave Schechinger also spoke to the subject and suggested a master transportation plan which would identify where the city's future bike trails and collector streets would be so that future developers would know what to expect.

Discussion on Pedersen Valley Park Improvements – Phase 1 Preliminary Flood Mitigation Plan and Check Plans.
Slach said he was disappointed in the park layout of the proposed ball fields. He said the voters voted on three ball diamonds, one adult and two little league fields. Park & Recreation Director Melissa Russell clarified that the third ball diamond was a functioning field, without irrigation. Russell stated that this area could be used for a future swimming pool. Slach again mentioned that the voters for three ball fields and stated the city should have done its homework to see if three ball diamonds would work in this area. Peck said she felt that she voted on a 'concept' of a park plan which may or may not have included a swimming pool or a certain number of ball fields. Schechinger asked Russell if the engineer was planning on doing on-site mitigation or if credits were to be purchased. Russell said she believed that on-site was planned. Fuller asked if further discussions were being held on this topic and suggested that this topic be discussed at a future meeting.

Discussion on Lot 21 of Pedersen Valley III- Phase 1 site plan.
Brian Shay, Coohey Construction described his site plan for lot 21 on Pedersen St. Shay said he would like to construct a three-plex on the vacant property just south of the funeral home. Bowers asked if this project would need the normal site plan review. City Engineer Dave Schechinger said that per Chapter 173, site plan review and approval was required for any dwelling more than two-family. Fuller asked if the builder had a ballpark figure for cost for the units. Shay said they were targeting the $160,000-$170,000 but would ensure a quality product.

CITY STAFF REPORTS
Zoning Administrator Terry Goerdt mentioned that several building permits had been submitted recently and it would be another busy building season.

COMMENTS FROM CHAIR AND COMMISSION MEMBERS
Fuller requested a special meeting for April 18, 2017 at 7:00 p.m.

Adjourn
Motion by Bowers, second by Walsh to adjourned the Planning & Zoning Commission Meeting. Meeting adjourned at 8:46 p.m.

In larger communities where the traffic volumes are heavy and land use density is greater, all of the above elements may be factors to consider. However, in smaller communities with lower traffic volumes and less dense developments, only a few may be important. The application of complete streets principles is most effective when neighborhoods are compact, complete, and connected to encourage walking and biking comfortable distances to everyday destinations such as work, schools, and retail shops. Past land use practices of large tracts for single use development are less effective in encouraging short walking or biking trips.

Complete streets are designed to respect the context of their location. For example, downtown locations may involve greater emphasis on pedestrians, bicyclists, and transit users than single family neighborhoods. Additionally context includes social and demographic factors that influences who is likely to use the street. For example, low income families and those without their own vehicle have the need for an interconnected pedestrian, bicycle, and transit network serving important destinations in the community.

The U.S. DOT adopted a policy statement regarding bicycle and pedestrian accommodations in March of 2010. It states:

> "The U.S. DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and biking into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide – including health, safety, environmental, transportation, and quality of life – transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."

In addition to the U.S. DOT policy, members from the U.S. House of Representatives and the U.S. Senate have introduced a bill entitled "Safe Streets Act of 2014" that calls for all state DOTs and TMAs/MPOs to adopt a complete streets policy for all federally funded projects.

B. Design Guidance

There are a myriad of ways to address the development of complete streets in terms of a planning function, but there are not specific complete streets design elements identified for engineers to use to develop construction or reconstruction projects. The concept of complete streets goes beyond safety, tying in issues of health, livability, economic development, sustainability, and aesthetics.

Applying flexibility in street design to address the complete streets philosophy requires an understanding of each street's functional basis. It also requires understanding how adding, altering, or eliminating any design element will impact different users. For instance, large radii may make it easier for trucks to navigate the street, but they create wider streets for pedestrians to cross. Designers of complete streets should understand the relationship between each criterion and its impact on the safety and mobility of all users.

Various manuals are available to provide design guidance including:

- AASHTO's A Policy on Geometric Design of Highways and Streets (the Green Book)
- The Manual on Uniform Traffic Control Devices (MUTCD)
- The Highway Capacity Manual (HCM)
- AASHTO Guide for the Development of Bicycle Facilities
- ITE Traffic Engineering Manual
- NFPA Fire Code
- Local design ordinances
- The Access Board's PROWAG

Some elements within these manuals are specific standards and some are guidelines with ranges of acceptable values. The MUTCD has been adopted as law; therefore the standards within it need to be met. In addition, there may be different standards for facilities that are under the Iowa DOT's jurisdiction than those for local control. If federal or state funding is being used to assist in a project's financing, the standards may be different yet. Local jurisdictions utilize the above manuals for design as a means of protection from lawsuits. Thus from a liability standpoint, it is very important that the design guidance meet the standards or fall within the range of acceptable guidelines provided by the above manuals.

As always, functional classification, traffic volumes, and level of service are factors to consider in any street design, and may be the highest priority for certain facilities. Through stakeholder input, it is important to identify the core issues, develop a spectrum of alternatives, and reach a design decision considering the needs of all of the users. The project development process may determine vehicular level of service is not the critical element and improved service for the other travel modes for pedestrians, bicyclists, and transit users is equal or more important.

C. Design Elements

If a complete streets design is contemplated, many elements must be determined during the design process. Traditionally designers have focused on those related to motor vehicles. With a complete streets design, other elements are also addressed. Each of those elements will be discussed and design guidance presented.

1. **Land Use:** The type of adjacent land use provides insight into several factors. For instance, in industrial areas, the expectation is that truck volumes will be higher. Also in commercial/retail areas, there is an expectation that pedestrians, transit, and bicyclists will have a greater impact. In residential land use areas, the street and right-of-way should accommodate pedestrians of all ages and abilities, and shared use of the street by motorists and bicyclists should be expected.

   Land use will influence speed, curb radii, lane width, on-street parking, transit stops, sidewalks, and bicycle facilities.

2. **Functional Classification:** Most jurisdictions classify their streets as a means of identifying how they serve traffic. Streets are generally classified as arterial, collector, or local facilities. Complete streets projects must take into consideration each street classification because it helps determine how the street and network needs to be treated to handle traffic volumes and other conflicts that may arise if design changes are made.

   Street classifications and the functions of each type are explained in detail in Section 5B-1. It is important to note that all jurisdictions, regardless of size have at least one street in each category. That means that in a larger community an arterial street may carry 20,000 vehicles per day, but in a smaller city the volume on their arterial street might be 2,000 vehicles per day. Similar differences exist in the collector classifications. Generally arterial streets are designated because their primary purpose is to move traffic. Collectors serve the traffic mobility function, but also provide access to adjacent property. Local streets are primarily there to serve adjacent property and should not have through traffic. Designs appropriate for low density residential areas are not likely to fit in the downtown commercial areas due to the likelihood of more pedestrians, bicyclists, trucks, and buses.

3. **Speed:** Because of the differences from community to community in functional classifications, a better criteria to use for design is speed. There are two types of speed to consider in design. The first is operating speed and the other is design speed. Operating speed is typically the posted speed limit and the design speed is often set at 5 miles per hour greater as a factor of safety. It is

also permissible to set the design speed and the posted speed the same. The design speed determines various geometric requirements for safe operations at that speed. These include stopping sight distance, passing sight distance, intersection sight distance, and horizontal and vertical curve elements. These standards are from the AASHTO Green Book and are outlined in Tables 5C-1.01 and 5C-1.02 and for liability reasons should be met at all times, especially for new streets. If it is not possible for any design element to meet the geometric standards on existing streets, warning signs and other safety treatments must be used.

It has been past practice to set the design speed at the highest level that will meet the safety and mobility needs of motor vehicles using the street. One of the principles of complete streets provides for slowing vehicles down to improve safety for all users, especially pedestrians and bicyclists. In general, the maximum speed chosen for design should reflect the network needs and the adjacent land use. The speed limit should not be artificially set low to accomplish complete streets objectives if the roadway environment does not create the driver expectation that they should slow down.

The maximum speed for arterial streets should be 45 miles per hour (mph), but only in rural sections or situations where access control is established and free flowing traffic is the normal situation. A maximum of 35 mph is more typical for most arterial streets in urban developed areas.

Collector streets serve both a mobility and property access function and thus the maximum speed is generally 30 mph. In some cases, 35 mph could be used but only when property access is very limited.

Local streets should be designed at 25 mph since their primary function is for property access.

4. **Design Vehicle:** The selection of the design vehicle is an important element in complete streets design. Lane width and curb radii are directly influenced by the design vehicle. It is not always practical to select the largest vehicle that may occasionally use a street as the design vehicle. In contrast, selection of a smaller vehicle if a street is regularly used by larger vehicles can invite serious operational and safety problems for all types of users.

   When selecting a design vehicle, the designer should consider the largest vehicle that will frequently use the street and must be accommodated without encroaching into opposing traffic lanes during turns. It is generally acceptable to have encroachment during turns into multiple same-direction lanes on the receiving street but not opposing lanes. The choice of a design vehicle is particularly important in intersection design where pedestrians, bicyclists, and vehicles routinely share the same space.

   All street designs must meet the minimum standards for fire departments and other emergency vehicle access and must consider the needs of garbage trucks and street cleaning equipment.

