Section 2: Connectivity System

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URBAN GREENWAY TOOLKIT

The Urban Greenway Model

This study recommends utilizing an urban greenway framework to provide multi-neighborhood interconnectivity and shared access to downtown. The increased connectivity will be created via a dedicated bicycle and pedestrian trail within the public street right-of-way. This trail typology is defined as an urban greenway to distinguish it from the more common off-road greenway trail model usually occurring within abandoned rail corridors and public open space such as the Fort Wayne Rivergreenway Trail. It is also distinct from the bicycle lane model which occurs within or adjacent to vehicle travel lanes and only accommodate bicycles without accommodation for pedestrians.

There are additional models for urban bicycle accommodation, notably the European “cycle-path” in which one-way bicycle paths occur on both sides of two-way streets adjacent to sidewalks, differentiated from both sidewalks and vehicle lanes by material and traversable curb delineation. While that model could have future applicability as bicycle usage increases, its use is not recommended at this time. The cycle path model is largely unfamiliar and would require comprehensive integration within a pervasive multi-modal traffic management network. A model that may have application potential in Fort Wayne is the sharrow, where bicycles literally travel in the center of the lanes with other vehicles. The sharrow is explored latter in this Section.

The dedicated urban greenway model has been recommended for this connectivity plan because it serves the broadest constituency of user, those that are unable or disinclined to bicycle in the roadway: the elderly, the novice rider, young children, and families; as well as more experienced cyclists wishing to avoid roadway sections perceived to be dangerous. It also serves a diverse combination of walkers, runners and skaters for whom typical five foot wide city sidewalks are insufficient. It will provide a highly visible facility with high usage levels, qualities that promote security, identity, and a social experience.

Figure 2.1 Residential Urban Greenway
The above photo shows an urban greenway with a residential district character. This is an example of a shared bike/pedestrian way, or Multi-Use Path (MUP).

Figure 2.2 Commercial Urban Greenway
The above photo of the Indianapolis Cultural Trail shows an urban greenway with a commercial district character. This is an example of adjacent or paired bike/pedestrian ways (BW/PW) as separate side-by-side facilities.

Figure 2.3 Existing Design Model
The design of new infrastructure, like the CitLink transfer station at Creighton and Hanna can be integrated into the design of the urban greenway to reinforce the city’s investment in quality places.
Component Zones

The component zones, classified as either a continuous ways or paths, or as discontinuous zones or areas, are defined in the adjacent table (figure 2.4) and illustrated on the right facing page (figure 2.5, and 2.6). The streetscape of an urban greenway is composed of component zones. The non-motorized facilities can either be provided as a multi-use path to serve both pedestrians and bicyclists in a shared travel way, or may be paired as a two-way bike path next to a pedestrian way. Utilizing component zones provides a common terminology to describe multi-modal corridors.

Urban Greenway Defined

The urban greenway concept goes beyond traditional transportation ideology of connected destinations. It considers the multiple kinds of users, like the elderly, the young, and the disabled, as well as kinds of trips, like pleasure, exercise, and commute, and linear park amenities. The trail becomes a destination in and of itself that has a positive effect on the adjacent neighborhoods and land uses. An urban greenway is best thought of as a linear park, to be enjoyed by families as a means of activity, as well as a great travel facility. An urban greenway should extend and be integrated into a network of bicycle and pedestrian facilities. These considerations offer community-wide benefits that complement a traditional approach to bicycle and pedestrian network planning.

Supportive Bike Lane Network.

Community’s do not have to choose to provide only bike lanes or trails, because these facilities actually work best in combination. A supportive bicycle lane network will allow the urban greenway and off-road greenway system to access nearby adjacencies and features, like the historic Rialto theater on Pontiac and Calhoun (figure 2.7). Bike lanes also complement the greenway network in raising bicycle awareness and encouraging system usage.

