MARCH 23, 2021

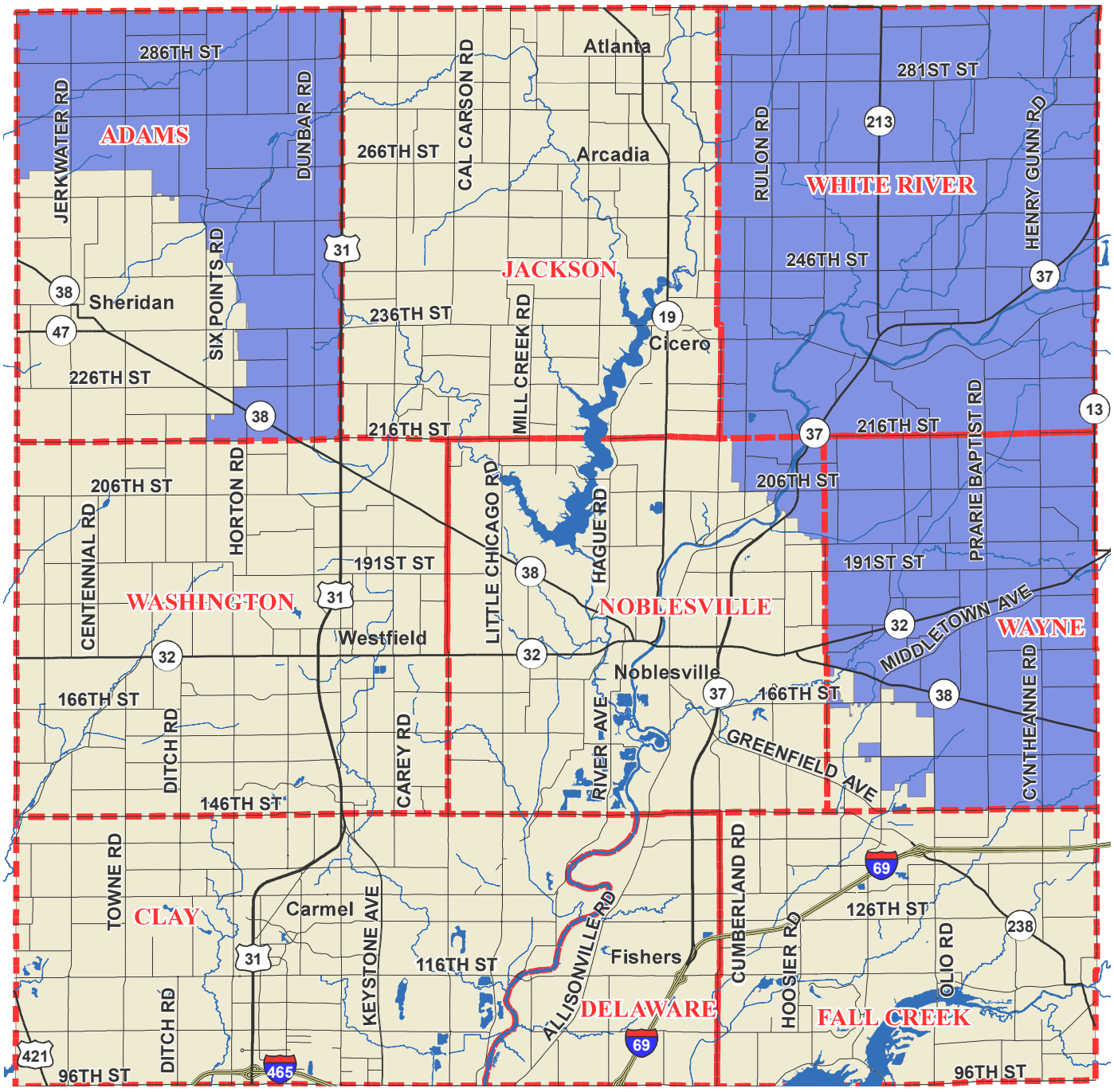
#RURALPLANNING

COMPREHENSIVE PLAN

HAMILTON COUNTY PLAN COMMISSION

2020





Hamilton County Plan Commission has jurisdiction in Adams, White River, Wayne Townships, and a section in NE Noblesville Township. Shown in blue.

PLANNING TEAM

Innovative Planning, LLC

Innovative thinking. Innovative ideas.

CBB BURKE

peterson ARCHITECTURE

HAMILTON COUNTY INDIANA PLAN COMMISSION

CONTENTS

4 INTRODUCTION

WHAT IS A COMPREHENSIVE PLAN?
WHY PLAN?
ACKNOWLEDGMENTS
PLAN MISSION AND GOALS
THE PLANNING PROCESS
RECOMMENDATION SUMMARY LIST

10 TOWNSHIP CHARACTERISTICS

POPULATION TRENDS
DIVERSITY
OPPORTUNITY GAP ANALYSIS
CRIME
RURAL FARMING STATS
PARKS
STORMWATER & FLOODING
FLOWS & FLOODPLAINS
STORMWATER & FLOODPLAIN REGULATIONS
FUTURE HYDROLOGY
TOWNSHIP STORMWATER AND FLOODPLAIN MAPS
WHITE RIVER VISION PLAN
TRANSPORTATION
EXISTING LAND USE

39 PUBLIC ENGAGEMENT

TOWNSHIP MEETINGS
SURVEYS

44 ANTICIPATED CHANGE

STATE POPULATION FORECAST
HAMILTON COUNTY POPULATION PROJECTION
THRIVING COMMUNITY

48 RECOMMENDATIONS

QUALITY OF LIFE
LAND USE
PROPOSED LAND USE MAP (PAGES 58/59)
ECONOMIC DEVELOPMENT
STORMWATER & FLOODING
TRANSPORTATION
IMPLEMENTATION

80 PLANNING WORKSHEETS

APPENDIX

Located in a Separate Document

MEETING NOTES
PUBLIC PRESENTATIONS
LETTERS RECEIVED
PUBLIC INPUT SURVEY RESULTS
FACEBOOK INTERACTION INSIGHTS
2020 RETAIL MARKET POWER ANALYSIS

INTRODUCTION

What is a Comprehensive Plan?

A comprehensive plan is a long-range, all-inclusive planning document that allows the county's vision to be strategic, thoughtful, and adopted for implementation. This document provides a foundation for all land use, transportation, and environmental policies, projects, and activities. All governing bodies of the county will refer to this plan when working on future projects.

Indiana code IC 36-7-4-500 allows Plan Commissions to adopt a comprehensive plan that is a "promotion of public health, safety, morals, convenience, order, or the general welfare and for the sake of efficiency and economy in the process of development." By code, the plan must contain these three elements:

1. "A statement of objectives for the future development of the jurisdiction.
2. A statement of policy for the land use development of the jurisdiction.
3. A statement of policy for the development of public ways, public places, public lands, public structures, and public utilities."

Why Plan?

Why plan at all? There are several reasons for good planning. Here are a few examples:

1. Planning for the future provides a framework for county leaders to implement best land use, transportation, and environment practices.
2. A good plan is holistic, which allows for future decision making to be informed and based on factual data.
3. It gives guidance for landowners and developers regarding what county leaders and residents want to see, and how to grow, build, and invest in the county.
4. It provides an avenue for county planners to listen to residents and community members.
5. A county plan will influence neighboring jurisdictions.
6. It is mandatory in order to have zoning laws.
7. It protects property values.

STEERING COMMITTEE

2020 PLAN COMMISSION COMPREHENSIVE PLAN

FRANK HABIG III

Representing Adams Township, President of the Hamilton County Plan Commission

RON HALL

Representing Hamilton County Board of Zoning Appeals, North District

CHARLIE MCMILLAN JR.

Representing Noblesville Twp., Chairman of the Hamilton County Board of Zoning Appeals, South District

STEVE SCHWARTZ

Representing Hamilton County Council

JIM GALLOWAY

Representing Wayne Twp., Hamilton County Plan Commission

BRENDA MYERS

President and CEO of Hamilton County Tourism

TIM JOHNSON

Representing White River Township



HAMILTON COUNTY PLAN COMMISSION

CHUCK KIPHART, DIRECTOR

32+ years of service









MISSION

Residents and leaders of Hamilton County shape a land use vision that strikes a healthy balance between environment, community, culture/values, and economy for the Hamilton County Plan Commission to implement over the coming decade.

The last Hamilton County Comprehensive Plan was adopted in 2006; and prior to that, 1990. The previous mission statement was:

"The citizens and elected officials of Hamilton County put forth this Comprehensive Plan so that it may guide future land use and development decisions within the Plan Commission's jurisdiction and influence. This plan is based upon common vision for residents living in the jurisdiction of the Hamilton County Plan Commission that strikes a healthy balance between ecology, community, culture, and economy. Rapid growth and development must be moderated with sound, long-range planning for natural resources, transportation, homes, businesses, and other community infrastructure. The citizens of this area of Hamilton County and their elected officials are committed to carry through with the recommendation of the Comprehensive Plan."

Today's comprehensive plan mission is stated in the upper right.

Goals

1. Develop a plan that is rooted in citizen input.
2. Create development strategies for the right development in the right place.
3. Listen to leaders of Hamilton County and incorporate their vision in the plan.
4. The range of this plan is intended to be ten years.

The Planning Process

This project was completed in an unprecedented time during the COVID-19 pandemic. The planning team, Innovative Planning, Christopher Burke Engineering, and Peterson Architecture, led the Steering Committee and Plan Commission staff through the project. The project was broken into three phases: 1) analysis/discovery, 2) public engagement, and 3) exploration.

A detailed examination of existing plans, maps, and other resources were completed. This information was used in conversations with stakeholders.

Public engagement consisted of nine public meetings- three in each township, mailed and online surveys, and public presentations at Steering Committee, County Commissioners, County Council, and Plan Commission meetings. The team incorporated public ideas into concrete concepts for land use or other planning jurisdiction issues like transportation and water access. Finally, the exploration phase consisted of in-depth research of planning trends, best practices for rurality, and reviews of peer county policies and discussions with elected/appointed officials.

Upper Left: Ham. Co. Bridge image courtesy of Byron R. Settles - Hamilton County
Right: Hamilton County photographs, courtesy of Innovative Planning
Far Left: Hamilton County Balloon Traveler photo on Trip Advisor submitted by forakerb (Jun 2018)

RECOMMENDATION SUMMARY LIST

PLANNING AREA	GOAL TOPIC	RECOMMENDATION	PAGE
QUALITY OF LIFE	(1) LIVABILITY	SUPPORT POPULATION DIVERSITY	50
		PROMOTE AGING IN PLACE	50
		ADOPT A POLICY THAT INCENTIVES DEVELOPMENT OF GREEN INFRASTRUCTURE	50
	(2) INVEST IN RECREATION		50
	(3) HOUSING STOCK	SUPPORT AFFORDABLE HOUSING OPTIONS	51
	(4) INVASIVE SPECIES		51
LAND USE	(1) PLAN FOR GROWTH	ENGAGE IN A NEW COMPREHENSIVE PLANNING EFFORT IN 2030	52
		EXPAND DEFINITIONS	52
		US 31 CORRIDOR	52
		RURAL-URBAN FRINGE OVERLAY	53
		URBAN GROWTH AREA	53
	(2) RURAL LAND USE	PRESERVE AGRICULTURAL LAND	54
		PROMOTE TO KEEP ACTIVE FARMS IN AGRICULTURAL USE AND PROTECT JOBS IN THE AGRICULTURE ECONOMY	54
		CONSOLIDATE DISTRICTS	54
		EVALUATE DENSITY CREDIT LANGUAGE FOR ALL AGRICULTURAL ZONES	54
		MAINTAIN THAT DEVELOPMENT AND PERFORMANCE STANDARDS FOR NEW OR EXPANDING AGRICULTURAL/LIVESTOCK OPERATIONS SHALL BE OBJECTIVE, SUSTAINABLE, PROACTIVE, AND SCIENCE BASED	54
		MAINTAIN COORDINATION WITH IDEM FOR CAFO/CFO PERMITS AND CONCURRENCE WITH IC-13-18-10	54
	(3) RESIDENTIAL	CONSOLIDATE DISTRICTS	57
		ADOPT A POLICY THAT PROMOTES CONSERVATION SUBDIVISIONS	57
		REVISIT THE MINIMUM LOT SIZE	57
	(4) COMMERCIAL	CONSOLIDATE DISTRICTS	57
		DEFINE “FAST-FOOD RESTAURANT” AND INCLUDE IT AS AN EXCLUDED USE	57
		SUPPORT HOME BUSINESS	57
		PROMOTE LOCAL BUSINESS	57
		RENEWABLE ENERGY	57
	(5) PRESERVATION	PROMOTE AND SUPPORT THE PRESERVATION OF HISTORIC ASSETS	57
	PROPOSED LAND USE MAPS	OVERALL	58
		OVERALL ADAMS TOWNSHIP	60
		OVERALL WHITE RIVER/NE NOBLESVILLE TOWNSHIPS	61
		OVERALL WAYNE TOWNSHIP	62