5. **Lane Width:** The AASHTO Green Book provides for lane widths from 9 to 12 feet wide. Narrower lanes force drivers to operate their vehicles closer to each other than they would normally desire. The drivers then slow down and potentially stagger themselves so they are not as close. The actual lane widths for any given street are subject to professional engineering judgment as well as applicable design standards and design criteria. The width of traffic lanes sends a specific message about the type of vehicles expected on the street, as well as indicating how fast drivers should travel. With painted lane lines being 4 to 6 inches wide, the actual "feel" to the driver will be about 1 foot narrower than the design lane width. Wider lanes are generally expected on arterial and collector streets due to truck traffic and higher operating speeds. Snow plowing and removal practices must also be considered as lane width decisions are being made,

especially for the curb lane. Narrower curb lane widths may necessitate different handling of snow because no space is available to plow the snow and it may require loading and removing on a more frequent basis.

It is preferred that arterial streets with 3 to 5% trucks or buses or operating speeds of 35 mph or greater have lanes that are 12 feet wide. That is especially important on the outside lane of multi-lane facilities. It is acceptable to have 11 foot wide lanes on arterial streets when speeds are 30 mph or less, but the entire street context, such as the presence of on-street parking, bike lanes, buffer areas, turn lanes, and volume of trucks and buses, needs to be considered before lane widths are chosen.

Collector streets can have 11 foot wide lanes if the number of trucks and buses is low. Collector street speeds should not exceed 35 mph.

Local commercial and industrial streets should be no narrower than 11 feet due to the larger volume of trucks expected with that land use. Local streets can have lane widths down to 10 foot wide in residential areas. For low volume local residential streets, two free flowing lanes are generally not required. This creates a yield situation when two vehicles meet.

The designer should recognize that there is an impact to the capacity of a street as the lanes are narrowed. According to the Highway Capacity Manual, capacity is lowered by 3% if lane widths are narrowed from 12 feet to 11 feet and 7% if lanes are narrowed to 10 feet.

6. **Curb Radii:** The curb radius of intersection corners impacts turning vehicles and pedestrian crossing distances. Larger radii allow larger vehicles, such as trucks and buses, to make turns without encroaching on opposing travel lanes or the sidewalk, but increase the crossing distance for pedestrians and allows smaller vehicles to turn at faster speeds. Shorter curb radii slow turning traffic and create shorter crossing distances, but make it difficult for larger vehicles to safely navigate the intersection. The curb radii that is chosen by the designer should reflect the number of pedestrians, the number of right turns by larger vehicles, length of the pedestrian crossing, and the width of intersecting streets.

   The curb radii must meet the AASHTO Green Book turning templates for the design vehicle selected. The curb radii may be modified if parking lanes and or bike lanes are present. It is acceptable to have encroachment into same-direction lanes on the receiving street. It is not acceptable to design a curb radius that calls for turning vehicles to encroach upon the opposing traffic lanes. The minimum curb radii in all cases should be 15 feet.

7. **Curb Extensions or Bump-outs:** Curb extensions or bump-outs are expansion of the curb line into the adjacent street. They are traditionally found at intersections where on-street parking exists, but may be located mid-block. Bump-outs narrow the street both physically and visually, slow turning vehicles, shorten pedestrian crossing distances, make pedestrians more visible to drivers, and provide space for street furniture. Use of curb extensions does not preclude the necessity to meet the turning radii needs of the selected design vehicle.

8. **Bicycle Facilities:** Bicycle facilities provide opportunities for a range of users and are a fundamental element of complete streets design. In Iowa, bicycles are legally considered a vehicle and thus have legal rights to use any street facility unless specifically prohibited. They also have legal responsibilities to obey all traffic regulations as a vehicle. Bicycle facilities generally are one of the following three types:
   a. **Shared Use Paths:** Separate travel ways for non-motorized uses. Bicycles, pedestrians, skaters, and others use these paths for commuting and recreation. Generally used by less experienced bicyclists.

b. **Shared Lanes:** These are lanes shared by vehicles and bikes without sufficient width or demand for separate bike lanes. They may be marked or unmarked. Low speed, low volume residential streets generally will not have pavement markings. For higher speed facilities, sharrow pavement markings and signage are used to remind drivers of the presence of bicyclists in the travel lane. Placing the sharrow markings between vehicle wheel tracks increases the life of the marking. These types of shares lanes are used more for commuting than recreation.
c. **Bike Lanes:** Dedicated lanes used on higher speed, higher volume streets separated from vehicle lanes or on-street parking spaces by pavement markings. No specific standards for when to use bike lanes exist, but conflicts between bikes and vehicles in shared lanes generally become problematic when vehicular volumes exceed 3,000 to 5,000 ADT and operating speeds are 30 mph or greater. Bicycle lanes should be a minimum of 5 feet wide on curbed pavements and 4 feet wide on rural cross-sections. If possible, a buffer zone of 3 feet should be provided between the bike lane and the on-street parking area to minimize conflicts with bikes and opening vehicle doors. These lanes are generally used by experienced bicyclists for commuting.

Snow and ice control activities impact vehicular lanes and bike lanes differently. Generally plows will leave some snow on the pavement. Vehicles are able to travel through this material but bicyclists may have more difficulty. In addition, the material may refreeze and make bike use more treacherous.

Design information for each bicycle facility type is detailed in Sections 12B -1 through 12B -3. Bicycle parking facilities at destination points will assist in encouraging bike usage.

9. **On-Street Parking:** On-street parking can be an important element for complete street design by calming traffic, providing a buffer for pedestrians if the sidewalk is at the back of curb, in addition to benefiting adjacent retail or residential properties. The width of parallel parking stalls can vary from 7 to 10 feet. Streets with higher traffic volumes and higher speeds should have wider parking spaces or a combination of parking space and buffer zone. Narrower parking spaces can be used if a 3 feet buffer zone is painted between the parking stall and a bike or traffic lane. The buffer zone will minimize exposure of doors opening into bicyclists, as well as facilitate faster access into and out of the parking space. Placement of parking stalls near intersections or mid-block crossings is critical so as to not impede sight lines of pedestrians entering crosswalks. Snow plowing could impact the availability of on-street parking intermittently. Requirements for ADA accessible on-street parking numbers and stall design must be adhered to. Information on those requirements can be found in Section 12A-2.

10. **Sidewalks:** Sidewalks are the one element of a complete street that is likely to provide a facility for all ages and abilities. Often sidewalks are the only way for young and older people alike to move throughout the community. Sidewalk connectivity is critical to encourage users. Sidewalks should be provided on both sides of all streets unless specific alternatives exist or safety is of concern. All sidewalks are required to meet ADA guidelines or be a part of a transition plan to be upgraded. Sections 12A-1 and 12A-2 identify the specific ADA requirements for sidewalks.
Sidewalks that are set back from the curb are safer than if the sidewalk is located at the back of curb. Street furniture and landscaping can add character and improve safety for sidewalks that are located at the back of curb. Providing seating areas within the sidewalk area can further enhance the urban environment and encourage pedestrian activity.

11. **Turn Lanes:** Turn lanes located at intersections provide opportunities for vehicles to exit the through lanes and improve capacity of the street. Two Way Left Turn Lanes (TWLTL) provide the opportunity to access midblock driveways without causing backups in the through lanes.

Turn lanes also allow faster speeds in the through lanes so a trade-off with safety exists especially at intersections.

Width of turn lanes should reflect the character of the traffic. Dedicated left and right turn lane widths should match the width of the lanes on the street. Local streets should not provide separate turn lanes. TWLTL should be a minimum of 12 feet wide because of the presence of through traffic on each side.

12. **Medians:** Medians provide for access management, pedestrian refuge, and additional space for landscaping, lighting, and utilities. Use of medians and the functions provided are dependent upon the width of available right-of-way and the other types of facilities that are included. The minimum width for pedestrian refuge is 6 feet. The minimum width of a median for access control and adjacent to left turn lanes is 4 feet. The minimum width for landscaped medians is 10 feet. Greater widths provide more opportunities for more extensive landscaping.

13. **Transit:** Bus service within the state is limited to the larger metropolitan areas. Currently there are a number of fixed route systems in the state. Smaller communities do not have fixed route service due to lack of demand. Children, elderly, and low-income people are the primary users of a fixed route transit system. In addition to system reliability, use of transit systems as a viable commuting option is directly dependent on the frequency of service and the destinations within the fixed route. To have a successful transit system, stops must be within walking or biking distance of residential areas to attract riders and it must have major retail, employment, and civic centers along its route system.

    Transit stops should be located on the far side of intersections to help reduce delays, minimize conflicts between buses and right turning vehicles, and encourage pedestrians to cross behind the bus where they are more visible to traffic. Far side stops also allow buses to take advantage of gaps in vehicular traffic.

    Bus turn out lanes are also best located on the far side of intersections. These turn outs free up the through lanes adjacent to the bus stop. Transit bulb outs are more pedestrian friendly than turnouts because they provide better visibility of the transit riders, as well as potentially providing space for bus shelters without creating congestion along the sidewalk. With buses stopping in the through lane, bulb-outs also provide traffic calming for the curb lane.

14. **Traffic Signals:** Traffic signals are not usually considered an element of complete streets, but they have many components with direct implications for complete streets. The timing, phasing, and coordination of traffic signals impacts all modes. Well-planned signal cycles reduce delay and unnecessary stops at intersections, thus improving traffic flow without street widening. Traffic signal timing can be designed to control vehicle operating speed along the street and to provide differing levels of protection for crossing pedestrians.

    The flashing don't walk pedestrian phase should be set using a 3.5 feet per second walking speed and the full pedestrian crossing time (walk/flashing don't walk) set using 3.0 feet per second. Some agencies representing the elderly are indicating that the overall walking speed should be 2.7 feet per second to cover a larger portion of the elderly population. ADA accessible pedestrian signal elements, such as audible signal indications, should be included in all new pedestrian signal installations and any installations being upgraded. See Section 13D-1, F for more information on accessible pedestrian signals.