<table>
<thead>
<tr>
<th>Component Zone Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BW</td>
<td>Bicycle Way: Bicycles travel area.</td>
</tr>
<tr>
<td>BTW</td>
<td>Bus Transit Way: area where bus transit vehicles travel or stop to load and unload.</td>
</tr>
<tr>
<td>CZ</td>
<td>Crossing Zone: area where pedestrians or other non-motorized modes interface with and traverse through motorized transportation zones.</td>
</tr>
<tr>
<td>CHZ</td>
<td>Clear Height Zone: vertical distance between a transportation facility and the lowest overhead obstruction. Note: There is not a separate design guideline for the CHZ, rather, its requirements are addressed in all other zones.</td>
</tr>
<tr>
<td>FZ</td>
<td>Frontage Zone: area of interaction between the pedestrian way and grade-level uses.</td>
</tr>
<tr>
<td>MUWP</td>
<td>Multi-Use Path a travel way that accommodates shared use between bicycles and pedestrians (also Multi-Use Path (MUP))</td>
</tr>
<tr>
<td>PAA</td>
<td>Pedestrian Activity Areas: area for public gathering in both the public, quasi-public, and private spheres.</td>
</tr>
<tr>
<td>PW</td>
<td>Pedestrian Way: area where pedestrians travel.</td>
</tr>
<tr>
<td>PZ</td>
<td>Parking Zone: area within the roadway where vehicles are permitted to stop, stand, or park, with various levels of permission and/or restriction.</td>
</tr>
<tr>
<td>SZ</td>
<td>Separation Zone: area of protection between the roadway and the pedestrian way that accommodates utilities, signs, and streetscape elements.</td>
</tr>
<tr>
<td>VW</td>
<td>Vehicle Way: area where motorized vehicles (automobiles, trucks, buses) travel.</td>
</tr>
</tbody>
</table>
The optimized Urban Greenway design for a 60 foot right-of-way (ROW) through a residential area. This is the dominant characteristic condition of the corridors recommended in the Fort Wayne system. The condition can be found on Hanna, Creighton, and Harrison. In this case, the best approach is to utilize a shared Multi-Use Path. The component zone dimensions will vary slightly based on existing ROW for each corridor. An effort was made to minimize cost impacts though design variation.

Figure 2.5 Optimized Residential Design (Multi-Use Path)

The optimized Urban Greenway design for a 60 foot ROW with a commercial/mixed use character. This condition is also fairly well represented in the corridors recommended in the Fort Wayne system. The condition can be found on Calhoun, Lewis, Douglas, and Barr. In this case it is possible to separate the bicycle and pedestrian ways and create a paired trail, which allows the accommodation of door openings and pedestrian activity areas. As is the case with the residential example these conditions vary slightly based on existing ROW and cost considerations.

Figure 2.6 Optimized Commercial Design (Paired Path)
Urban Greenway Cross Sections

The proposed urban greenway cross section will have two variants. One is a Multi-Use Path (MUP) in which all users share a 10-12 foot wide center-striped paved trail. It would occur on less densely developed corridors such as Hanna, Harrison, or Creighton Streets (figure 2.7). The other cross section consists of a paired set of adjacent bicycle and pedestrian paths (8-10 feet for bicycle and 6-10 feet for pedestrians). This Paired Path (BW/PW) is most appropriate in commercial areas with higher usage and zero setback building frontages since it places the pedestrian use adjacent to those frontages allowing unimpeded access to and from doorways and along store fronts. It distances bicycles from those browsing, random movement conflicts. The paired paths’ spatial requirements will generally entail relocation of one curb (although in some cases restriping of existing lanes will suffice) and loss of either a travel lane or a parking lane. South Calhoun, Barr, and Lewis Streets, and north Harrison and Douglas Streets are typical applications for this model.

Variations of these typical conditions exist, in part due to the ROW constraints in the selected corridors for development as an urban greenway: Hanna, Calhoun, Harrison, Douglas, Barr, Creighton, and Lewis. However, two generalized conditions emerged to describe the system, illustrated in figures 2.5 - 2.6, the typical residential cross section (a Multi-Use Path) and the typical commercial cross section (a Paired Path).