PLANNING AREA	GOAL TOPIC	RECOMMENDATION	PAGE
ECONOMIC DEVELOPMENT	(1) TECHNOLOGY	PROMOTE BROADBAND AND HIGH-SPEED ACCESS	63
	(2) ANAEROBIC DIGESTION FOR ENERGY AND WASTER MANAGEMENT	DEFINE AND ALLOW ANAEROBIC DIGESTION FOR ENERGY AND WASTE MANAGEMENT	64
		CREATE AN ORDINANCE FOR BIOMASS DIGESTERS	64
	(3) AGRITOURISM	PROMOTE AGRITOURISM ACTIVITIES IN AGRICULTURAL DISTRICTS	65
	(4) AQUACULTURE	SUPPORT AQUACULTURE ACTIVITIES AS A PERMITTED USE IN AGRICULTURAL DISTRICT	66
	(5) LOCAL FOOD SYSTEMS	IMPROVE HEALTHY FOOD ACCESS	66
		SUPPORT THE DEVELOPMENT AND ADOPTION OF JOINT-USE AGREEMENTS	66
		ADAPT	66
	(6) EQUESTRIAN PLANNING	ENCOURAGE EQUINE ACTIVITIES ...	67
STORMWATER AND FLOODING	(1) ACHIEVE FLOOD RESILIENCY AND REDUCE FUTURE FLOOD-RELATED RISK ...	(1) RIVER CORRIDOR IMPACT AREA	70
		(2) VULNERABLE DEVELOPED AREA	70
		(3) UNDEVELOPED HIGH HAZARD/FLOOD STORAGE AREA	70
		(4) MODERATE FLOOD HAZARD AREA	71
		(5) SAFER AREA	71
		(6) WATERSHED	71
	(2) IMPROVE REGULATED DRAINS TO BETTER MANAGE STORMWATER QUANTITY AND QUALITY		75
	(3) PROMOTE SOIL HEALTH AND SUSTAINABLE AGRICULTURAL PRACTICES ...		76
	(4) IMPLEMENT THE PRINCIPLES OF THE WHITE RIVER VISION PLAN ...	PRINCIPLE #1: RESTORE AND ADAPT	77
		PRINCIPLE #2 STEWARD RIVER HEALTH	77
		PRINCIPLE #8 HONOR OWNERSHIP AND LAND-USE PATTERNS	77
		PRINCIPLE #9 PARTNER ACROSS BOUNDARIES	77
TRANSPORTATION	(1) UPDATE THE THOROUGHFARE PLAN...		78
	(2) ESTABLISH A RUSTIC ROADS PROGRAM		78
IMPLEMENTATION		PLAN ADOPTION, BE IN THE KNOW, STAND FIRM, GET TO KNOW HOW LOCAL BUSINESS WORKS	79
PLANNING WORKSHEETS			80

ADAMS
WHITE RIVER
WAYNE
NE NOBLESVILLE

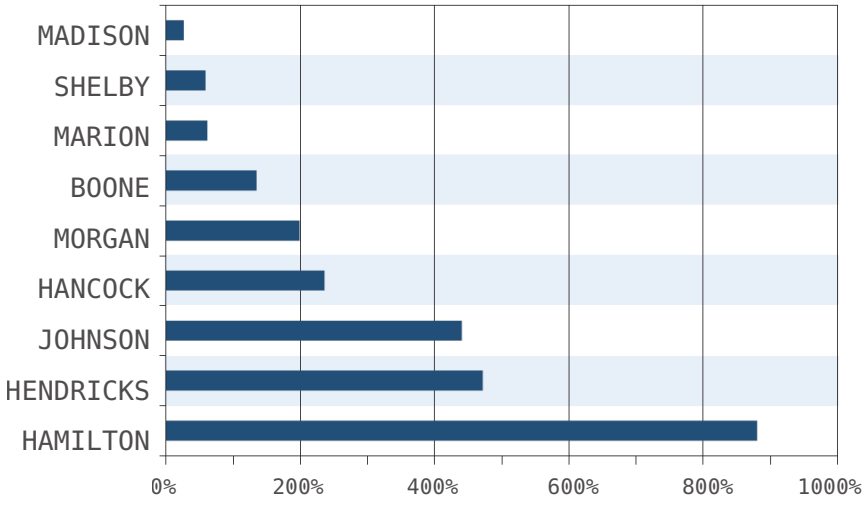
TOWNSHIPS
HAMILTON COUNTY INDIANA

CHARACTERISTICS

Hamilton County is a dynamic county with varying degrees of similarity between each township. The Hamilton County Plan Commission has jurisdiction in 4 of the 9 townships. Characteristics of the 4 townships were documented and analyzed to inform the planning process. Data that was gathered included; population growth, population characteristics trends from census information, wealth distribution, existing land use, environment and natural resources, and transportation.

Most interesting is the explosive growth Hamilton County has seen over the last 60 years compared to other Central Indiana counties. The chart to the right shows how Hamilton County has exceeded 800% growth, compared to neighboring areas. Along the same lines, 30-year change of per capita income has increased 214%.

Population growth trends are not the only characteristics where Hamilton County stands out. They include, diversity, income, and net migration, to name a few.

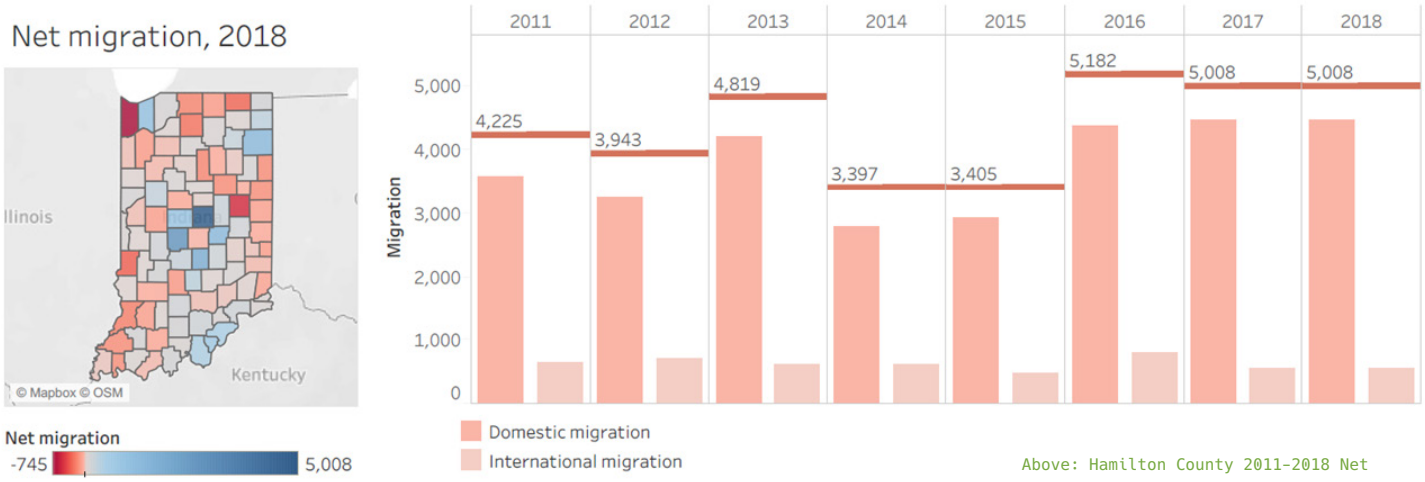


Right: Indiana University Kelley School of Business, Indiana Business Research Center, using US Census Bureau data.

POPULATION TRENDS

"Hamilton County is the fastest growing population in the State of Indiana."

- Indiana Business Research Center



Above: Hamilton County 2011-2018 Net Migration, with state Mapbox. IU Public Policy Institute

In 1980, Hamilton County's population density was 206 people per square mile of land, per Indiana Business Research Center. Urban sprawl and favorable development policies created a surge of growth. In 2009, Hamilton County's population density catapulted to 701.8. The chart above shows an average of 4,373 new residents moving into Hamilton County, year-after-year, for the past 8 years. In addition, the county's birth/death ratio adds another 2,000 persons per year during the same time period. As a result of the dramatic increase, Hamilton County's landscape has changed. Over the past 60 years, Indiana counties have lost over 20% of their acreage in farms due to population growth, see graph (right).

The 2009-2018 American Community Survey, 5-year population change estimate for each of the townships is:

Adams Township (non-Sheridan): +18.4%

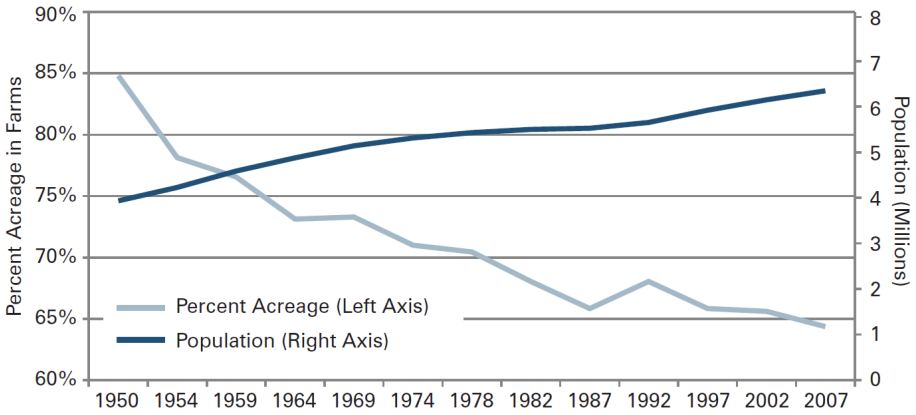
White River Township: -31.2%

Wayne (east) Township: +65.5%

Wayne (west) Township: +1.8%

NE Noblesville Township: -3%

This indicates Sheridan and Noblesville/ Fishers are driving growth in Adams and Wayne townships and the truly rural areas of the county are losing population. This trend aligns with rural population change across the state.