15. **Summary:** The table below summarizes some of the critical design elements that should be examined if a complete streets project is implemented. Other geometric elements can be found in Table 5C-1.02. Some of the lane width values shown in the table below differ from the

acceptable values from Section 5C-1 because the expectation is that the complete street environment includes the potential for on-street parking and/or bike lanes. Adjustments in the values may be necessary to accommodate large volumes of trucks or buses. Contact the Jurisdictional Engineer if design exceptions are being considered.

Table 5M-1.01: Preferred Design Elements for Complete Streets

Classification	Local				Collector						Arterial					
Posted Speed (mph)	25		30		25		30		35 and Up		25		30		35 and Up	
Land use[1]	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*	*Res.*	*C/I*
Travel lane width (ft)[2]	10[3]	11	10	11	11	11	11	11	11	12	11	11	11	12	12	12
Turn lane width (ft)	--	--	--	--	11	11	11	11	11	12	11	11	11	12	12	12
Two-way left-turn lanes width (ft)	--	--	--	--	12	12	12	12	12	12	12	12	12	12	12	12
Curb Offset (ft)[4]	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2	2
Parallel parking width (no buffer) (ft)[5]	8	8	8	8	8	9	8	9	9	9	10	10	10	10	10	10
Curb radii (ft)[6]	15	15	15	15	15	25	15	25	25	30	15	25	15	25	25	30
Bike lane width (ft)[7]	--	--	--	--	5	5	5	5	5	5	5	5	5	5	5	5

[1] Res. = Residential, C/I = Commercial/Industrial
[2] Minimum sharrow lane width is 13 feet.
[3] For low volume residential streets, two free flowing lanes are not required. They can operate as yield streets if parking is allowed on both sides and vehicles are parked across from each other.
[4] Curb offset, less the width of the curb, may be used in the parallel parking lane width.
[5] For arterial or high speed collectors, the parallel parking stall width may be reduced if a minimum 3 feet wide buffer strip is included.
[6] Curb radii may be adjusted based on design vehicle, presence of bike lanes or parking lanes, and the number of receiving lanes. Encroachment of turning vehicles into opposing lanes is not allowed.
[7] If paving is integral without a longitudinal gutter joint, the curb offset, less the width of the curb, may be used as part of a bike lane.

D. Traffic Calming

Traffic calming is different from but related to complete streets philosophies. Through design measures, traffic calming aims to slow traffic down to a desired speed. By slowing vehicular traffic, biking and pedestrian activities are made safer.

It is absolutely critical that traffic calming measures recognize the need to maintain access for emergency vehicles. Unless the situation is unusual, realizing slower speeds involves a series of traffic calming measures. However, too many measures along a street is likely to divert vehicles to adjacent streets and just move the problem or frustrate drivers to the point of complaining to the level necessary for removal of the traffic calming measures. Because of the anticipation that traffic will be just displaced to adjacent streets, it is very important to study a larger area than a single street when evaluating traffic calming measures.

Many design elements will accomplish traffic calming. These include the following.

- Reduction in lane widths:
  - Short medians
  - Bulb outs
  - Lane striping
- Lateral shifts
  - Chicanes
- Raised/tabled intersections
- Raised/tabled cross walks
- Speed humps or speed cushions
- Traffic circles
- Radar speed signs

Choosing the design elements to use for a particular area will depend on the neighborhood context and the specific concern to be addressed. Prior to evaluating alternative measures, stakeholders must be educated so they can have meaningful involvement. The evaluation needs to involve all stakeholders in the definition of the problem. If possible, all stakeholders, including drivers, pedestrians, bicyclists, and area property owners, would achieve some level of agreement on the traffic calming plan prior to implementation.

E. References

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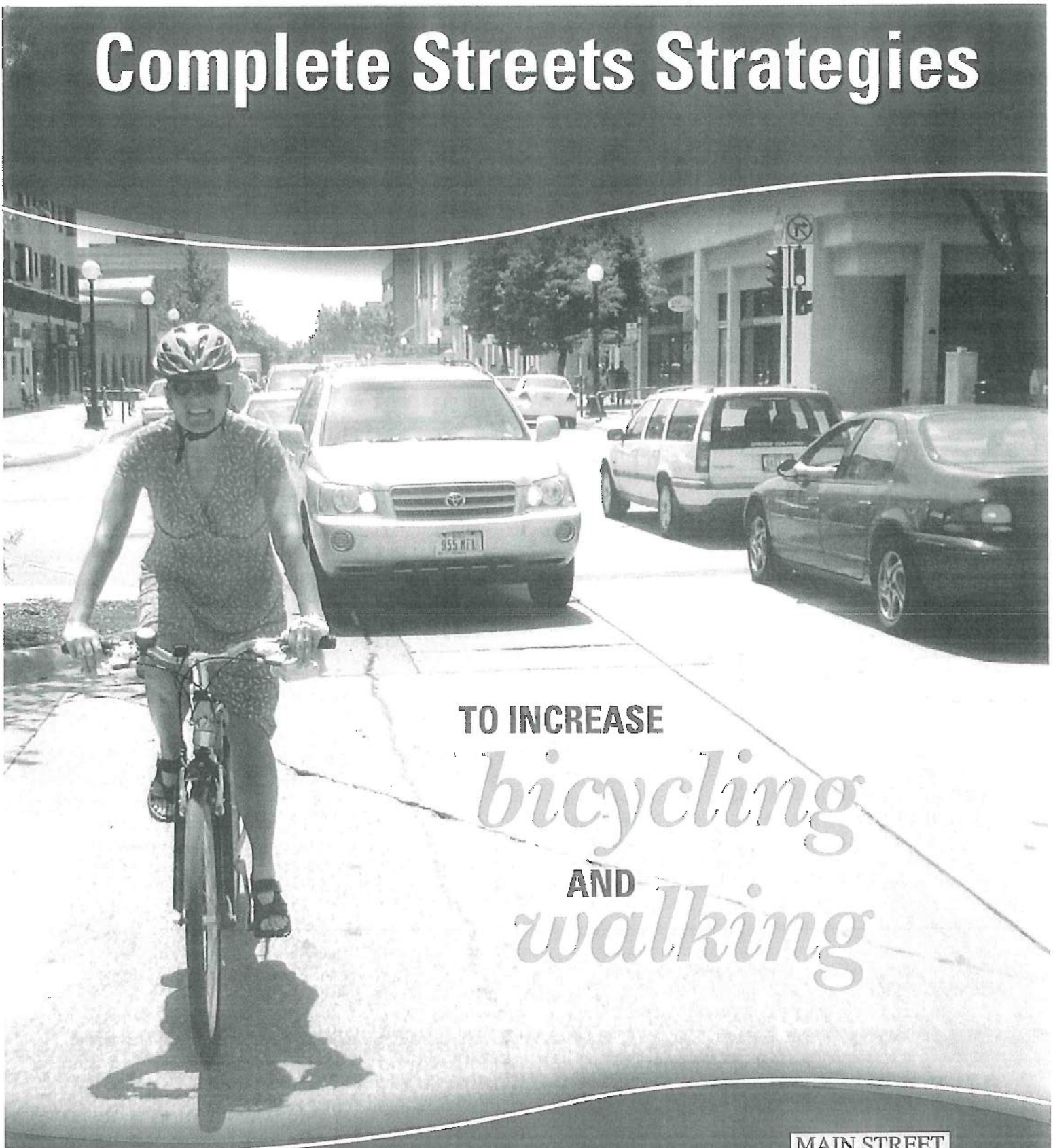
Complete Streets Strategies



TO INCREASE

bicycling

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IOWA BICYCLE COALITION

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INTRODUCTION

Table of Contents

CompleteStreets

Introduction

This publication provides examples of strategies that increase walking and bicycling within a community, and highlights unique considerations for historic commercial districts. Historic commercial districts are a habitual destination for residents to utilize services, eat, and shop, and are a key asset to build upon to improve the conditions for walking and bicycling community-wide. Connecting destinations like schools, parks, and shops with walking and bicycling facilities increases the opportunities to make frequent trips by foot or bicycle.

Iowa communities are well-positioned to take advantage of complete streets strategies to achieve long-term benefits. The increasing senior population will benefit from having easier access to services through independent, non-automotive transportation. Communities seeking to attract families with children will become attractive places to live or establish a business by demonstrating that kids can easily walk to school or a nearby park. Iowa's growing trail networks are planting the seeds for a culture of bicycling, but on-street accommodations for bicyclists are needed to ensure that community destinations are easy to get to by bicycle, and transportation needs can be met in addition to recreation. Other Midwestern communities like Madison, Wisconsin and Minneapolis, Minnesota have proven that colder climates aren't a deterrent to walking and biking, and Iowa communities can realize similar benefits.

Americans have become increasingly dependent on the automobile for mobility. Often, it is the only means to access some destinations. According to the National Household Travel Survey, 65% of automobile trips are less than 3 miles. A similar 3-mile trip by bicycle takes only 20 minutes. Making destinations easily accessible by foot or bicycle improves safety for all users of the transportation system, decreases traffic congestion and demand for parking, and supports the health and wellness of citizens.

Implementation of complete streets strategies is most successful when the city government has a supportive role, partnering and education occurs amongst various local organizations, and input is utilized from the public. This publication can be utilized by any community member, local business or Main Street volunteer that seeks to further understand how improvements can be made to become a more bicycle and pedestrian-friendly community.