The variations of the typical conditions are presented in the Urban Greenway Feasibility section and in the Urban Greenway Plan Detail section (Sections 3 & 4). Existing and proposed cross section solutions are presented for each varying condition; however these solutions will require greater detail and examination in the design phase since these concepts are based on the best available data and survey level data has not been evaluated at this time.
The residential cross section is applied in areas of residential character. In these areas the existing ROW dimensions are approximately 60 feet with 30 foot curb-to-curb of pavement and 15 foot of space on either side for a tree lawn (separation zone, SZ) and a sidewalk (pedestrian way, PW). The proposed solution for this condition is a shared pedestrian way and bike way as a 10-12 foot Multi-Use Path (MUP). The commercial cross section is applied in areas that have an urban mixed-use character. In these areas the existing ROW dimensions are approximately 60 feet with a 40 foot curb-to-curb and 10 foot of space on either side for a tree lawn (separation zone, SZ) and a sidewalk. The proposed solution for this condition is a Paired Path with an adequately buffered, separated, pedestrian way next to a two-way bike way.

**Active Path Planning**

Active path planning should be incorporated into the design. The design of the urban greenway should consider the creation of pedestrian activity areas spaced to enhance the routes experience (roughly 1/4 mile). Figure 2.9 illustrates the potential to create pedestrian activity areas along the path that accentuate the district nodes. The design phase should determine whether existing features offer sufficient interest to stimulate trail use or if new features must be created.

**District Nodes**

Creating an active path will encourage use of the trail and the facilities provided at the district nodes (figure 2.10). The entertainment destinations around the Botanical Conservatory and the neighborhood activities and transit focus around the CitiLink Transfer Station can also benefit from this added activity.

**Pedestrian Activity Areas**

To create this high intensity along the trail the trail needs to have pedestrian scale spacing of pedestrian activity areas at roughly 1/4 mile intervals. This can be done by creating new pedestrian activity areas (figure 2.11) or by highlighting existing interesting features in the trails design (figure 2.12).
SECTION 2: CONNECTIVITY SYSTEM

Design Considerations:
Figures 2.13 - 2.18 illustrate some of the design considerations that can be incorporated into the design phase. Important design considerations to consider:

Base Design Considerations:
- Exterior Furnishings: Benches, Bike Racks, etc., (figure 2.13).
- Trees and Plantings (figure 2.14)
- Paving Materials: Standard Paving Strips and Separations (see example plan detail in Section 4).
- Rain Gardens and Stormwater Treatments (figure 2.15).
- Signage and Wayfinding (figure 2.16)
- Intersection Crossings: Signals, No signals, and Driveways (see example plan detail in Section 4).

Enhanced Design Considerations:
- Pedestrian Scale Lighting Fixtures: Current Fort Wayne acorn lighting is appropriate.
- Enhanced Pavement and Textures (see example plan detail in Section 4).
- Permeable Pavement (figure 2.17)
- Public Art /Sculpture (figure 2.18)
- Intersection Treatments (see example plan detail in Section 4)

Urban Greenway Marketing
During design and implementation phases marketing, branding, and education tools should be utilized. The naming of the greenway should be an active process because of its potential regional significance. The Renaissance Loop is a potential name that draws positive association with the Renaissance Pointe development. The naming of the facility could be a part of an outreach effort to market the idea to residents. The City could conduct a naming contest or survey the community with several choices. An option is to name the trail for a benefactor or important community icon or partner.
Figure 2.13 Exterior Furnishings
Exterior furnishings are encouraged to accommodate pedestrians and support public gatherings. All exterior light standards, tree grates, seating, benches, bike racks, etc. should be themed and of one palette.

Figure 2.14 Trees and Plantings
All plant materials should be selected to exhibit seasonal coloration and flowering. Landscape design should emphasize seasonal variation. In parking zones, deciduous shade trees should be provided and maintained with at least 25% canopy coverage. Interior trees should be selected that have large canopies in order to maximize the surface area of pavement covered by the tree canopy.

Figure 2.15 Raingardens
Vegetated swale with native plants can be used to slow the speed of surface run off and allow stormwater to infiltrate back into the ground instead of flowing directly into storm sewers (sketch from Chicago Green Alley Sketchbook).

Figure 2.16 Signage/Wayfinding
Fun and informative signage should be used to provide wayfinding around the urban greenway system and to provide directions to the destinations and landmarks.