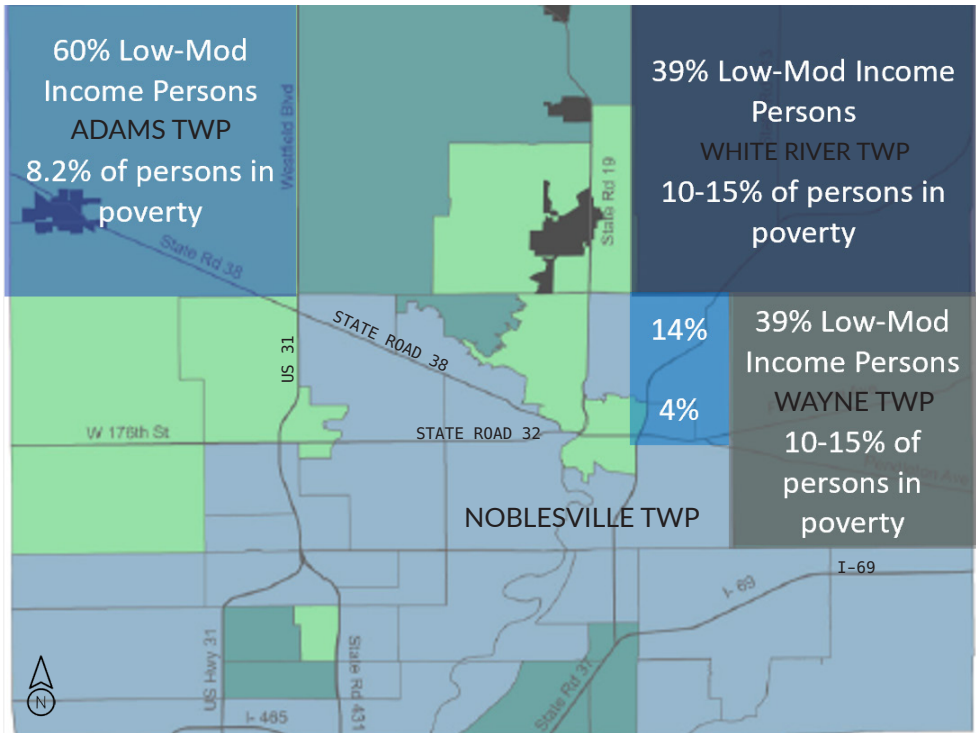
Notes: Differences in time intervals are due to the Census of Agriculture being taken every ten years prior to 1950. After that, the Census was taken every four or five years until 1982 where it now occurs every five years.
Source: IBRC, using USDA Census of Agriculture and U.S. Census Bureau data

...continued

POPULATION TRENDS

"What might be a little startling is just how much wealthier the (Hamilton County) residents are than the average Hoosier."

-Indy Star 01/07/2020



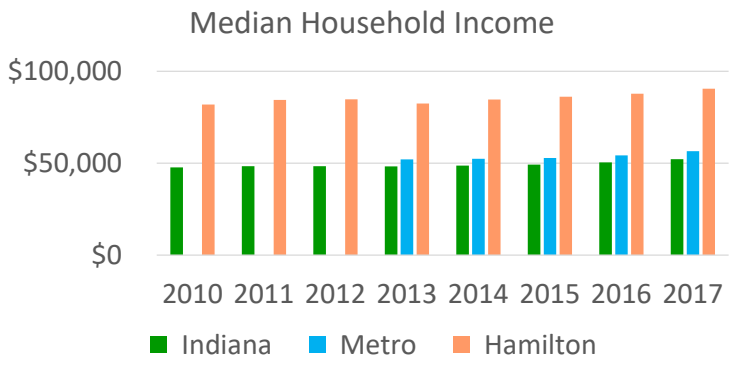
Above: Hamilton County, Indiana Consolidated Plan 2019-2023 Annual Action Plan 2019/ Novogradac & Company LLP, June 2019

There is little to dispute when it comes to determining the wealth of Hamilton County. Pre-COVID 19 pandemic in 2020, the median annual household income in Hamilton County is $94,644, compared to the state average of $54,325. The poverty rate in Hamilton County is 4.7% while statewide it is 14.1%. Unemployment is at 2.3% in Hamilton County compared to 3.2% for Indiana. Cities like Carmel, Westfield, Noblesville, and Sheridan tend to skew this data. The 2009-2018 American Community Survey (ACS), 5-year median household income for each of the townships is:

Adams Township (non-Sheridan): $115,877
White River (north) Township: $95,605
White River (south) Township: $62,539
Wayne Township: $72,661
NE Noblesville Township: $86,000

The ACS data correlated with the graphic above indicates the real income for high-earners is much higher than what ACS is estimating based on the percentage of low-to-moderate income persons that bring the median lower.

Below: 2010 US Census Data



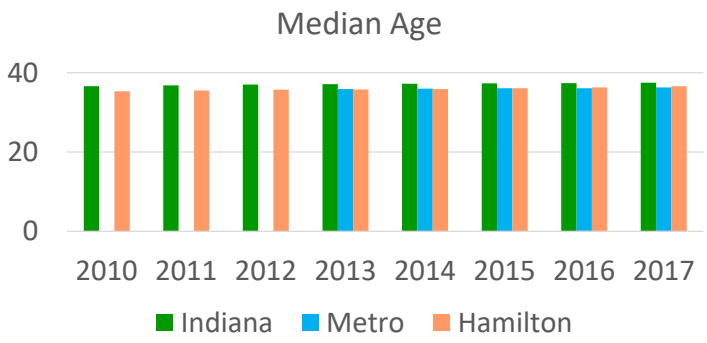
...TRENDS...



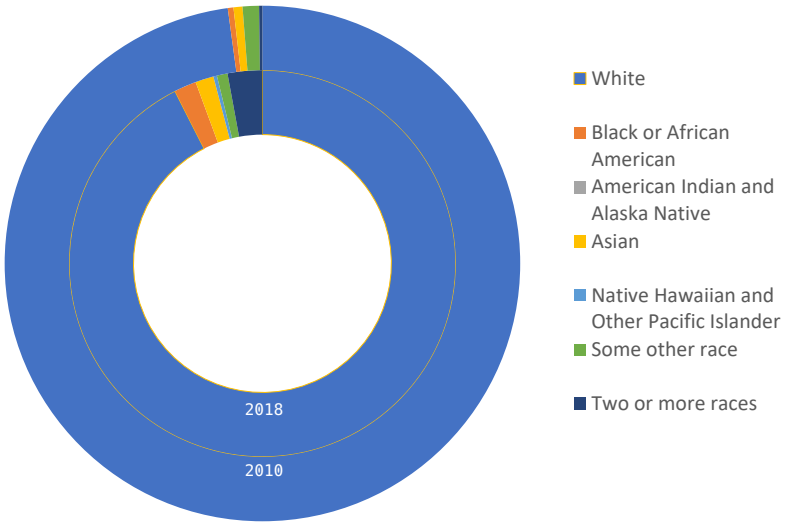
When it comes to age, Hamilton County is right in line with Central Indiana and the state, as a whole. The median age is 38, based on the 2009-2018 American Community Survey (ACS). In 2018, 74% of the households were "family households." The examination of age distribution goes a long way because it highlights the demands of services based on land use. Residential units bring greater demands for schools, roads, police/fire and other county services according to "A Cost of Community Services Study For Indiana Counties and School Corporations" by Larry DeBoer, Purdue University, September, 2010.

Likewise the examination of housing occupancy and value will inform county and school service needs. The 2009-2018 American Community Survey (ACS), 5-year housing occupancy/median house value for each of the townships is:
Adams Township (non-Sheridan): 100% / $257,600
White River (north) Township: 81.8% / $210,500
White River (south) Township: 81.8% / $156,200
Wayne Township: 93% (incl. 22% renter)/ $173,000
NE Noblesville Township: 97% / $196,000
Each township saw its home value raise in the 5-year estimate by 15%-48%, except the southern part of White River Township. This census block group (south of 246th Street) saw a decrease in home value by 18%.

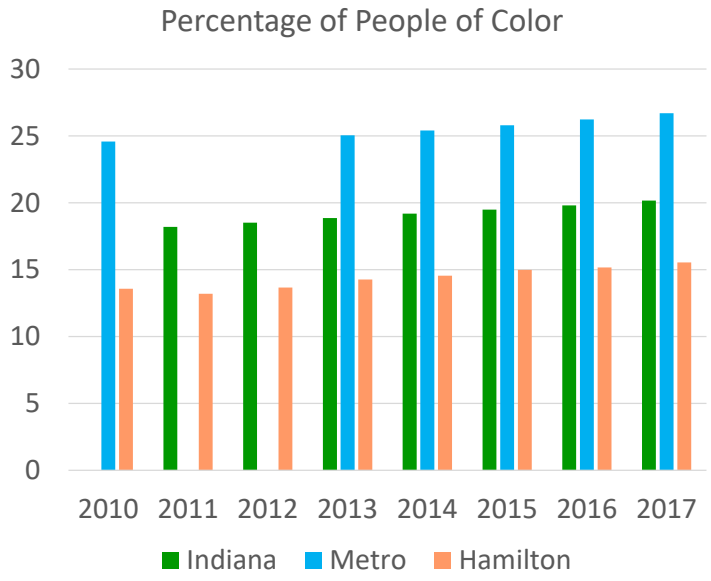
Below: 2010 US Census Data



DIVERSITY



Hamilton County is a predominantly white (non-Hispanic) population and the Plan Commission's jurisdiction area is no different. However, population diversity is increasing. The 2018 American Community Survey 5-Year Estimate compared to the 2010 estimate concludes the county is 5% more diverse, as shown on the left.



Data Source:
2010 US Census and 2018 American Community Survey (ACS)

OPPORTUNITY GAP ANALYSIS

Source: Environics Analytics 2020 Retail Market Power Report

Township Uses with Opportunities in Market Demand



Grocery	Pharmacy	Clothing	Hardware	Restaurant
All Townships Wayne mostly	All Townships Wayne mostly	All Townships Adams mostly	All Townships Adams mostly	All Townships Wayne mostly

Existing Township Uses in Excess of Market Demand

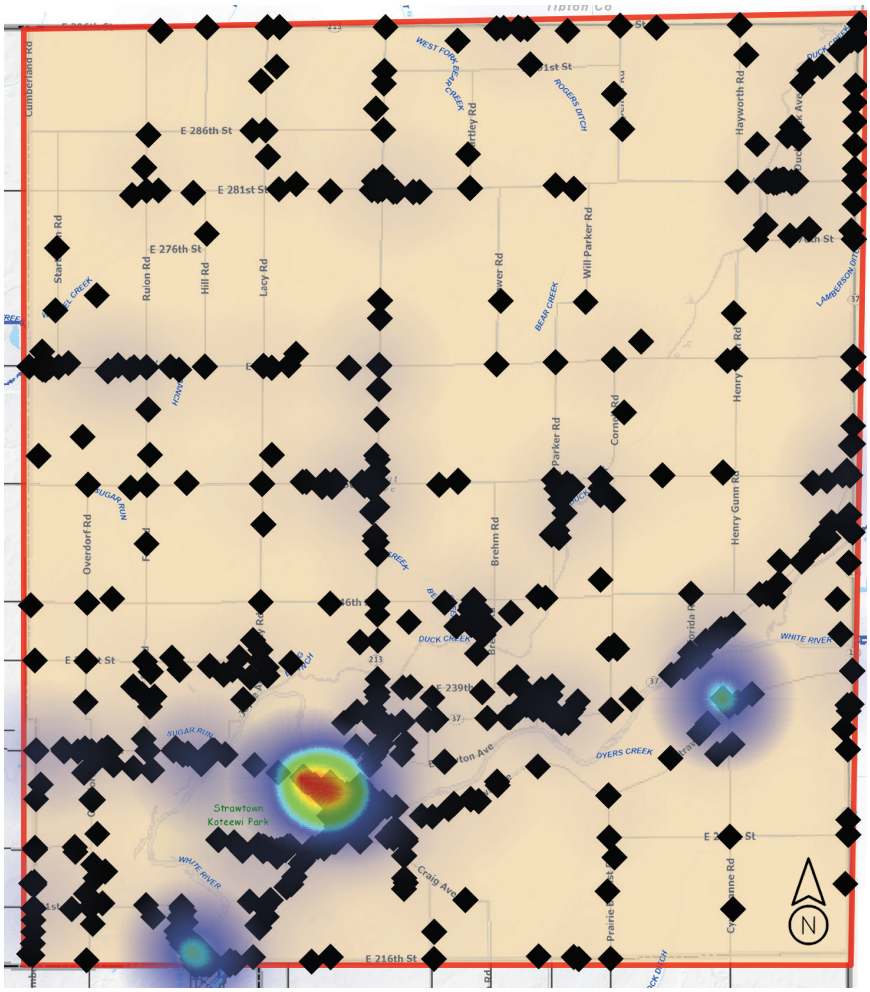


Motor Vehicle & Parts Dealers	Lawn & Garden	Liquor Sales	Caterers	Floor Covering
All 3 Townships	Wayne Township	Adams and White River Townships	Adams and Wayne Townships	White River Township

The 2020 Retail Market Power Study measures the dollar demand against the supply market for each retail NAICS (National American Industry Classification System) code. NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. As a part of census data collection sales are collected from retail use. Likewise, credit card data is available based on the populations spending capacity. This retail study indicates where gaps and excesses in a specific geographic area (Adams, White River, and Wayne Townships).