COMPLETE STREETS APPROACH

Complete streets is a new approach to our network of streets and roads in our transportation system. A street that is complete is accessible for all users of the transportation system. This includes pedestrians, bicyclists, transit users, disabled users, automobile users, and freight. Unfortunately, many of the streets in our communities are "incomplete" with a monolithic focus on the automobile as the only way to get from point A to point B.

In areas with complete streets, you find sidewalks, curb ramps, crosswalks, bicycle lanes or facilities, transit stops, and automobile lanes. All users, regardless of age or ability, can access the same destinations by using different modes of transportation.

In 2000, the Federal Highway Administration (FHWA) adopted a guidance that states, "...bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met.

1. The costs are excessive (defined as more than 20% of project costs),
2. There is an absence of need (including future need),
3. Bicyclists or pedestrians are prohibited from traveling by law."

Since 2000, a number of communities across the United States have adopted their own complete streets policies. These policies are often similar to the FHWA guidance but actually require implementation of complete streets.

A good policy does not dictate the precise elements of a complete street but allows designers to engineer the best safety solutions within the context of the project. There is no "cookie cutter" approach to complete streets. For example, a quiet, low-traffic, residential street may very well be complete as it is. It does not need a bike lane for safe bicycling, and crosswalks may not need paint to improve pedestrian safety. This same street design may be as safe for bicyclists and pedestrians on high-speed arterial roadways.

A newly installed bike lane on Ingersoll Avenue in Des Moines. The city has adopted a complete streets policy and working to incorporate elements in road projects.

Historic commercial districts are particularly suited for complete streets. With stores near each other, shoppers are encouraged to walk from store to store rather than drive to each. Traffic moves at a slower pace because of frequent intersections and traffic controls. Vehicle storage is an issue in these districts. Free parking may bring customers to your door but also consumes a lot of space. Inviting bicycle and pedestrian facilities may encourage more people to shop, dine, or do business without using an automobile. The Five E's: A Strategy for Increasing Walking and Bicycling.

A national strategy has been developed to increase walking and bicycling called the Five E's:

- Engineering
- Education
- Encouragement
- Enforcement
- Evaluation

Engineering addresses the built environment with roads, streets, sidewalks, and signs. Education teaches safety to users of the transportation system. Encouragement represents programs that increase the popularity of bicycling and walking. Enforcement represents exercises from the police to help citizens follow traffic law. Finally, Evaluation assigns metrics to our transportation system to measure success.

Complete streets do not prescribe "one size fits all" facilities. A complete street in a neighborhood may require sidewalks and shared roadway bicycle facilities. A complete street along a highway may require a separated trail. It is up to community leaders to apply the latest and best design standards to safely serve bicyclists and pedestrians.

BICYCLE ELEMENTS

Bicycle should be considered vehicles and may use the existing roadways. Communities that have a connected gride street system are ideal for bicycling. There are ways to enhance bicycle routes and fill gaps that prevent bicycle transporation.

Shared Roadway

Up to 85% of city streets are complete as they are today. As long as they provide a safe riding surface free of debris and potholes, the standard residential street is comfortable to bicyclists. Roads that are part of a grid system with low traffic speeds and volumes are perfect for bicycling. As speeds increase, more treatment may be required to accommodate bicyclists.

A bicyclist shares the lane of traffic with other motor vehicles on the Mississippi River Trail near Wapello.

Wide Outside Lane

Some communities are installing a wide outside lane to accommodate bicyclists. A normal lane is 10-12 feet wide. A wide outside lane is 14-15 feet wide. This allows for a motor vehicle and bicycle to share the same lane side by side.

The motorist and bicyclist share the lane laterally in this wide outside lane in Coralville.

Signed Bicycle Routes

Communities can sign routes that bicyclists may prefer to use. It is encouraged to use signs that point to destinations. Some signs note the time and distance it takes to travel to the destination by bicycle at 9 mph (downtown, 1 mile, 9 minutes).

Some signed bicycle routes may connect two segments of a trail. A new, experimental treatment is the bike breadcrumb. This is a street marking showing a bicycle and an arrow directing bicyclists to the connecting trail.

Sharrows

Sharrows are a new treatment recently recommended in the Manual for Uniform Traffic Control Devices (MUTCD). A sharrow is a shared roadway with a pavement marking guiding bicyclists where to ride. It is a bicycle symbol with two chevrons above it. Sharrows act like bike lanes but can be placed on roadways where there isn't enough room for bike lanes. Studies have shown motorists give bicyclists more room when sharrows are present.

Sharrows are generally placed 4' from the curb or 11' from the curb if on-street parking exists. These distances are a minimum and sharrows may be placed closer to the centerline if warranted.

A sharrow is placed along 33rd Avenue in Cedar Rapids as part of a complete streets component to the street upgrade.

BICYCLE ELEMENTS

A bike lane in use in Des Moines.

Bike Lanes

Bike lanes are a traffic lane for the exclusive use of bicyclists. Bike lanes are generally 5' wide with a curb and 4' wide if no curb exists. Bike lanes are only separated from motor vehicle traffic by a strip of paint, so bicyclists may freely exit the lane to make turns or avoid debris. Bike lanes should be used with caution against parked cars because opening doors or backing cars can create conflicts for bicyclists.

Bike lanes should be dashed or signed if ending or if traffic will merge through the bike lane to access a turning lane. Bike lanes do not provide protection for cyclists, and people should be on the lookout for bicyclists and automobiles. Bike lanes should only be one-way facilities following the flow of traffic and should be placed on the right side of the roadway between parked vehicles and moving traffic. Consult the Manual For Uniform Traffic Control Devices (MUTCD) for more information on the installation of bike lanes.

A low-traffic residential street has been converted to a bicycle boulevard.

Bicycle Boulevard

A bicycle boulevard is a city street that uses traffic calming to prioritize bicycle traffic. At the most basic level of a bicycle boulevard, a street can be signed to encourage and connect bicycle traffic. As the complexity of traffic calming increases, a bicycle boulevard can change the rights of way for stop or yield signs, use speed humps or traffic circles, or employ traffic diversion. The bicycle boulevard restricts through traffic on streets but does not restrict traffic access. Typically, local traffic use is encouraged but through traffic speeding through neighborhoods is discouraged.

Trails

A trail or path is a multi-use facility for non-motorized transportation. Trails are best used when they connect areas not already connected by the streets system. They are usually enjoyable and scenic.

Trails that run along roads with frequent driveways and intersections are not recommended. Turning conflicts are similar to frontage roads, and the right-of-way for bicyclists and pedestrians are ambiguous.

Trails can be expensive but provide great enjoyment to users of all ages. Multiple funding sources are available for trails, but demand and competition for funding is high.

Underpasses are effective solutions, but expensive.

Overpasses and Underpasses

Sometimes, the safest route for bicyclists and pedestrians is to use a tunnel or bridge to bypass a busy roadway. These facilities are typically expensive and require large land footprints. Communities need to evaluate the ease of use for users – if takes a lot of energy to ride/walk up and over a bridge, users may not use it and cross at undesirable locations.

Security is a major consideration for underpasses. Users should be able see the ingress and egress portions of the underpass for increased security.

PEDESTRIAN ELEMENTS

Sidewalks and crosswalks are prerequisites for increasing walking in a community. There is more communities can do to improve the walking experience and safety for its residents. It's also important to note safe and convenient walking facilities help increase tourism and create a pleasant experience for pedestrians utilizing the shops and services of a historic commercial district.

Sidewalks

Wide sidewalks are essential elements for downtown streets.

Sidewalks are necessary for pedestrian traffic and serve as an exclusive area for people to walk. If sidewalks are not built, pedestrians usually walk in the street. Walking in the street is an uncomfortable experience and unsafe for children.

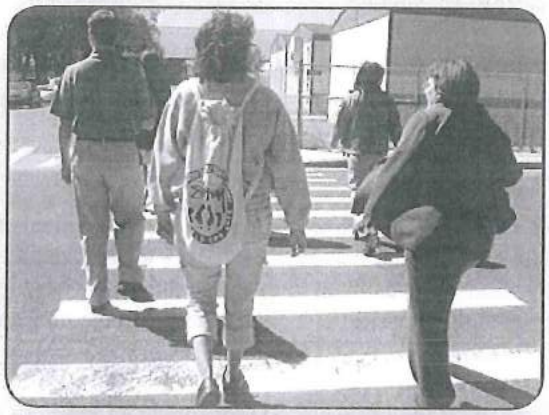
Communities should establish programs that inspect sidewalks for repair or replacement annually. Sidewalk infill programs help prioritize how to phase in new sidewalks to be installed in areas where they are completely lacking.

Many communities use unique surfaces, like brick, for a crossing. Besure your crosswalk is visible to motorists.

Walking to and through the historic commercial district's destinations should be both comfortable and safe while traveling between destinations. In the wintertime, programs are needed to ensure property owners clear snow and ice to reduce liability and increase use of sidewalks.

Sidewalks should be as wide as possible in historic commercial districts to accommodate frequent and heavy pedestrian traffic. Parking, roadway width and storefront setbacks can influence how much room may be available.

Sidewalks that are close to the street and moving traffic are uncomfortable for for the pedestrian and can pose saftey issues. Efforts shoul be made to provide a buffer between the street and sidewalk. In a historic commercial district, street furniture, amenities, landscaping, bicycle parking, and lighting can be used as long as it leaves pedestrians enough space. Depending on the area in the community, bike lanes, paved shoulders, parked cars, or grass can all serve as a buffer.



High visibility crosswalk markings create driver awareness.