Figure 2.17 Permeable Pavements
Where possible consider the use of permeable paving to allow rainwater to penetrate through the surface and infiltrate into the soil below. This reduces drainage impacts on streams and recharges local groundwater (sketch from Chicago Green Alley Sketchbook).

Figure 2.18 Public Art/Sculptures
The picture above is an example of how public art can be utilized to create interesting areas for pedestrians to engage with the environment.
SECTION 2: CONNECTIVITY SYSTEM

SUPPORTIVE BIKE FACILITY TOOLKIT

While the proposed urban greenway is the backbone element of the south central connectivity network, and will achieve many of the goals and objectives outlined in Section 1, it will not by itself constitute comprehensive bicycle/pedestrian connectivity for the study area and its adjacencies. A set of additional facilities will be needed to provide bicycle access to the urban greenway as well as access to the many destinations that occur off of and beyond its primary corridors. These supporting facilities should be developed according to street and traffic characteristics, and will be utilized by bicyclists with experience and skill levels that are correlated to those characteristics. In some cases the facility might be an alternative to the urban greenway either sharing the same corridor or as a more direct alternative corridor.

Supportive Bike Facility Typologies:
- Bike Lanes
- Sharrows
- Shared Lanes or Wide-Curb Lanes
- Quiet Streets and Bicycle Boulevards

Bicycle Lanes

Bicycle lanes should be a component of any urban street that does not meet, or cannot be adapted to, "quiet street" parameters, that is not a "high speed" facility, and that has sufficient cross sectional space to meet specific geometric standards. This component of a complete multi-modal system treats the bicycle as a "vehicle" that follows the same rules as motorists, and as such requires skill and judgment levels commensurate with those of motorists. Bicycle lanes are thus complementary and extend to quiet street and urban greenway typologies. They serve both recreational and commuter usages and provide access to all land uses. Based on review of current plans and public engagement, bicycle lanes are recommended for Jefferson, Clinton, Berry, Wayne (if Berry remains one-way), Pontiac, Rudisill, and Lewis Streets, within the south central area.
Sharrow

In some cases where there is insufficient roadway cross-sectional area for bicycle lanes, or where travel or parking lane reduction to gain that space is impractical, a “sharrow” can be utilized (the term sharrow is derived from a special pavement marking of a bicycle and a double chevron arrow, or “share-arrow”). Design criteria developed in several experimental applications (Portland, San Francisco, Salt Lake City) have promoted the inclusion of the sharrow typology in national bicycle facility standards. Marked and signed lanes inform the motorist of the presence of lane-sharing bicycles, and encourage cyclists to ride in the center of the lane rather than in the insufficient space between curb or parked cars and motor vehicles. Vehicle speeds should not exceed 25 mph in a shared lane, a constraint that can be reinforced by traffic calming interventions. Sharrows are generally implemented concurrent with development of bicycle lane networks. As with bicycle lanes, this component requires bicyclist skill and judgment levels commensurate with those of motorists. The South Calhoun Street business district corridor between Creighton and Grand could be modified to meet a sharrow application as a complement to the parallel Harrison Street urban greenway.

Shared Lanes or Wide-Curb Lanes

The conventional “shared lane” or “wide curb lane” is typically implemented as a normal vehicle lane that has added signage like a “share the road” sign; where bicyclists are forced to ride along-side vehicles. This typology is not recommended as a substitute for properly designed bicycle lanes or sharrows, since they offer no guidance to motorists, and often encourage higher vehicle speeds. A potential appropriate use for this typology is as a temporary or transitional tool to link bicycle users between established bike routes. It is recommended that the city transition all current “share lanes” to properly designed bike lanes or sharrows.
Quiet Streets and Bicycle Boulevards

These very low-volume and low-speed residential neighborhood streets, with little or no through traffic, allow shared bicycle and motor vehicle usage without specific cross-section design features. Quiet Streets are either short non-continuous street segments, or receive traffic calming interventions such as all-way stops, traffic circles, or other physical barriers or disincentives to through traffic and to speeds greater than 20 miles per hour. They generally are too narrow for either bicycle lane or two-way center stripe lane designation. If these streets constitute a segment of a bicycle route, the addition of signage identifying the route and its reduced speed limits, and warning signage and pavement markings on the thoroughfares that cross it are important. Such streets can be part of a “bicycle boulevard”, in which a corridor is defined across several neighborhoods or districts to avoid higher volume/speed streets, truck service routes, and congested intersections with a high proportion of turning movements. A successful quiet street or bicycle boulevard will provide a “user comfort level” to a range of bicyclist skill and experience levels.