The uses above are leading opportunities and excesses in the township areas from the 2020 Retail Market Power study. This report does not take into consideration any other data, trends, or uses.

The complete analysis can be found in the Appendix.



Hamilton County Sheriff 2019 Report

AGENCY MISSION

We will strive to protect and serve Hamilton County by enforcing the law, carrying out justice, and defending the rights and freedoms of all.

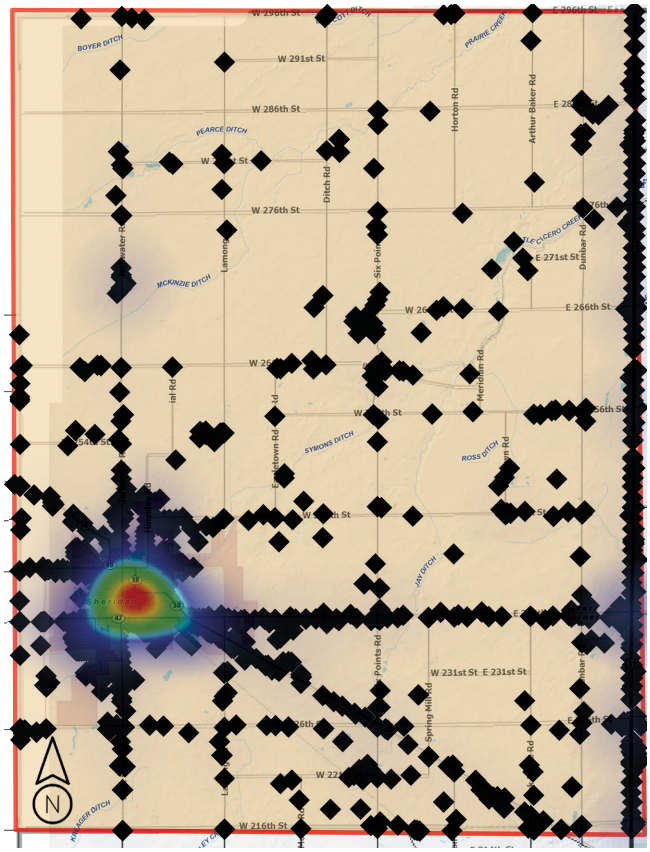
AGENCY GOALS

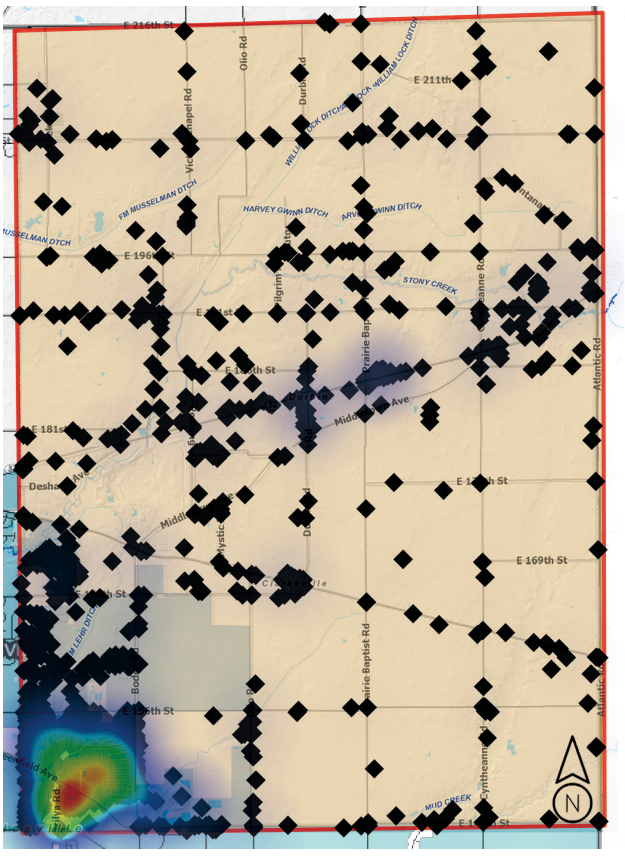
1. Reduce crime, violence, and death in Hamilton County by proactively enforcing the law.
2. Enhance the quality of life in our community and schools by engaging and partnering with the citizens we serve.
3. Ensure the future success of the agency by developing and supporting personnel through leadership training, succession planning, and by partnering with them in their physical, mental, and spiritual health.
4. Support Hamilton County law enforcement agencies and partners with centralized intelligence, programs, and resources when practicable.
5. Carry out justice for offenders, while providing access to avenues of reformation and restoration.
6. Steward taxpayer resources by applying strategic planning, including financial planning and continuous quality improvement methods.

LOCATION OF A CRIME INCIDENT
PER HAMILTON COUNTY SHERIFF

2019 Hot Spot Maps
Source: Hamilton County Sheriff's Office

Right: White River Township
Lower Right: Wayne Township
Lower Left: Adams Township





CRIME

...Trends continued...

When compared to national statistics, Hamilton County is well below the average based on violent/property crimes annually per 100,000 residents. Niche.com shares the following county vs. national stats.

Violent Crimes:

County	National
9.75	116.25

Property Crimes:

County	National
321	942

This equates to Hamilton County being in the 91st percentile for violent crimes and 65th percentile for property crimes.

BestPlaces.net ranks crime on a scale of 1 (low crime) to 100 (high crime). Hamilton County violent crime is 10.3 (US average is 22.7), and property crime is ranked 24.8 (US average is 35.4). This low ranking gives Hamilton County an A+ in crime/safety on Areavibes.com.

The Sheriff's office records traffic accidents as well. The 2nd highest crash location in Hamilton County was 236th Street and US 31.



2019 Adams Township Sheriff's Incident Report

Crash Type	Number of Crashes
Accidentident Property Damage (PD)	171
Accident Personal Injury (PI)	92
Accident Hit & Run PD	26
Accident UNK	25
Accident Serious PI	14
Accident Minor	12
Accident Entrapment	8
Accident High Mechanism	6
Accident Hit & Run PI	2
Accident Multi-Veh	2
Accident Veh Vs Ped/Bike/Motorcycle	1
Grand Total	**359**

2019 White River Township Sheriff's Incident Report

Crash Type	Number of Crashes
Accident Property Damage (PD)	100
Accident Personal Injury (PI)	86
Accident UNK	24
Accident Unstable	12
Accident High Mechanism	10
Accident Entrapment	8
Accident Hit & Run PD	7
Accident Minor	7
Accident Veh Vs Ped/Bike/Motorcycle	6
Accident PI ALS	4
Accident Other	1
Grand Total	**265**

2019 Wayne Township Sheriff's Incident Report

Crash Type	Number of Crashes
Accident Property Damage (PD)	151
Accident Personal Injury (PI)	112
Accident UNK	22
Accident Hit & Run PD	15
Accident Minor	11
Accident Entrapment	8
Accident Veh Vs Ped/Bike/Motorcycle	5
Accident Unstable	4
Accident High Mechanism	3
Accident Serious PI	3
Accident Ejection	2
Accident Other	2
Accident PI ALS	1
Grand Total	**339**

Hamilton County

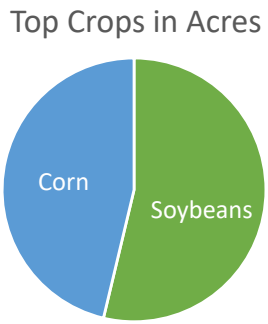
RURAL FARMING STATS



Hamilton County Image, courtesy of Innovative Planning

Approximately 50% of Hamilton County's land area is in a rural setting. The cities and towns that are rapidly growing are growing within their existing boundaries; hence increasing population density. As a result, the farming economy in Hamilton County is thriving. Rural townships of Hamilton County predominately include: Adams, White River, Wayne, Jackson, and Washington townships. The first three being within the Hamilton County Plan Commission's jurisdiction.

The following data points are for the entire Hamilton County from the 2017 USDA's Census of Agriculture.



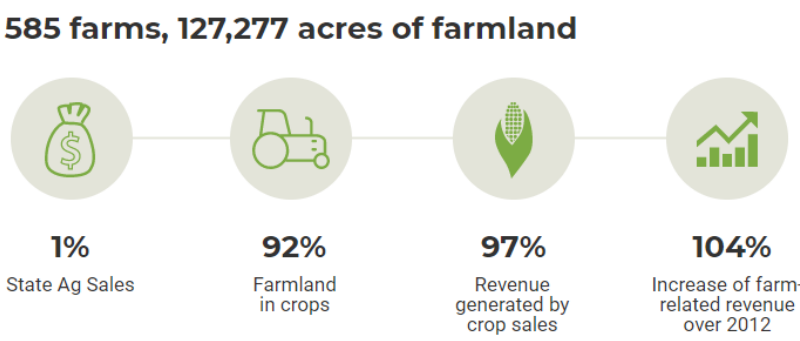
$104,629,000 Sales of Agricultural Products

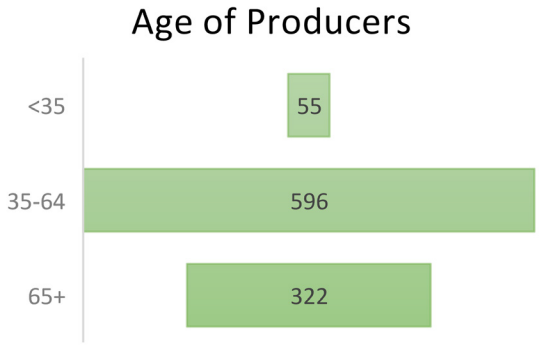
11 farms sell direct to consumers

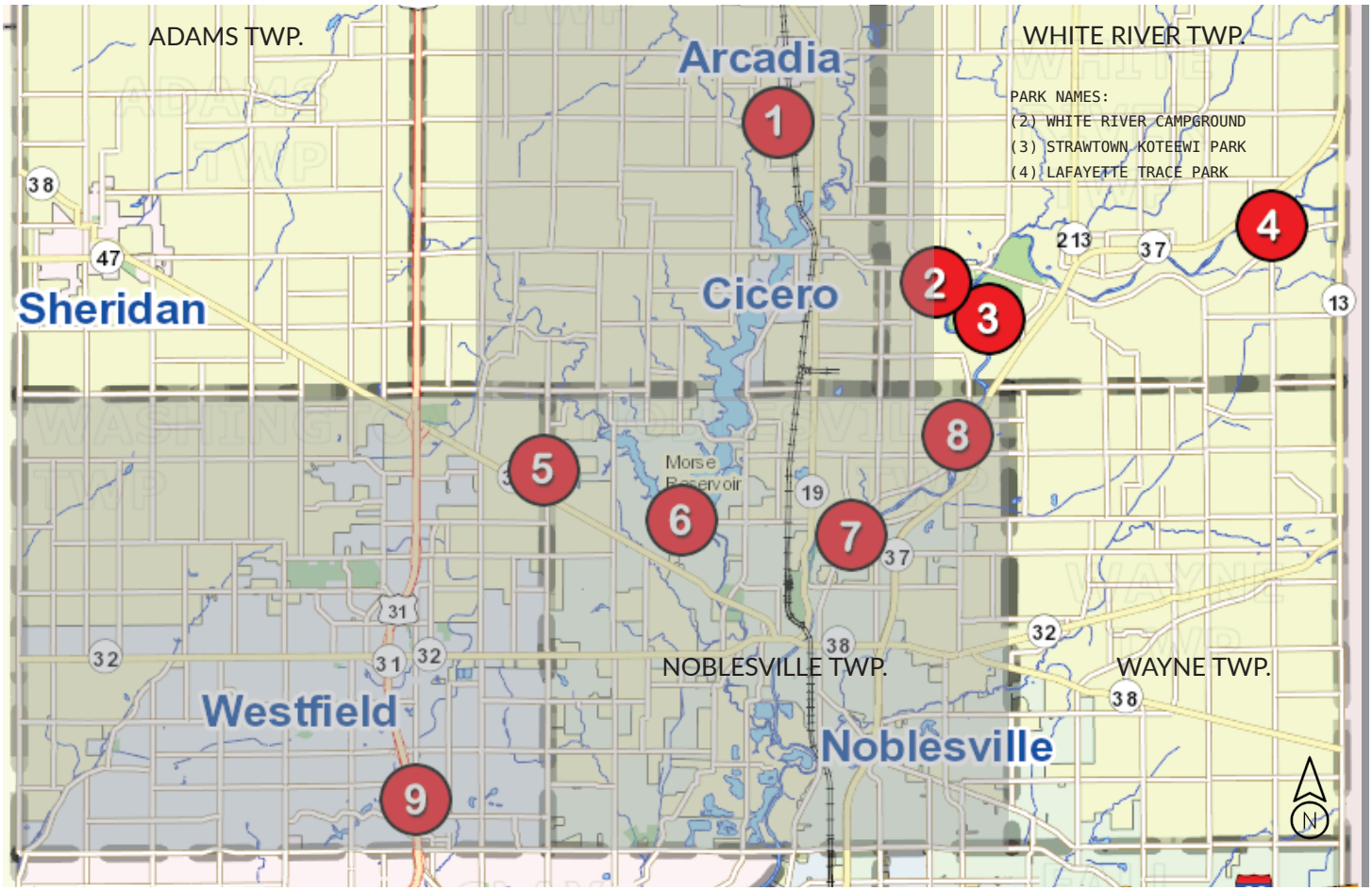
32 hire farm labor

96 are family farms

25% no till
13% reduced till
21% intensive till







Existing Hamilton County Parks
Source: Hamilton County Parks & Recreation
5-Year Comprehensive Plan 2017-2021