Crosswalks

Crosswalks serve a dual purpose. They show pedestrians safe crossing areas, and they create motorist awareness of a pedestrian crossing. Crosswalks are typically located at intersections but can be placed in the middle of a block.

There are three types of common crosswalks: the unmarked crosswalk, the two-line marked crosswalk, and high visibility crosswalks. Most crosswalks in residential areas are unmarked, and they serve users well.

The continental-style crosswalk marking provides increased visibility for pedestrian and awareness for motorists. Using blocks of paint rather than lines, there is more surface area for motorists to recognize.

It is not recommended to combine perpendicular sidewalks into one crossing. Instead, each sidewalk should have its own ramp to the curb. This keeps a tighter radius in the corner and stops traffic from driving over the crosswalk area.

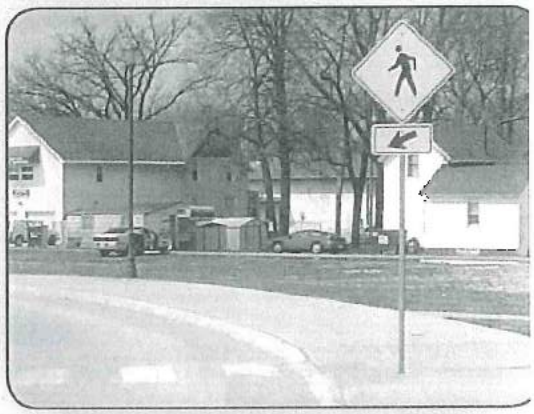
PEDESTRIAN ELEMENTS

Crosswalk Signs

Crosswalks should be signed to create awareness. Typically, a "crossing ahead" sign is used followed by a crossing with an arrow pointing to the crosswalk. Sometimes, it may be noted a crosswalk is a certain distance from the sign.

In-Street Crosswalk Signs

A sign has been developed that has proven evidence of slowing automobiles at critical crosswalks. The in-street sign is no bigger than a pair of centerlines but channelizes traffic enough to reduce speeds. The sign is bolted to the pavement on a flexible pole. Some communities remove the sign during the winter and some leave them in place.



A high visibility crosswalk sign with arrow creates awareness for a crosswalk with heavy pedestrian traffic to the Oelwein downtown.

Raised Crosswalks

A raised pedestrain crosswalk on the University of Iowa campus.

Crosswalk visibility can be increased by raising the crosswalk. By creating a crosswalk six inches higher than the grade of the pavement can create a traffic calming effect. Ramps leading to raised crosswalks are snow plow and fire truck friendly. Raised crosswalks are especially beneficial in school zones because the children are more visible than they would be at street level.

Signalized Intersection Crosswalks

Many communities have traffic signals at intersections. Most have a push button for pedestrian activation or some means to detect pedestrians present at the crosswalk. It is important that signals are adjusted to the current estimate of pedestrian speed of four feet per second. Activation should comply with the Americans with Disabilities Act (ADA).

Countdown Indicators

Indicators that count down remaining walk time can be added to the Walk/Don't Walk light at crosswalks. Countdown indicators have been successful in reassuring the pedestrian how long they have left to cross. Countdown indicators should be considered at every traffic signal location.

Bump-Outs

Long crosswalks leave pedestrians exposed in the intersection for long distances. Pedestrians enjoy shorter crossing distances if at all possible. One way to shorten the crosswalk is the bump out the curb.

Bump-outs can be created in the empty space between the curb to the beginning of the traffic through lane. If you bump out the curb area you shorten the crosswalk.

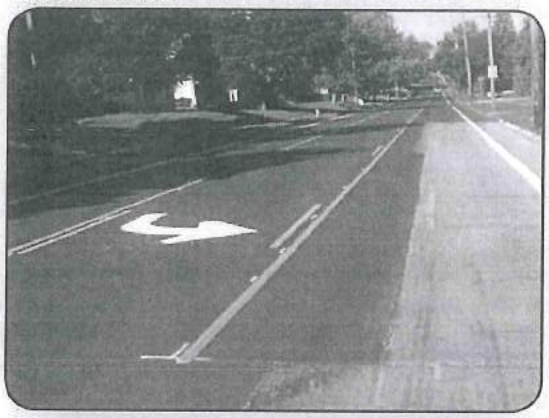
Bump-outs can be done with mid-block crosswalks. In addition to the shorter crosswalk, more visibility exists for the pedestrian. A bump-out is much better than requiring the pedestrian to cross between two parked cars.

A bump-out in the Oelwein downtown area shortens the pedestrian crosswalk and narrows the traffic lane enough to slow cars.

TRAFFIC CALMING

Another technique to help improve the pedestrian and bicyclist experience is traffic calming. This typically utilizes engineering to make traffic move at a more consistent and safe speed. Some traffic calming techniques can be as simple as reconfiguring the lanes. Some may require more invasive engineering.

Road Diet



Davenport reconfigured a four-lane road to a three-lane road diet. The center turn lane helps reduce collisions. The remaining space is used for bike lanes.

A road diet converts an existing four-lane roadway into a three-lane roadway. Ther is a lane of traffic for each direction and a two-way, center turn lane for left-turning traffic. Often, there is space leftover for a paved shoulder or bike lane.

A road diet improves safety for motorists. Turning traffic does not block a lane of through-traffic, so collisions are reduced. Through traffic travels at a more consistent speed. A road diet often moves the same amount of traffic with little additional wait time.

Communities are often resistant to the road diet concept, but after testing the configuration, many communities do not want to return to a four-lane configuration.

A speed hump is effective at reducing traffic speeds. Generally, speed humps are compatible with snow removal and truck traffic.

Speed Humps

Speed humps are longer and more gradual than the speed bumps of yesteryear. Speed humps are snowplow and fire truck friendly. Most of all, they slow down vehicles.

Traffic Circles and Roundabouts

Traffic circles are small islands in the middle of an intersection. Roundabouts are larger circles that proves one-way circular flow to an intersection. Both will slow down through traffic and allows left-turning traffic to follow around the circle before turning. The result is slower intersection speeds.

Traffic Diverters

Sometimes through-traffic is the program. Using a traffic diverter, automobiles can only make right turns or exit a street but not enter from the diverted location. This reduces the through-traffic to neighborhood traffic only. Automobiles are not prohibited, but they have to enter only through the diverted access. Diverters can accommodate bicyclists with pass-through areas.

An in-street crosswalk sign can also slow traffic for critical pedestrian crossings.

BICYCLE PARKING STATEGIES

Motorists expect parking when they reach their destination, and bicyclists should, too. In smaller communities, bicycle theft may not be a big enough threat to motivate for secure bicycle parking. Organized bicycle parking is typically a problem, and bicycle parking can prevent bicycles from parking in pedestrian areas or becoming trip hazards.

The Inverted U bike rack is effective for short-term bike parking.

Inverted-U Bike Rack

Bicyclists prefer to secure the front wheel and frame of their bike to the bicycle parking rack. The Inverted U-type bicycle rack is generally acceptable for this purpose. The Inverted U is bolted or cemented into the pavement. The Inverted U rack may be mounted on rails so it can be moved for snow removal.

Wave Rack

The Wave-type bicycle rack is common. Bicyclists have a more difficult time understanding how to lock their bicycle to this type of rack. If bicyclists don't use the rack as intended, the capacity may be much lower than planned.

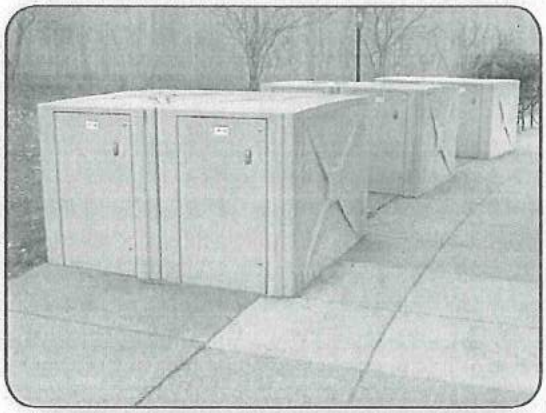
The wave rack is common. There are issues with bikes occupying more than one space or not holding the bike by the frame.

Long-Term Bike Parking

Long-term bicycle parking is usually more secure, lighted, and protected from weather. This may be a simple overhang to protect from rain to an indoor parking room. Some of the best long-term bicycle parking areas take advantage of unused areas inside buildings or parking lots.

Bike Locker

A bike locker can facilitate long-term storage. This is especially useful in downtown living situations where you cannot store your bicycle inside. A bicycle locker is a a keyed or coin-operated storage facility that protects bicycles from weather and provides additional security for long-term storage.



A bike locker can be beneficial to persons living downtown with limited storage.

It generally discouraged to use bicycle racks that hold a bicycle by the wheel rather than the frame. It is difficult to secure the frame. A resourceful bicycle thief can leave the front wheel and take the remaining frame and wheel.

Creative bicycle racks are encouraged, but be sure bicyclists will recognize bicycle parking rather than public art. Bicycle parking can be incorporated into zoning and site planning of new buildings.

ENCOURAGEMENT AND EDUCATION

Engineering is not a sole solution. Encouragement, education, and enforcement activities can help more people start using bicycles. Programs like Bike to Work Week or Safe Routes to School can encourage people to travel by bicycle for everyday activities.

Education activities like a community-wide bicycle rodeo can help kids understand how to use bicycles safely. A pedestrian rodeo can also be developed to teach pedestrian safety.

Enforcement activities like speed enforcement can improve safety for bicyclists, pedestrians, and motorists. The presence of the squad car in trouble areas can be a great asset to addressing traffic issues. Law enforcement strategies should be well publicized and include frequent follow-up to maintain traffic behaviors.