In the study area, a potential application of this typology might be the segment of Creighton Street between Hanna and Calhoun Streets which, with some of the interventions indicated above, could meet quiet street/bicycle boulevard criteria.
CONNECTIVITY RECOMMENDATIONS

The connectivity recommendations for the south central area and downtown Fort Wayne are intended to inform, but not supplant, existing plans and studies for the area. The pedestrian network of sidewalks is well defined, with the City giving special consideration to pedestrian facilities in the core downtown. In some residential areas, that are not heavily traversed by automobiles, it is acceptable to have streets without sidewalks and bike facilities or signage. This typology is described prior as a quiet street or bicycle boulevard. In this case the vehicle travel way is shared by all modes. People can be observed on such streets walking or biking down the center of the roadway, giving way to the occasional automobile. This is an example of how multi-modal networks become completed and connected, utilizing the whole system to make sure that all modes have access to all locations. On streets that accommodate more automobile traffic, both local and regional, interventions are required to manage multi-modal traffic. It should be noted that the recommended alignments are based on the study area and close neighboring adjacencies. An expanded study of the City of Fort Wayne may reveal additional alignment factors.

Summary of Recommended Typologies

- Urban greenways: a typology that provides separation from the automobile and serves all levels and kinds of bike users. The greenway path can be shared by the bicycle and pedestrian.
- Bike lanes: a typology that improves system connectivity and safety while providing some separation from cars.
- Sharrows: a typology that may be an alternate choice to the urban greenway and bike lane.
- Bike boulevards, and quiet streets: typologies that encourages improved communication and prioritization between multiple travel modes through placement of signage.

Figure 2.26 Urban Greenway Photo

The urban greenway can incorporate innovative stormwater management like the raingarden shown in this photo.

Figure 2.27 Bike Lane Photo

Bike lanes support travel to/from the urban greenway.
SECTION 2: CONNECTIVITY SYSTEM

SYSTEM CONNECTIVITY

In addition to achieving the purpose and goals outlined in Section 1, and the district node alignment consideration of connecting the Botanical Conservatory and the Citilink transfer station at Hanna and Creighton, the recommendations for bicycle/pedestrian facilities will complete a multi-modal network and address connectivity issues for the study area. These recommendations can be used to prioritize and/or update existing plans for the City of Fort Wayne as they relate to this study area. The map to the left (figure 2.28 illustrates the proposed bicycle/pedestrian connectivity recommendations.

Connectivity Areas

Improving bicycle and pedestrian accessibility to goods and services for the neighborhoods that are in the study area is a priority of the network. Neighborhoods like LaRez and East Central are well linked by the proposed system. Additionally there are some special connectivity areas to consider that fall in/border the study area (figure 2.28). The Williams Woodland Park historic district is a strong residential area that can be built upon throughout the south central area by increased connectivity. The Renaissance Pointe redevelopment is another well defined area that will benefit from increased connectivity. Finally the downtown core area is a great resource that is separated by the railroad from the south central area. Improving bicycle and pedestrian connectivity across the railroad will allow interior urban neighborhoods and districts to benefit more from the adjacency to the downtown core.

Parks and Recreation

Parks and recreation opportunities are a large contributor to the quality of life experienced by residents. Creating recreation opportunities will enhance the bicycle/pedestrian experience. The recommended facilities align with and connect the study areas parks and river resources.
Urban Greenway Corridors

The urban greenway recommendation (figure 2.29) is the central feature of the connectivity plan for bicycle/pedestrian system within the study area. The urban greenway will be a loop that traverses the feasible connectivity corridors in the study area (Creighton, Calhoun/Harrison, Lewis, Hanna) and a prominent connection through downtown (Barr) between the loop and the Rivergreenway/Headwaters Park. The urban greenway should be designed with consistent material features throughout in order to make the path visually distinguishable.