PARKS

The Hamilton County Parks and Recreation (HCPR) 5-Year Comprehensive Plan, which does not include town or city jurisdiction parks, indicates that "Hamilton County is considered CRITICALLY DEFICIENT in the amount of parkland available to the population." (page 61)

There are 3 parks located in White River Township and none in Wayne Township or Adams Township.

Map circle (2) White River Campground

The park is 26 acre. The campground has 106 modern and primitive campsites with river access for fishing and boating.

Map circle (3) Strawtown Koteewi Park

Strawtown Koteewi Park is the largest park in Hamilton County. The park encompasses more than 800 acres, offers eight miles of multi-use trails and stretches along three miles of the White River. The grounds have woodlands, historic wetlands and an immense prairie. Activities include adventures in treetops, horseback, downriver canoeing, downhill tubing, an archery range, and a field of archaeology.

Map circle (4) Lafayette Trace Park

A 100-acre park along the White River provides access for fishing, canoeing and boating.

PARKS MISSION STATEMENT

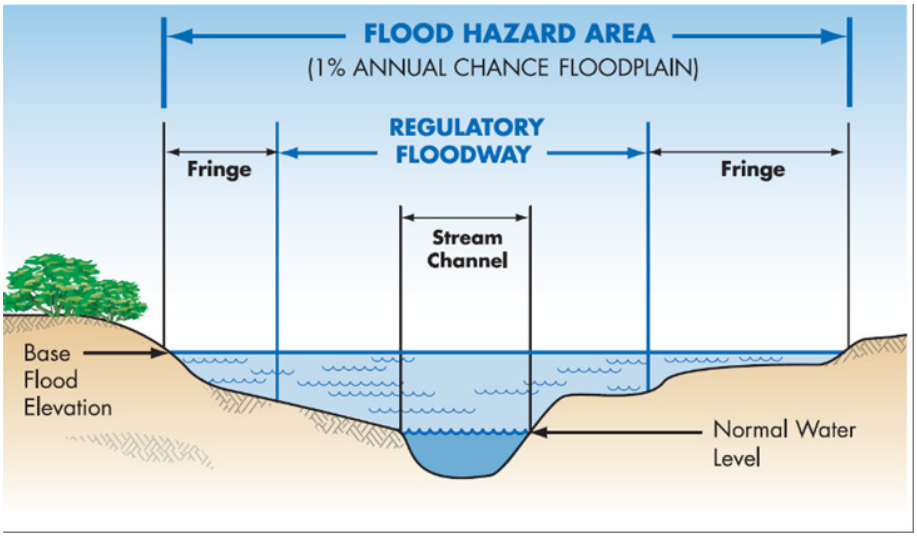
"The Hamilton County Parks and Recreation Department exists to serve the leisure and recreation needs of its residents and tourists, and to enhance the quality of life in the county.

We strive to preserve and to provide, high-quality passive parks and facilities, to offer natural resource education and services, and to be recognized as a leader and resource for our community and its citizens in pursuit of living an environmentally responsible lifestyle"

Hamilton County Parks and Recreation operates 12 parks, totaling almost 1,600 acres.

STORMWATER & FLOODING

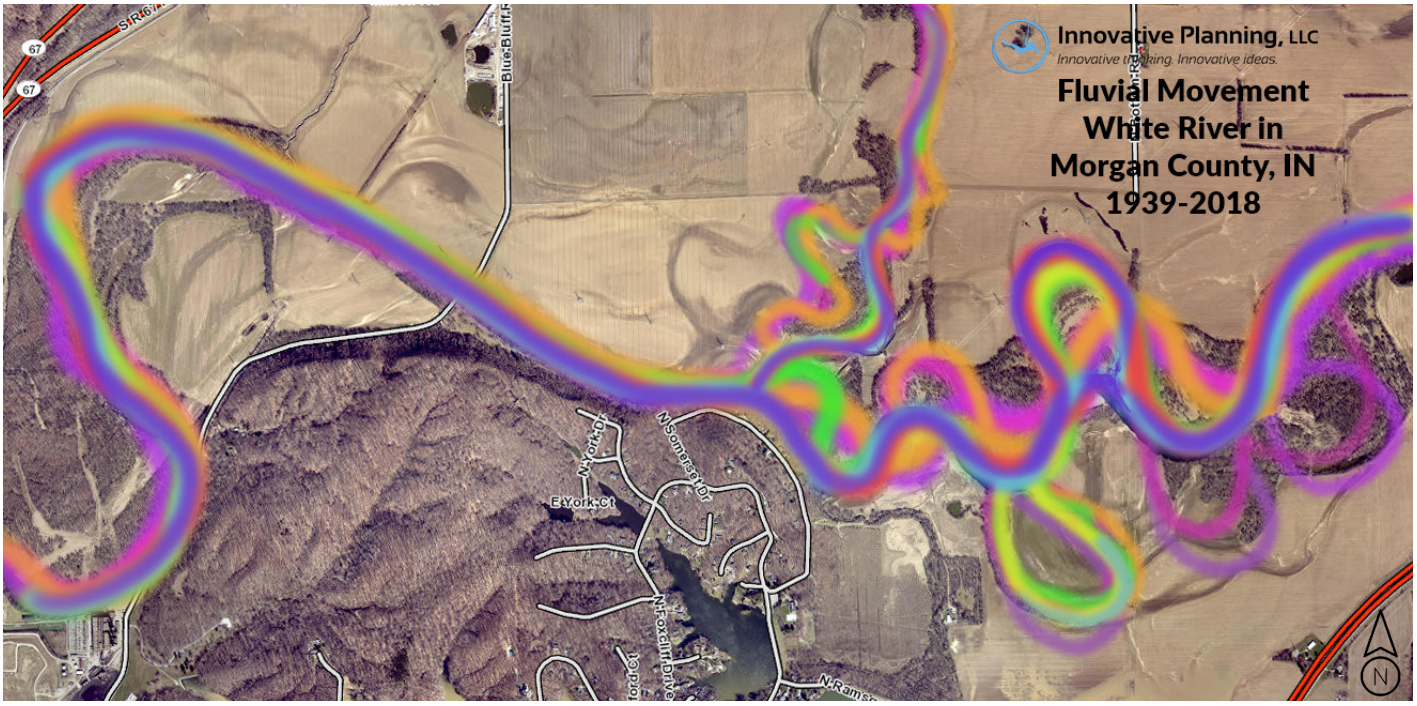
Below: Profile of the SFHA (IDNR, 2018)



Stormwater is the precipitation that falls from the sky in the form of rain, snow or a combination of the two. In a natural setting, stormwater flows into water-bodies such as ponds, lakes, rivers, and streams or it settles into low-lying areas where it infiltrates into the ground and replenishes the aquifer. In a developed area, with impervious surfaces including roads, rooftops and parking, stormwater runoff is not able to infiltrate into the ground. Instead it is quickly collected by ditches, storm drains, and storm sewer systems and then discharged in large volumes, over time, to the closest water-body. Similarly, row crops, especially corn in agricultural areas, create more runoff from rainfall than grass-covered pasture. The increased runoff is most pronounced on large fields with soil that is deeply compacted from heavy machinery and left exposed to the elements after harvest and before a new crop develops. This coupled with the extensive network of underground drainage tiles moves stormwater very efficiently to man-made drains and natural waterways. In both urban and agricultural areas, this process not only disrupts the natural hydrological cycle, but causes flooding and adversely affects the water quality of receiving water-bodies from the debris, chemicals, sediment and other pollutants carried by stormwater runoff.

The floodplain is the low-lying area of land next to a waterway – natural streams and man-made open regulated drains. In regulatory terms, the floodplain consists of a floodway and floodway fringe. The floodway is adjacent to the channel and provides the primary conveyance for flood water. It is critical that the floodway remain open to allow flood waters to pass safely. The floodway fringe provides important flood storage during large flood events. Together, the floodway and floodway fringe make up the Special Flood Hazard Area (SFHA). The SFHA is also known as the regulatory floodplain, 100-year or 1% annual chance floodplain. While all waterways have floodplains, only 36% (96 miles) of the waterways (natural streams and man-made open regulated drains) in the study area of Adams, White River and Wayne, NE Noblesville Townships have the SFHA mapped.

"All water has a perfect memory and is forever trying to get back to where it was." -Toni Morrison



Above: Illustration of river movement over time

FLOWS & FLOODPLAINS

Within the floodplain, waterways will, over time, meander from side to side. This movement of sediment through erosion and redeposit is part of the stream's natural process. Where the stream has enough space within the floodplain to move, stream meandering is not a problem. However, if buildings, roads, and utilities are located in the stream meander or fluvial erosion hazard zone, erosion caused by stream movement can cause problems. The fluvial erosion hazard (FEH) zones have been mapped for Indiana and are available online from the IDNR. The zones identified vary based on the stream's recent migration history.

In its natural, undeveloped state, the floodplain provides valued benefits often overlooked when local land-use decisions are made. These include:

1. Water Resources Provides natural flood and erosion control, filter harmful sediments and pollutants carried over land by stormwater runoff and promote infiltration and groundwater recharge.
2. Biological Resources Maintains biodiversity and biological productivity, high-quality wetlands and stream-side forests, and provide critical fish and wildlife habitats especially in stream-side forests or riparian areas.
3. Community Resources Provide open space, areas for active and passive recreation, rich alluvial soils for productive agricultural uses, and floodplains often contain historic and archaeological sites from early settlements.

The best means to maintain the natural and beneficial function of floodplains is to avoid land alterations and development in the floodplain all together. Where avoidance is not practical, the impact can be minimized through compensatory flood storage requirements.