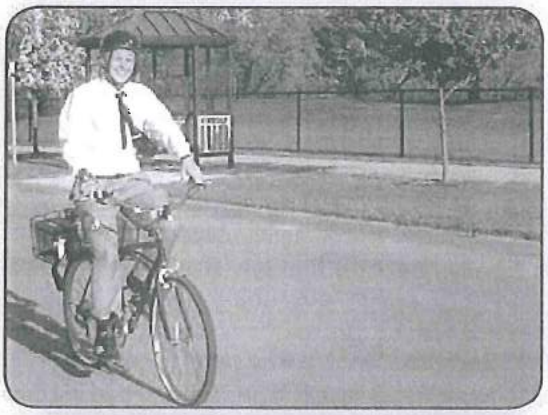
Encouragement strategies can have a variety of tactics, but the ultimate goal is to encourage more use of bicycles for transportation and recreation.

A walking school bus in Manly, Iowa.

A police officer helps with a bike rodeo in Coralville, Iowa.

Shop by Bike

Shop By Bike programs have been widely successful. Participants are encouraged to use their bicycles for shopping. If they make purchases at participating stores, they are given a card with a punch or stamp that documents the purchase. When the card is full, they can be turned in for prizes like community gift certificates. This type of program is very measurable and there may be grant funding to initiate.



Iowa City bicyclist rides to work during Bike to Work Week.

Bike to Work Week

The third week of May is declared Bike to Work Week by the League of American Bicyclists. Bike to Work Week is aimed at adult workers and encourages them to ride their bicycles to work at least once during this week to promote alternative transportation. Many communities set up commuter breakfasts or after work parties for bike commuters. Communities of any size can establish a Bike to Work Week campaign. Free materials are available to help promote the event from the Iowa Bicycle Coalition.

Safe Routes to School

A Safe Routes to School program encourages kids to walk or ride bicycles to school. In 1972 kids walking or bicycling made up 62% of elementary students. Sadly, kids walking or bicycling have dropped to about 15%. Programs have been designed to make it safe, like walking school buses or bike trains. Kids can interact with their peers and gain exercise. Free workshops are available from the Iowa Bicycle Coalition and can help establish a community Safe Routes to School program. The Iowa DOT offers competitive grants to established local programs to implement improvements such as sidewalks and educational programs.

ADDITIONAL RESOURCES

National Resources

National Complete Streets Coalition
http://www.completestreets.org/

The Five E's, Bicycle Friendly Community, League of American Bicyclists
http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/bfc_five-Es.php

Shared Roadways and Wide Outside Lanes, Bicycle and Pedestrian Information Center
http://www.bicyclinginfo.org/engineering/facilities-roadways.cfm http://www.bicyclinginfo.org/engineering/facilities-widelanes.cfm

San Franscisco's Shared Lane Pavement Marking
http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf

Manual for Uniform Traffic Control Devices (MUTCD)
http://mutcd.fhwa.dot.gov

PedSafe: Pedestrian Safety Guide and Countermeasure Selection System
http://www.walkinginfo.org/pedsafe

Traffic Calming
http://www.trafficcalming.org/

Association of Pedestrian and Bicycle Professions (APBP)
http://www.apbp.org

Bike Month
http://www.bikeleague.org/programs/bikemonth/

National Center for Safe Routes to Schools
http://www.saferoutesinfo.org

Iowa Resources

Iowa Safe Routes To School Encouragment and Education Program
http://www.iowasaferoutes.org

Iowa DOT Safe Routes To School
http://www.iowadot.gov/saferoutes/

Iowa Department of Economic Development Transportation Resources
http://iowalifechanging.com/community/resources/transportation.aspx

Iowa Department of Transportation Systems Planning
http://www.iowadot.gov/systems_planning/bicycle_pedestrian_planning.html

Free Education Materials from the Iowa DOT
http://www.iowadot.gov/iowabikes/freebies.htm

Iowa Bicycle Coalition
http://www.IowaBicycleCoalition.org

Iowa Bicycle Coalition
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www.IowaBicycleCoalition.org
www.facebook.com/IowaBicycleCoalition
www.twitter.com/IowaBicycle

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Photos credit: Mark Wyatt, Iowa Bicycle Coalition

Complete Streets Sources
3/24/17

National Complete Streets Coalition
https://smartgrowthamerica.org/program/national-complete-streets-coalition/
Places with complete streets policies (around 1,100)
https://smartgrowthamerica.org/program/national-complete-streets-coalition/policy-development/policy-atlas/

Article in Public Roads from 2010
https://www.fhwa.dot.gov/publications/publicroads/10julaug/03.cfm

Iowa Economic Development publication on strategies (n.d.)
https://www.iowaeconomicdevelopment.com/userdocs/programs/CompleteStreetsGuide.pdf

APA PAS report
https://www.planning.org/research/streets/
(also https://www.planning.org/planning/2014/may/completestreets.htm)

Chicago toolkit from 2016
http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/complete-streets

DOT on complete streets
https://www.transportation.gov/policy-initiatives/ped-bike-safety/mayors-challenge-1-complete-streets

Community Tree Policy for West Branch

A core responsibility of any city administration is to provide for and maintain the community's infrastructure, which are 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). This shift in perspective is not simply calling vegetation by a more important-sounding name, but a recognition that green infrastructure works in tandem with the gray infrastructure and impacts the functioning of the system as a whole.

The importance of green infrastructure is particularly true in terms of stormwater management. Impermeable surfaces such as roads and parking lots increase runoff, raise the temperature of water entering storm sewers, and are a site of pollutant transfer (such as road salts, oil, and lawn fertilizers) to stormwater, all of which creates additional burdens on storm sewers and water treatment facilities. Green infrastructure mitigates these effects by slowing run-off, cooling surface water temperatures, and filtering pollutants.

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. These include the Smart Growth strategies outlined in Chapter 3 which call for "the protection, preservation and restoration of natural resources," as well as the economic development strategies explored in Chapter 7. As noted in that chapter, when surveyed as part of the comprehensive planning process, "64% of [residents] strongly agree or agreed that the City's appearance through tree plantings, flowers, and landscaping is adequate," suggesting West Branch residents value vegetation in the community. At the same time it suggestion more than a third see room for improvement.

What are the benefits?

Although the benefits of a tree policy that spring most readily to mind are environmental, trees have demonstrable benefits in multiple areas and are best understood as offering a combination of positive effects. The environmental benefits extend beyond mitigating stormwater runoff and include reducing air pollution (nitrogen dioxide, sulfur dioxide, ozone, carbon dioxide and particulate matter less than 10 microns), contributing to reduced energy costs by shading and cooling built structures, and providing habitat that contributes to the ecological health of the community.[1]

Image source: Heartland Tree Alliance

Trees contribute to the attractiveness of outdoor spaces, from community parks to neighborhood streets to individual backyards, all of which encourages outdoor recreation. This can be a countervailing force against sedentary lifestyles that contribute to earlier mortality, cardiovascular disease, and some types of cancer.[2] At the same time, trees also provide some protection against sun exposure in outdoor areas, doubling the amount of time it takes to get a sunburn, which in turn can help limit a factor in incidence of melanoma.[3] The ability of trees to filter air pollutants and thus can have an impact on asthma rates.[4] Finally, trees have important mental health benefits. Residents

who move from areas with less vegetation to areas that have more greenery evidence significant mental health improvements that are sustained over the long term.[5] This could be one reason people show a preference for living in greener areas.

Trees also provide substantial economic benefits, including increases to residential property values. Homes with trees in their yards sell on overage for 20% more than similarly sized lots that have no trees[6] and they also sell faster – a survey of realtors found that 85% of those polled believed property that includes trees is 20% mare salable.[7] The economic benefits of trees extend to commercial areas as well. Shoppers visiting areas with tree-lined streets have been shown to be willing to pay more for parking and stay longer in commercial districts with large, well-maintained trees.[8]

In 2011, an report prepared by the Iowa Department of Natural Resources (IDNR) that inventoried and assessed trees in West Branch determined that the trees within the community provide $75, 851 ($81,887 today, adjusted for inflation) in total annual benefits to the community.[9] See appendix A for more detailed information on these benefits.

What we propose for the West Branch Comprehensive Plan

Strengthen and incorporate trees in community planning documents

As previously noted, the Comprehensive Plan already contains elements that intersect with a community tree plan. We will make those connections more explicit by interweaving aspects of the Tree Management Plan created for West Branch by the Iowa Department of Natural Resources in 2011 with those Comprehensive Plan sections where goals overlap, creating a plan that is more integrated and serves to achieve multiple goals.

At the same time, we will identify "next steps" for the Tree Management Plan that can build upon its successes and help achieve its long-term goals. This could include opportunities to incorporate the tree plan into other planning documents. Possibilities include suggestions for including tree planting requirements in development plan submissions, tree-planting and tree-preservation requirements in subdivision regulations, development impact fees, and enforcement standards for tree planning and maintenance in parking lots. It will be up to the city council as to whether or not they would want to take up these recommendations.

Elements of a Successful Community Tree Program (Elmendorf, Cotrone, and Mullen, 2003)
• Tree and planning commissions that value trees
• Continuity of support among governing officials
• Long-term citizen support
• Professional assistance
• Educational support for planning commission
• Management plans and missions
• Grant funds
• Dedicated, informed volunteers
• Ordinances and enforcement
• Awards and celebration

Finally, we will create an appendix to the Comprehensive Plan that identifies preferred tree species, discussed in more detail in the next section. Such an appendix can help guide the community's future tree planting efforts in both the public and private spheres.