Downtown Urban Greenway
- Extents: along Barr Street from Lewis Street connecting to Headwater Park and The Rivergreenway.
- Implementation consideration: to be designed and implemented in concert with the downtown pedestrian plan.

Harrison/Calhoun Urban Greenway
- Extents: along Calhoun/Harrison corridors to the Botanical Conservatory.
- Implementation consideration: either corridor or both could be developed. Both corridors have advantages and disadvantages to consider. Calhoun is the more active corridor south of the RR, but Harrison is more active north of the RR. Calhoun has the potential to be developed as a sharrow (see Section 3 feasibility discussions).

South Central Urban Greenway Loop
- Extents: along Creighton from CitiLink transfer station; Hanna from CitiLink transfer station to Lewis; Lewis from Hanna to the Botanical Conservatory.
- Implementation consideration: integrating current Creighton sidewalk improvements from Hanna to Lafayette into system.
Supportive Bike Lane Corridors

While the recommendation to create an urban greenway will achieve many of the goals and objectives outlined in Section 1 it is not a complete solution for bicycle/pedestrian connectivity in the study area. Some locations within the study area and adjacent neighborhoods are not connected by the urban greenway loop that will benefit from connectivity. Bike lanes are desirable for ease of feasibility and because they are a safe and desirable means for bike travel. The creation of bike lanes will support and promote the use of the urban greenway as a transportation and recreational resource for Fort Wayne. Further, bike lanes will complete the network and provide a non-motorized network choice in transportation options for residents. Bike lanes are an essential element of a multi-modal system. The supportive bike lane recommendations should be considered priorities for bike lane implementation within this study area; however, these recommendations should not exclude or replace recommendations on other corridors. Urban greenway extension routes are recommended if desired by residents and cost feasible (figure 2.30). Important locations that would be connected by extension routes are along Lewis through the community gardens, along Calhoun to the Historic Rialto Theater at Pontiac, Weisser Park, the Pontiac/Hanna commercial node, and a possible Rivergreenway connection from Hanna Street. If not implemented as urban greenway extensions these corridors should be implemented as bike lanes or sharrows.

Possible South Central Route Extensions
- Extents: Along Calhoun/Harrison from Creighton to Rudisill; along Hanna from Creighton to Pontiac and Lewis to Berry; along Lewis east from Hanna (terminus TBD).

Supportive Bike Lane Recommendations
- Extents: Along Lafayette, Clinton, Berry, Wayne (if Berry remains one-way), Pontiac, and Rudisill for entire length or terminus TBD.
PHASING RECOMMENDATIONS

Bicycle and pedestrian connectivity for the south central area could be established through phased implementation (figure 2.31). Phasing will limit the construction impacts on residents and allow for financing to be split over several funding cycles. Two phases are recommended to achieve the desired bicycle/pedestrian connectivity in the study area. The City of Fort Wayne should place a significant priority on the completion of the system, with the goal of completing the phases within 5 years.

Phase 1: Years 1-3

The phase 1 implementation recommendation is focused on connecting the south and west legs of the urban greenway loop. This recommendation will capitalize on creating an immediate link to reservoir park and the south central Calhoun commercial corridor so that residents will realize immediate benefits.

Phase 2: Years 4-5

The phase 2 recommendation is focused on creating the east and north legs of the urban greenway loop as well as completing the downtown link to the Headwaters Park and the Rivergreenway. This will allow time to coordinate the Barr corridor development with other downtown improvements.

Bike Lane Implementation

The supportive bike lane network should be prioritized around making connections to the urban greenway during the two phases of its development. Corridors that link/cross phases should be prioritized during that phase of development. The corridors recommended for possible urban greenway extensions could be striped for bike lanes or sharrows as an interim step to allow time to gauge the success of the investment in the phase 1 and 2. Additionally, opportunistic implementation of bike lane facilities should be encouraged, e.g. if a corridor is due for road maintenance, then the bike lane could be implemented at that time.