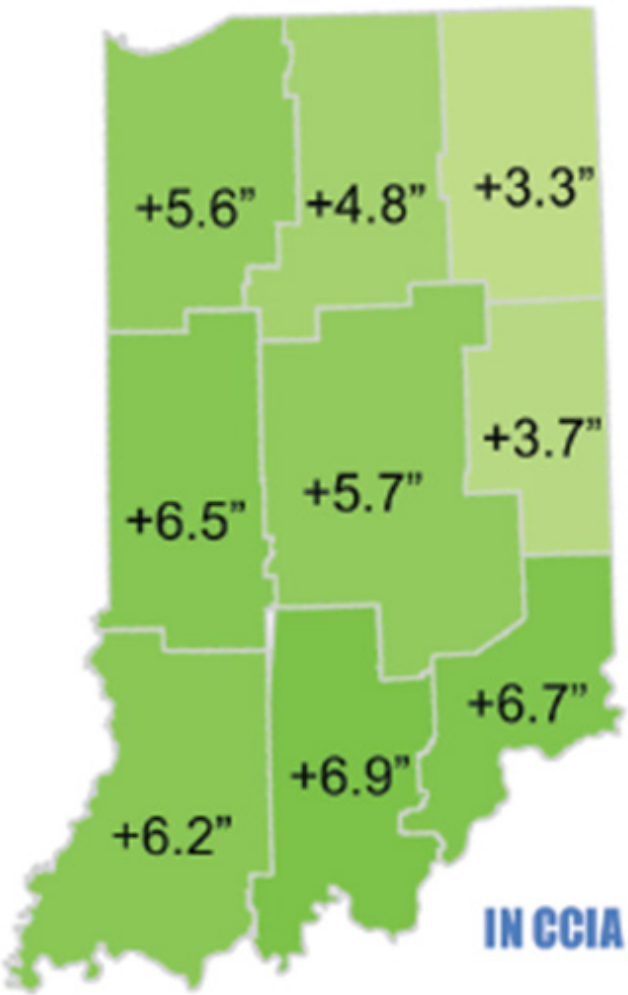
A regulated drain is defined as an open grassed drain, tiled drain or combination of both. The network of regulated drains allow land, predominantly farmland, to drain more quickly. In Indiana, the landowners that benefit from the regulated drain, pay an assessment to cover the cost of drain construction, maintenance and reconstruction. Regulated drains have a 75-foot easement on either side to ensure access for proper operation and maintenance. In the study area, more than three-quarters of the waterways are classified as regulated drains. This includes approximately 90 miles of open drains and 116 miles of tiled regulated drains.

STORMWATER AND FLOODPLAIN REGULATIONS

Stormwater runoff from land disturbance/development of one acre or more is regulated through the National Pollution Discharge Elimination System (NPDES) Program. In Hamilton County, the Surveyor's Office enforces the NPDES regulations county-wide as part of the Rule 13 Municipal Separate Storm Sewer System (MS4) program. This program requires designated MS4 entities to implement policies, programs and projects to reduce pollutants in stormwater runoff to improve water quality in local water-bodies. The Indiana Department of Environmental Management (IDEM) maintains a list of impaired streams that do not meet applicable water quality standards for contact (swimming, wading or boating) and consumption of fish under Section 303(d) Impaired Streams List of the Clean Water Act. In the study area, the White River and Stony Creek are listed on the impaired stream list.

Floodplain management reduces flood risks through the implementation of corrective and preventative measures. In Hamilton County, the Floodplain Administrator enforces the Flood Control Ordinance to reduce flood risks and flood-related losses in the SFHA. The regulatory floodplain is mapped on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA) and these maps are the basis for flood insurance requirements through the National Flood Insurance Program (NFIP). Where detailed FEMA floodplain mapping is not available, especially in rural and outlying areas, the Indiana Department of Natural Resources (IDNR) has determined the extent of floodplains for many streams to improve local floodplain management practices. The Surveyor's Office is responsible for enforcing compensatory storage requirements to offset loss of flood storage caused by development or land alteration in the SFHA.

Under the Indiana Drainage Code, the Surveyor's Office is responsible for the operation and maintenance of the regulated drains. The Surveyor collects an assessment fee from landowners to maintain and/or reconstruct regulated drains. Many of these tile drains were installed in the late 1800s and do not have the capacity to handle the increased runoff from changes in agricultural practices, loss of wooded fence-rows, deforestation and urbanization.



Left: Change in annual average precipitation between 1895 to 2016 (INCCIA, 2018)

FUTURE HYDROLOGY

“ Over the next 30 years, the pace of this (precipitation) increase is predicted to quicken”

-Indiana Climate Change Impact Assessment

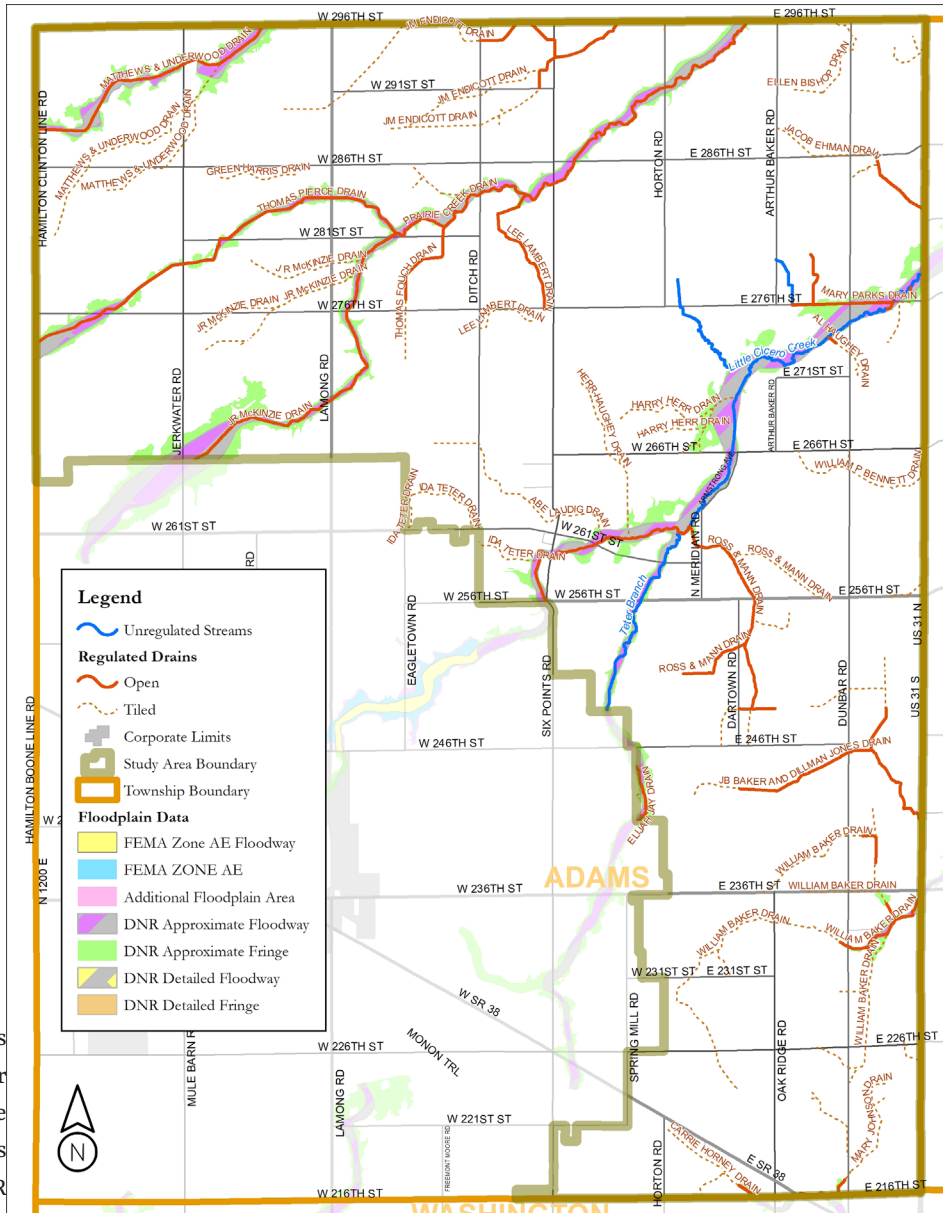
A 2018 study from the Indiana Climate Change Impact Assessment (INCCIA) reported an increase in annual precipitation of 5.7 inches in central Indiana from 1895 to 2016. Over the next 30 years, the pace of this increase is predicted to quicken; annual precipitation is expected to increase an additional 6-8%. It is also predicted that Indiana will experience a 25% increase in winter precipitation and 20% increase in the spring, and a 5% decrease in the summer and fall precipitation. Additional precipitation in the winter and spring, when the ground is frozen and trees are dormant, will increase runoff and the risk of flooding.

The most extreme rainfall events, defined by the top 1% daily total rainfall occurrences on record, are occurring more frequently and trending to continue doing so. The INCCIA estimates that a one- to two-day increase in the average number of days per year with extreme precipitation is likely. Regional observations have also indicated more intense storms, with a 42% increase in the amount of rain falling during these extreme events.

Stormwater and Floodplain

ADAMS TOWNSHIP

Waterways in Adams Township

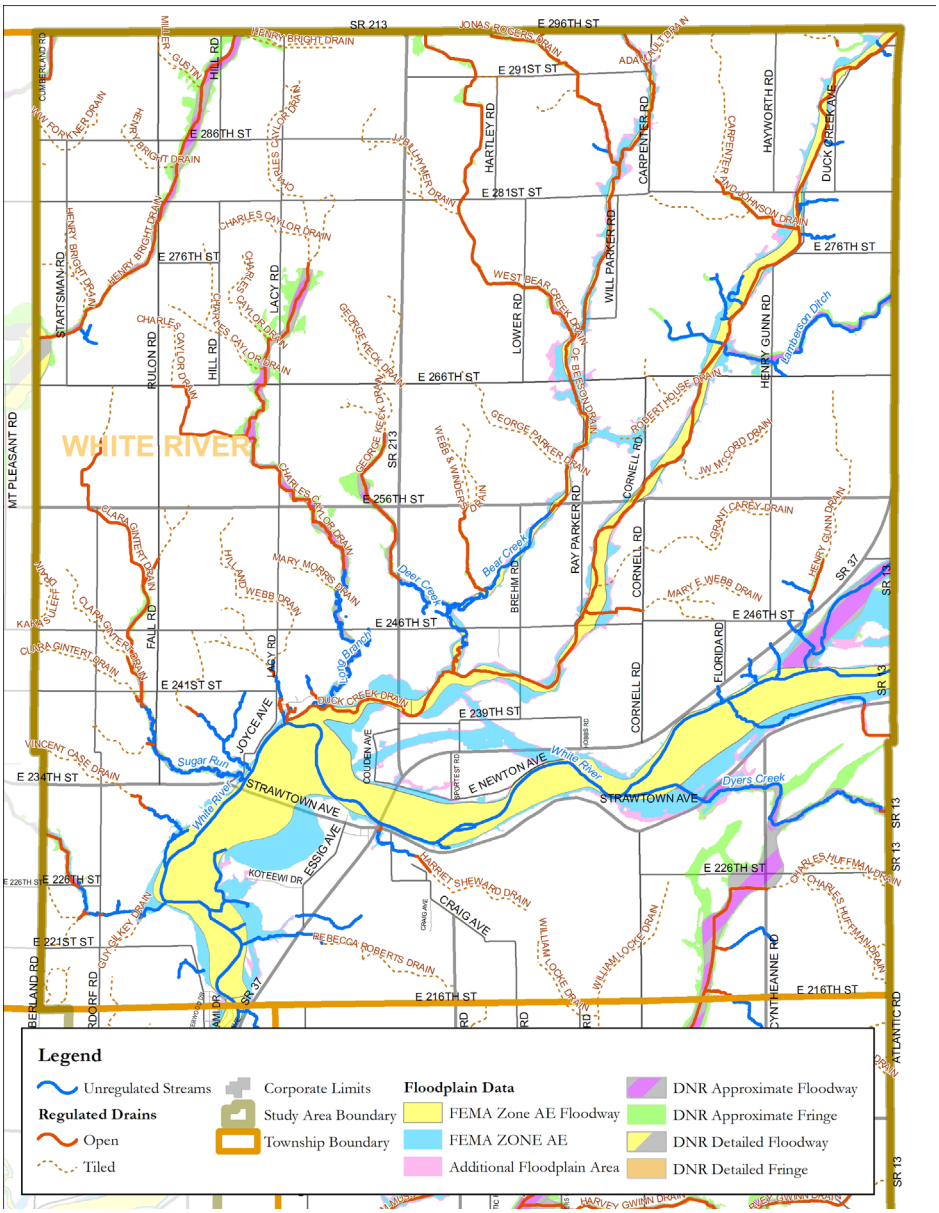


The study area of Adams Township is drained by Little Cicero Creek, Teter Branch and several regulated drains. The floodplain boundaries for these waterways have not been mapped by FEMA but IDNR has identified flood risk areas along Boyer Ditch, Pearce Ditch, McKinzie Ditch, Little Cicero Creek, Symons Ditch, Teter Branch, Swarms-Starrett Drain, and William Baker Drain. There are only a few areas where buildings are located within the IDNR mapped floodplain and these appear to be older structures and the result of more recent and better floodplain mapping data.