Establish a plan to diversify the community tree canopy

When a single species or a small group of species dominates the tree cover of a community, that community is vulnerable to losing a significant portion of its investment in trees to disease and infestation. Such was the experience of many communities in the 1960s with the rapid spread of Dutch elm disease and is once again being experienced by communities with the rise of emerald ash borer.

The IDNR survey of trees in West Branch in 2011 found over 36 species of trees, 43.4% of which were maple. This is a disproportionately high representation of a single genus. As part of the Comprehensive Plan, we propose to include a table of native tree species as preferred trees for planting in West Branch. Species of maple trees have been removed from this list to help foster greater tree diversity for a healthier community tree collection.

These trees can further be sorted into a table such as the one shown at the end of this report (similar to those found in other comprehensive plans) that classifies trees by certain characteristics and makes recommendations of tree species for certain areas of town (in this case, perhaps those most appropriate for the downtown commercial area and those most appropriate for residential areas).

Potential Preferred List of Native Trees (Compiled by the Iowa Department of Transportation and the Living Roadway Trust Fund of Iowa)
Ash, Black (*Fraxinus nigra*)
Ash, Green (*Fraxinus pennsylvanica*)
Ash, White (*Fraxsinus americana*)
Aspen, Big-tooth (*Populus grandidentata*)
Aspen, Quaking (*Populus tremuloides*)
Basswood (American Linden) (*Tilia americana*)
Birch, Paper (White Birch) (*Betula papyrifera*)
Birch, River (*Betula nigra*)
Buckeye, Ohio (*Aesculus glabra*)
Cedar, Red (*Juniperus virginiana*)
Cherry, Choke (*Prunus serotina*)
Cottonwood (*Populus deltoides*)
Elm, American (*Ulmus americana*)
Elm, Red (Slippery) (*Ulmus rubra*)
Hackberry (*Celtis occidentalis*)
Hawthorn, Cockspur (*Crateaegus crus-galli*)
Hickory, Bitternut (*Carya cordiformis*)
Hickory, Shagbark (*Carya ovata*)
Honey Locust (*Gleditsia triacanthos*)
Ironwood (Hop Hornbeam) (*Ostrya virginiana*)
Kentucky Coffee Tree (*Gymnocladus dioicus*)
Oak, Bur (*Quercus macrocarpa*)
Oak, Northern Pin (Hill's) (*Quercus ellipsoidalis*)
Oak, Northern Red (*Quercus borealis*)
Oak, Pin (*Quercus palustris*)
Oak, Swamp White (*Quercus bicolor*)
Oak, White (*Quercus alba*)
Pine, Eastern White (*Pinus strobus*)
Plum, Wild (*Prunus americana*)
Sycamore (*Platanus occidentalis*)
Walnut, Black (*Juglans nigra*)

Identify private and civic partners

A financially viable community tree program should not rest on a single funding source. It is important, first and foremost, to establish general fund allocations for the maintenance of street trees, but partnerships with private and civic organizations can be key in supporting a well-rounded and effective tree policy. This includes grant opportunities, but also partnerships that utilize the expertise of organizations such as the Cedar Extension Service to help expand the reach and impact of a tree program.

West Branch already has already proven itself successful in identifying and capitalizing on such opportunities in securing a Trees Forever/Alliant Branching Out Grant. We propose to build on this initiative by identifying other funding opportunities for future West Branch tree planting endeavors and including the list in the Comprehensive Plan. These include the Trees Forever Iowa's Living Roadways Projects Program, which supports plantings for highway roadside and recreational trail projects, and may be useful for projects focused on the Hoover Highway or the Hoover Nature Trail.

It could also include the Alliant ReLeaf program, which provides trees to homeowners for $25/apiece. As a barrier to homeowners participating in this program may be the ability to pick up and transport the trees (which are 10 feet tall, on average), it might be possible for the city of West Branch to partner with Alliant to pick up and deliver trees selected by homeowners. This program could be

paired with one to welcome new homeowners to the community by providing them with trees. The program could further work in partnership with Cedar Extension Services to provide soil testing and information on tree care and maintenance.

Another partnership to include would be a continued relationship with the Iowa DNR, which offers a Trees for Kids/Trees for Teens grant program that awards $1000-$5000 for projects for youth projects planting trees on school grounds and in public spaces. This could help involve younger generations in shaping the community tree canopy. Moreover, a continued relationship with the IDNR can aid in keeping the West Branch Tree Management Plan up to date.

A financially viable community tree program cannot rely solely on grant-Diverse funding mechanisms: general fund allocations, partnership with nonprofits, development fees.

Present trees as an economic investment

Current best practices in tree management suggest communities should move beyond a Street Tree Policy to a more holistic Tree Preservation Policy identifies trees as assets and liabilities. Asset trees are defined as those that provide benefits that exceed the cost of maintaining the tree, while liability trees are defined as those for which costs outweigh benefits or those that pose unacceptable safety risk due to decay or structural defects.

West Branch is already well-positioned in this regard. The West Branch Tree Management Plan prepared by the IDNR takes into consideration the condition of trees identified in the inventory and makes recommendations for maintenance and risk management. At the time of the inventory, 8% of the trees were found to be in need of maintenance and 4% were found to be in poor condition, dying or dead, in terms of wood condition.

An important next step would be to update the maintenance plan, which was outlined as a "Six-Year Plan with No Additional Funding." That plan will expire this year, 2017. It would be important to determine of the trees identified in poor condition, dying or dead, have been removed or otherwise addressed and to determine what current maintenance needs exist.

Appendix A: Economic Benefits of Trees in West Branch

Value of Ecosystem Services Provided by Trees in West Branch (Calculated by the Iowa DNR, 2011)		
Benefits	Value in 2011	Value in 2017, inflation-adjusted
Annual Stormwater 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**

Appendix B: Sample Comprehensive Plan Tree Chart

Oval 	•	•	•	•	•	•	Dahoon Holly *(Ilex cassine)* Fringe Tree (Chionanthus virginicus) Jamaica Caper *(Capparis cynophallophora)* Live Oak var. highrise *(Quercus virginiana var. highrise)* Magnolia Sweet-bay *(Magnolia virginiana)* Red Maple *(Acer rubrum)* Satinleaf *(Chrysophyllum oliviforme)* Southern Magnolia *(Magnolia grandiflora)* Wild Mastic *(Sideroxylon foetidissimum)* Yaupon Holly *(Ilex vomitoria var. pendula)*
Ball 	•	•	•	•	•	•	Black Ironwood *(Krugiodendron ferreum)* Buttonwood *(Conocarpus erectus)* Gumbo Limbo *(Bursera simaruba)* Live Oak *(Quercus virginiana)* Mahogany *(Swietenia mahagoni)* Myrtle Oak *(Quercus myrtifolia)* Orange Geiger Tree *(Cordia sebestena)* Red Bay *(Persea borbonia)* Red Maple *(Acer rubrum Aceraceae)* Southern Magnolia *(Magnolia grandiflora)* Sugarberry *(Celtis laevigata)*
Pyramid 	•	•	•	•		•	Bald Cypress *(Taxodium distichum)* East Palatka Holly *(Ilex attenuata)* Pond Cypress *(Taxodium ascendens)* Southern Cedar *(Juniperus silicicola)* Yaupon Holly *(Ilex vomitoria var. Will Fleming)*
Umbrella 	•	•	•	•		•	Buttonwood *(Conocarpus erectus)* Florida Elm *(Ulmus americana var. floridana)* Hog-plum *(Ximenia americana)* Lancewood *(Ocotea coriacea)* Live Oak *(Quercus virginiana)* Paradise Tree *(Simarouba glauca)* Persimmon *(Diospyros virginiana)* Red Mulberry *(Morus rubra)* Sand Live Oak *(Quercus geminata)* Seagrape *(Coccoloba uvifera)* Wild Tamarind *(Lysiloma latisiliquum)* Winged Elm *(Ulmus alata)*
Vase 	•	•	•			•	Bald Cypress *(Taxodium distichum)* Slash Pine *(Pinus Elliottii)* South Florida Slash Pine *(Pinus Elliottii var. densa)* Loblolly Pine *(Pinus taeda)* Longleaf Pine *(Pinus palustris)* *may be planted along thoroughfares in T5,T6 if wide undisturbed swale is available*

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Proposed Revision to Peer Cities for West Branch Comprehensive Plan

One consideration for the community of West Branch as it prepares to update its comprehensive plan is whether the "peer cities" used for comparison throughout the plan are the most effective communities to use for such comparisons.

The most recent two years of population data for the current peer cities listed in the West Branch Comprehensive Plan are shown in Table 1, below.

Table 1: Recent population estimates for peer cities

	2014 population estimate	Population trend compared to 2010	2015 population estimate	Population trend compared to 2010
West Branch	2349	Increase, +27	2716	Increase, +394
Ackley	1550	Decrease, -39	1706	Increase, +117
Bellevue	2167	Decrease, -24	2134	Decrease, -57
Clarksville	1419	Decrease, -20	1355	Decrease, -104
Columbus Junction	1857	Decrease, -32	2120	Increase, +221
Durant	1825	Decrease, -7	1983	Increase, +151
Mechanicsville	1117	Decrease, -29	1082	Decrease, -64
Nora Springs	1402	Decrease, -29	1553	Increase, +122
Pleasantville	1687	Decrease, -7	1819	Increase, +125
State Center	1471	Increase, +3	1355	Decrease, -113
Toledo	2250	Decrease, -91	2146	Decrease, -195

Source: U.S. Census Bureau, Population Division

As the table shows, four of these peer cities (Bellevue, Clarksville, Machanicsville, and Toledo) have a projected population decline for the last two years, five of the peer cities have had fluctuating population figures (Ackley, Columbus Junction, Durant, Nora Springs, Pleasantville, and State Center), while West Branch alone shows a population increase for both years.