Most of the waterways in this study area are classified as regulated drains and as such, have been constructed and/or maintained as relatively straight reaches with very little, if any, woody vegetation. The land adjacent is predominantly agricultural production and farmed to the edge of the regulated drain easement. Little Cicero Creek, Teter Branch and Symons Ditch (regulated drain) have significant stretches that are wooded with somewhat more meandering, and natural alignment. None of the waterways in Adams Township study area are currently listed on IDEM's Impaired Stream List.

Comments from the public survey distributed as part of this planning study indicated drainage problems on Ida Teter Drain and Ross and Mann Drain. Upon further investigation, these may be attributed too old, undersized drain tiles and poorly drained peat soil, respectfully.

WHITE RIVER TOWNSHIP



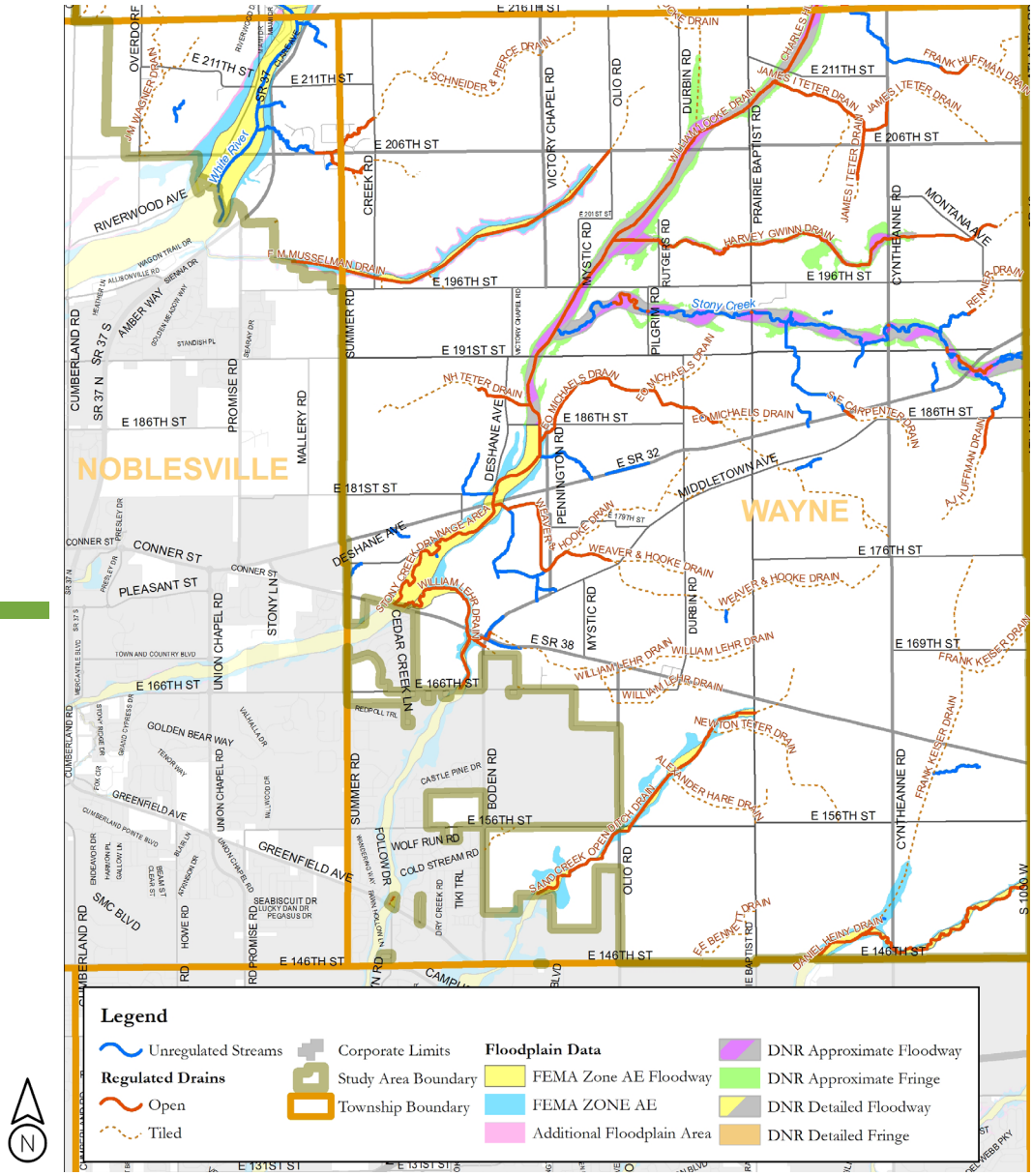
Waterways in White River Township

White River is the largest waterway in Hamilton County. It winds its way through the lower third of White River Township. The regulatory floodplain of the White River and two of its tributaries, Bear Creek and Duck Creek Drain have been mapped by FEMA. IDNR has completed studies on several tributaries to the White River including Long Branch/Charles Caylor Drain, Deer Creek/George Kreck Drain, Henry Gunn Drain, Pipe Creek, Dyers Creek and William Locke Ditch. The floodplain of the White River is extensive and there are several buildings within the mapped floodway and floodway fringe, predominantly in the Riverwood neighborhood.

Much of the White River and Duck Creek Drain are meandering and lined with large wooded tracts of land or mostly contiguous tree cover. The remaining waterways, classified as regulated drains, are relatively straight with little woody vegetation. The land draining to these waterways is in pasture and row crops. The White River is listed on IDEM's impaired stream list for impaired biotic communities, PCBs in fish tissue, nutrients and E.coli bacteria; and Pipe Creek is listed for PCBs in fish tissue. Public survey comments noted flooding and drainage problems at the bridge crossing over the White River and SR 37, erosion problems on Duck Creek Drain and poor drainage on Vincent Case Drain, JJ Billhymer Drain, McCord Drain and Bear Creek.

Stormwater and Floodplain

Waterways in Wayne and NE Noblesville Townships



WAYNE AND NE NOBLESVILLE TOWNSHIPS

Stony Creek and William Locke Drain are the main waterways in Wayne Township. FEMA has mapped the floodplain for the lower reach of Stony Creek, Musselman Drain, Sand Creek and Mud Creek. IDNR recently completed mapping for the remainder of Stony Creek, William Locke Drain and Harvey Gwinn Drain. The White River and its FEMA mapped floodplain flows through the portion of the study area in Noblesville Township. There are a number of buildings in the Riverwood neighborhood are in the floodway and floodway fringe of the White River. A few buildings are in the IDNR mapped Stony Creek floodplain. These appear to be older structures and the result of better floodplain data.

The portion of Stony Creek that is not classified as a regulated drain is somewhat meandering and has fairly good tree cover. There is limited, if any, meander or woody vegetation on the other waterways, these are maintained as regulated drains. IDEM has listed Stony Creek on the impaired stream list for PCBs in fish tissue.

Public comments identified flooding areas along the White River in Noblesville Township, erosion along Stony Creek and poor drainage on Weaver Hooke Drain, William Lehr Drain and EO Michaels Drain.

The White River Vision Plan is a community-driven plan to enhance 58 miles of the White River in Marion and Hamilton Counties. The goal of the vision plan is to create an accessible, recreational and cultural environment that encourages a unique sense of place for the community. To achieve this, the White River must be an active river, a natural river, a free-flowing river and a connected river. The 2019 plan was a joint effort of the City of Indianapolis and Hamilton County Tourism, in partnership with Visit Indy.

The plan is divided into three overarching themes of environment, activation and equity. The following are the nine guiding principles:

1. **Restore and Adapt**
   Restore the river's environment and ecology to enhance its natural function, steward its diverse community of life and adapt to a climate resilient future.

2. **Steward River Health**
   Enhance community stewardship of the river's health by increasing opportunities for meaningful, lasting connections and experiences that add value to the quality of life of residents.

3. **Increase Year-round Activities**
   Increase year-round activities that attract people to the river for arts and entertainment, recreation, community gathering and learning

4. **Draw People to the River**
   Draw people to, along, into and across the White River's publicly accessible spaces to create vibrant experiences that bring people together.

5. **Build on the River's Stories**
   Respect the river's unique history identify to invite people in and enable them to understand and appreciate the river's stories.

6. **Build Economic Strength & Identity**
   Expand the river's role in our everyday lives to build regional economic strength and community identity.

7. **Preserve Places for Everyone**
   Celebrate the diversity of the region's communities on the river to preserve places for everyone for generations to come

8. **Honor Ownership and Land-use Patterns**
   Balance community sentiments with long-term aspirations that honor ownership and use patterns along the river.

9. **Partner Across Boundaries**
   Partner across boundaries to collaboratively manage the White River system and create efficient operations and sustainable governance.

The Hamilton County Drainage Board and Surveyor's Office also supported the plan through participation and investment.

white RIVER PLAN

HAMILTON CO. INDIANAPOLIS

Final Report

DECEMBER 2019

www.mywhiteriver.com



TRANSPORTATION

Road Network, Classification and Use

Roads are typically classified into one of three categories: arterial, collector or local roads. Each of these road classifications differs in vehicular speed and accessibility to adjacent land. Design elements such as width of right-of-way, number of lanes, median, on-street parking, curbs/shoulders, clear zones and paths/sidewalks vary depending on the road classification.

Arterial roads include interstates, expressways, primary and secondary arterials. These roads are designed for higher vehicular speeds and volume of traffic. Access to neighboring land uses can be limited or controlled especially along interstates and expressways. Collector roads provide a balance of mobility and access. These roads function to gather traffic from local roads and funnel them into the arterial network. Collectors may be further defined as primary or secondary roads. Primary collectors serve higher density residential, commercial and industrial areas. Secondary collectors serve lower density developments. Local roads make up the most miles of roads in the Plan Commission's jurisdiction area. These roads are designed for the low vehicular speeds and traffic volume and

2007 Thoroughfare Goals

1. "Safety and Efficiency
   Provide a balanced transportation network that will facilitate safe and efficient movement to meet existing and long-range needs serving all areas of Hamilton County.
2. Sustainable and Proactive
   Implement the recommendation of the thoroughfare plan in a manner to meet existing and long-range needs. Encourage the development of a county thoroughfare system that efficiently uses the limited funding and maintenance resources.
3. Regional Values
   Promote a transportation system which continues to improve the quality of life in Hamilton County.
4. Multi-Modal
   Improve the efficiency of Hamilton County's thoroughfare system by integrating all modes of transportation."

Goals: 2007 Hamilton County Thoroughfare Plan with the vision to develop a safe, efficient and balanced transportation system for the movement of people and goods

"Hamilton County has 9 townships with approximately 600 miles of unincorporated roadway and rights-of-way, 300 bridges, and over 600 small structures to maintain."

- Hamilton County Highway Department

allow for the highest access to adjacent land uses. They are often designed for short distances and carry no through traffic.

In Hamilton County, the road network classification includes Interstate (I-465, I-65 and US-31 from 96th St to SR 38), Expressway (Keystone Ave and US-31 from SR 38 to 296th St) and numerous primary arterial, secondary arterial and collectors as shown on the 2007 Thoroughfare Plan map.