It is important to note that the population data for 2010 is census data and represents an actual count of all the residents, while the data for 2014 and 2015 represents population estimates made by the census bureau between census years and therefore have some margin of error. This may account for some of the fluctuation in the numbers.

For this reason, it may be more useful to compare longer term population trends. The graph in Figure 1 on the following page show that four of the peer cities – Durant, Pleasantville, State Center, and Columbus Junction – show a pattern of modest population growth from 1990 onward comparable to that observed in West Branch. In contrast, the graph in Figure 2 shows the remainder of the peer cities have been experiencing population stagnation or decline during the same period.

It is worth considering whether the list of peer cities should be pared down to reflect a more balanced mix of communities experiencing modest population growth and decline — or even if West Branch might want to use comparable population growth as one of the criteria in selecting peer cities for comparison.

Figure 1: Peer cities experiencing long-term population growth

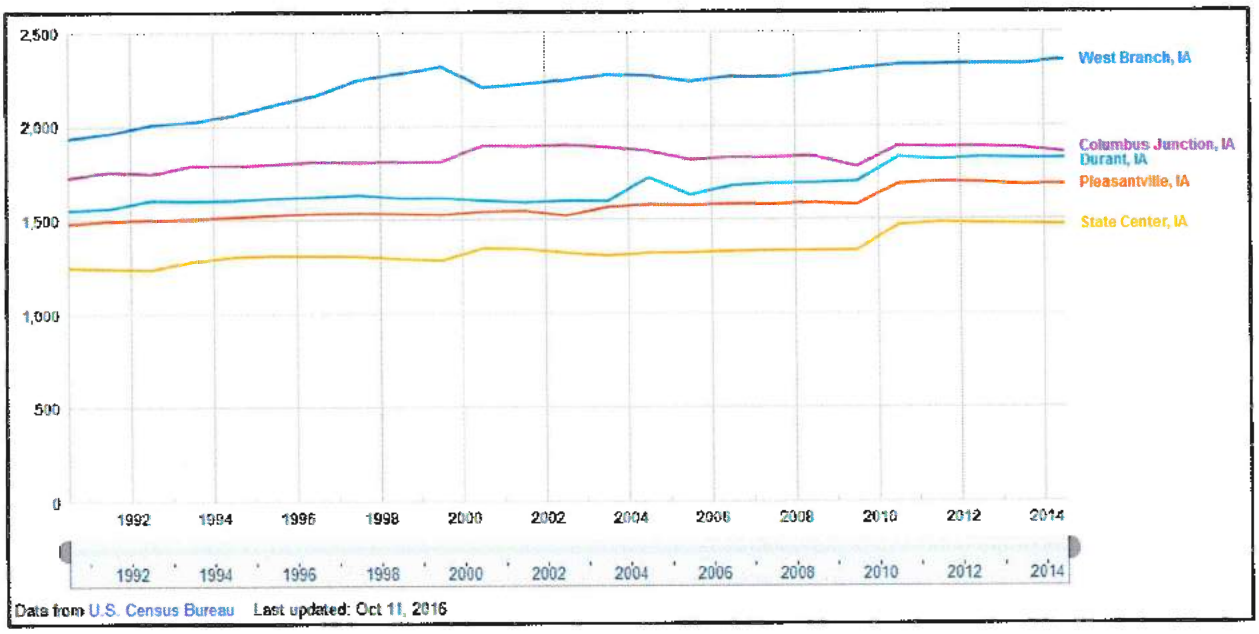
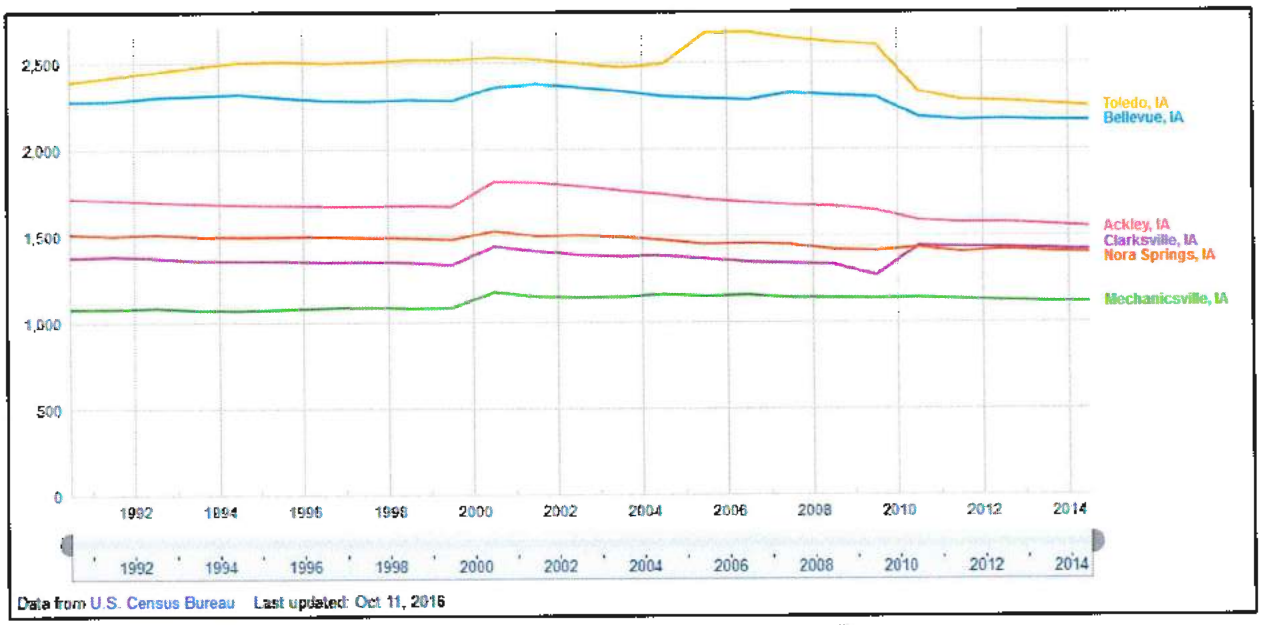


Figure 2: Peer cities experiencing long-term population decline



A geographic comparison of the location of these communities, meanwhile, reveals two outliers: Bellevue and Columbus Junction. While the other communities are similar to West Branch in that they are small communities located within 10-20 miles of a substantially larger community and are situated on a major transportation route, Bellevue and Columbus Junction are comparatively more isolated.

The proximity to a major transportation corridor is an important consideration, as transportation and warehousing account for 36% of the total job count for West Branch according to data from the U.S.

Census Bureau. Manufacturing located along this corridor accounts for an additional 7.4% of the total job count.

For this reason, identifying towns that meet at least two if not three of the following criteria would likely provide a better basis of comparison for the city of West Branch:

- Similarity in population size (between 1500-3500 residents) and modest long term growth
- Similarity in location near a major transportation corridor (with 5 miles) and a larger community (within 10-20 miles)
- Similarity in terms of manufacturing, transportation, and warehousing employment activity (between 15%-40% of total job share for the community)

Based on these criteria, we have identified a five additional communities as candidate peer cities for for the Comprehensive Plan update: Wilton, Mitchelville, Earlham, Roland, and Urbana. Previous discussions of peer cities with the Planning and Zoning Commission have also identified Tiffin and Tipton as possible candidates. The population trends and combined manufacturing, warehousing, and transportation job share for these candidate cities can be seen in Figure 3 and Table 2, below.

Figure 3: Long-term population growth in the proposed peer cities

Table 2: Combined warehousing, transportation, and manufacturing job share in each proposed peer city

Columbus Junction	0%
Durant	17%
Earlham	27%
Mitchelville	20%
Pleasantville	3%
Roland	17%
State Center	12%
Tiffin	3%
Tipton	7%

Urbana	18%
West Branch	43%
Wilton	34%

The manufacturing, warehousing, and transportation job share for four communities from the original list (Columbus Junction, Durant, Pleasantville, and State Center) are also shown in Table 2. Communities where the job share exceeds 15% are highlighted in gray. (Refer to Figure 1 for the population trends within these communities).

Based on this data, 6 communities align with all three of the proposed criteria for peer cities: Durant, Earlham, Mitchelville, Roland, Urbana, and Wilton. The remainder – with the exception of Columbus Junction – align with at least two of the criteria (Tipton, for example, has had similar population growth but the total job share of manufacturing, warehousing, and transportation employment in that community is substantially lower.) The relative proximity of Pleasantville, State Center, Tipton and Tiffin to West Branch, however, may make them more familiar to West Branch residents. Thus, they may serve as useful references.

Columbus Junction, though it shares a similar long term population trend to West Branch, is unique among this list in that it is located far from an Interstate. It also has a smaller manufacturing job share, though this may be because the Tyson food plant is located outside city limits (manufacturing, warehousing, and transportation account for 41% of the total job share of Louisa County). Arguments could be made for and against including it in the list of peer cities.

The updated Comprehensive Plan need not have a list of 10 peer cities as the current Plan does. A list of 6-10 communities would provide adequate basis for comparison. This could include the 6 communities that fully align with the three proposed criteria or some mix of these communities and those aligned with at least two criteria. We welcome the comments and suggestions of the Planning and Zoning Commission to help refine this list.