Traffic Data from INDOT tracks mileage and daily vehicle miles traveled (DVMT) by year, county and system. DVMT is calculated by multiplying the volume of daily traffic on a roadway segment by the length of the road segment. It is a simple measurement of how busy a road is. According to INDOTs 2018 traffic data, 11% or 1.1 million vehicle miles traveled per day in Hamilton County were on county roads. As for the other roads in Hamilton County, interstates account for 13%, US Routes 10%, State Roads 9% and City streets 57% of the DVMT. Hamilton County's DVMT for county roads far exceeds other central Indiana donut counties except for Hendricks County with a DVMT of 1.3 million. The INDOT traffic data also showed that 95% of the DVMT on county roads in Hamilton County were passenger vehicles and 5% commercial vehicles.

Role of County Highway Department and Metropolitan Planning Organization

The Hamilton County Highway Department is responsible for unincorporated roads and rights-of-way. This excludes State, Federal and municipal road infrastructure with the exception of larger municipal bridges with a span of 20 feet or more. The Highway Department is responsible for updating and implementing the Hamilton County Thoroughfare Plan. This plan is a long-range plan that identifies the location and type of roadway facilities that are needed to meet projected long-term growth in Hamilton County. The current Thoroughfare Plan is from 2007.

The Indianapolis Metropolitan Planning Organization (MPO) represents more than 35 cities, towns, counties and transportation agencies, including the Hamilton County Highway Department, in Central Indiana. The purpose of the MPO is to plan for and distribute federal transportation funds for highways, public transit, bike-ways, trails and sidewalks in the Central Indiana region.

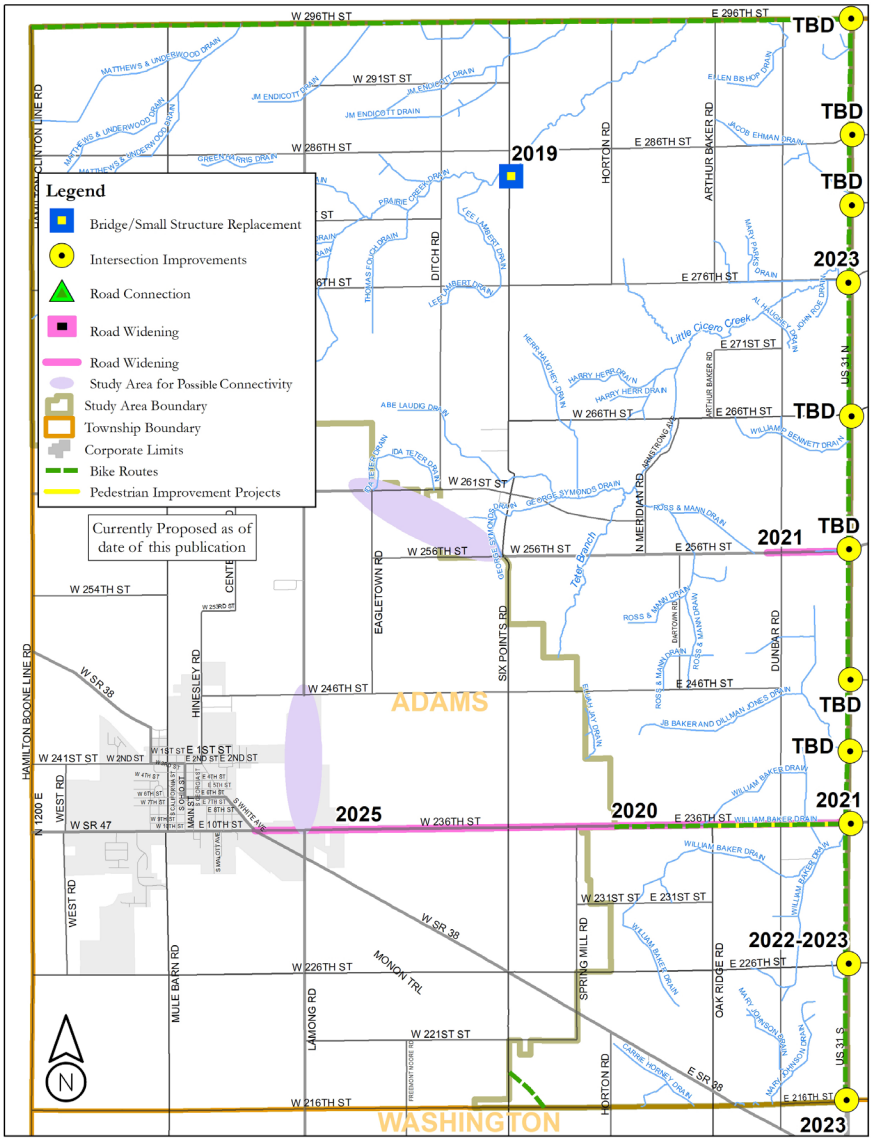
The Highway Department and MPO work closely together to ensure good connectivity of all modes of transportation throughout Hamilton County and with surrounding cities, towns and counties. The MPO is in the process of updating the Metropolitan Transportation Plan, formally known as the Long-Range Transportation Plan.

Transportation Projects

ADAMS TOWNSHIP

Major transportation routes in the Adams Township study area include the expressway US 31 and several primary arterial roads (Lamong Rd, 261st St, 256th St, 236th St and SR 38). US 31 was recently upgraded to expressway standards by INDOT. INDOT will enhance access control by removing all commercial and residential driveways and eliminating at-grade intersections. There are several proposed projects to continue to improve the efficient and safe flow of traffic crossing and accessing US 31. These include proposed interchanges at 236th St in 2021 and 276th St in 2022. Restricted access is planned in the form of an overpass or cul-de-sac for the remaining intersections.

The County Highway Department completed a bridge rehabilitation over Prairie Creek on Six Point Rd in 2019. Future projects include widening 236th St at US 31 in 2020 and then onto SR 38 in 2025. Two connector roads were identified in the 2007 Thoroughfare Plan but have not yet been scheduled for implementation. One connects 256th St and 261st St and the other is to extend Lamong Rd to 236th St in Sheridan. Additional planned improvements include a short section of the 276th St. corridor from Dunbar Road to the planned US 31 exchange. The intent is to do this improvement in conjunction with the INDOT interchange construction.



EXISTING planned transportation projects in Adams Township, as of the date of this publication.
Information provided by INDOT, MPO, Ham. Co. Highway Dept.

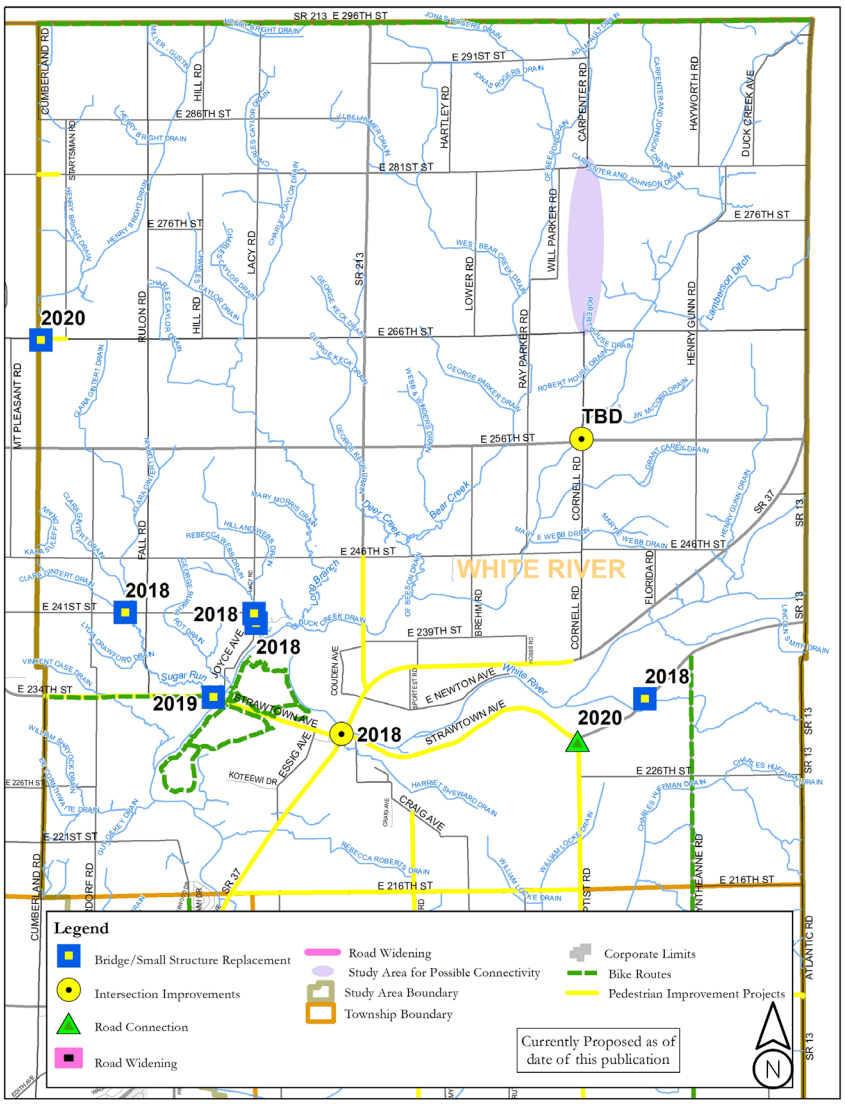
Comments from the public survey indicated the need for road improvements along 236th St and Dunbar Rd.

At the time of this publication, the MPO is in the process of finalizing their regional bike and pedestrian plans, draft versions these plans indicate potential bike routes paralleling US 31 and along a portion of 216th St in Adams Township. There are no pedestrian improvements identified.

EXISTING planned transportation projects in White River Township, as of the date of this publication. Information provided by INDOT, MPO, Ham. Co. Highway Dept.

Transportation Projects

WHITE RIVER TOWNSHIP



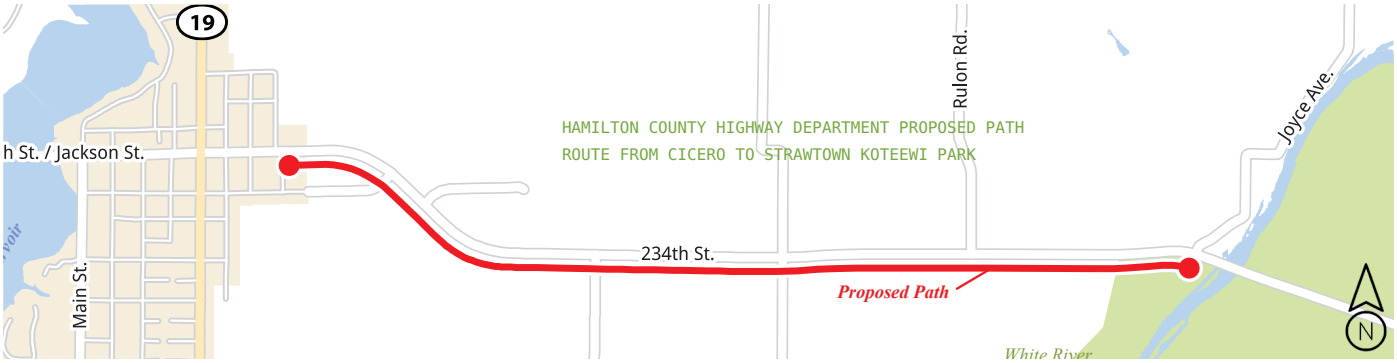
There are several primary arterial roads in White River Township including SR 213, 256th St, 234th St, SR 37, Strawtown Ave and 216th St. Recent bridge projects completed by the County Highway Department in 2018 include a structure replacement on 241st St over Sugar Run, a replacement of the structure on Deer Walk Dr over Webb Ditch and a bridge replacement on Strawtown Ave over Dyers Creek. In 2019, the small structure on Joyce Ave, over an unnamed ditch was replaced. In 2020, the Highway Department will replace the bridge on 266th St over Cicero Creek.

INDOT improved the intersection at SR 37 and Strawtown Ave in 2018: and further east on Strawtown Ave, the Highway Department plans to make a curve correction in 2020. Improvements to the intersection of Cornell Rd and 256th St as well as connecting Cornell Rd to Carpenter Rd were recommended in the 2007 Thoroughfare Plan but not yet scheduled for implementation.

A new park path is proposed from Cicero to Strawtown Park, along 234th Street.

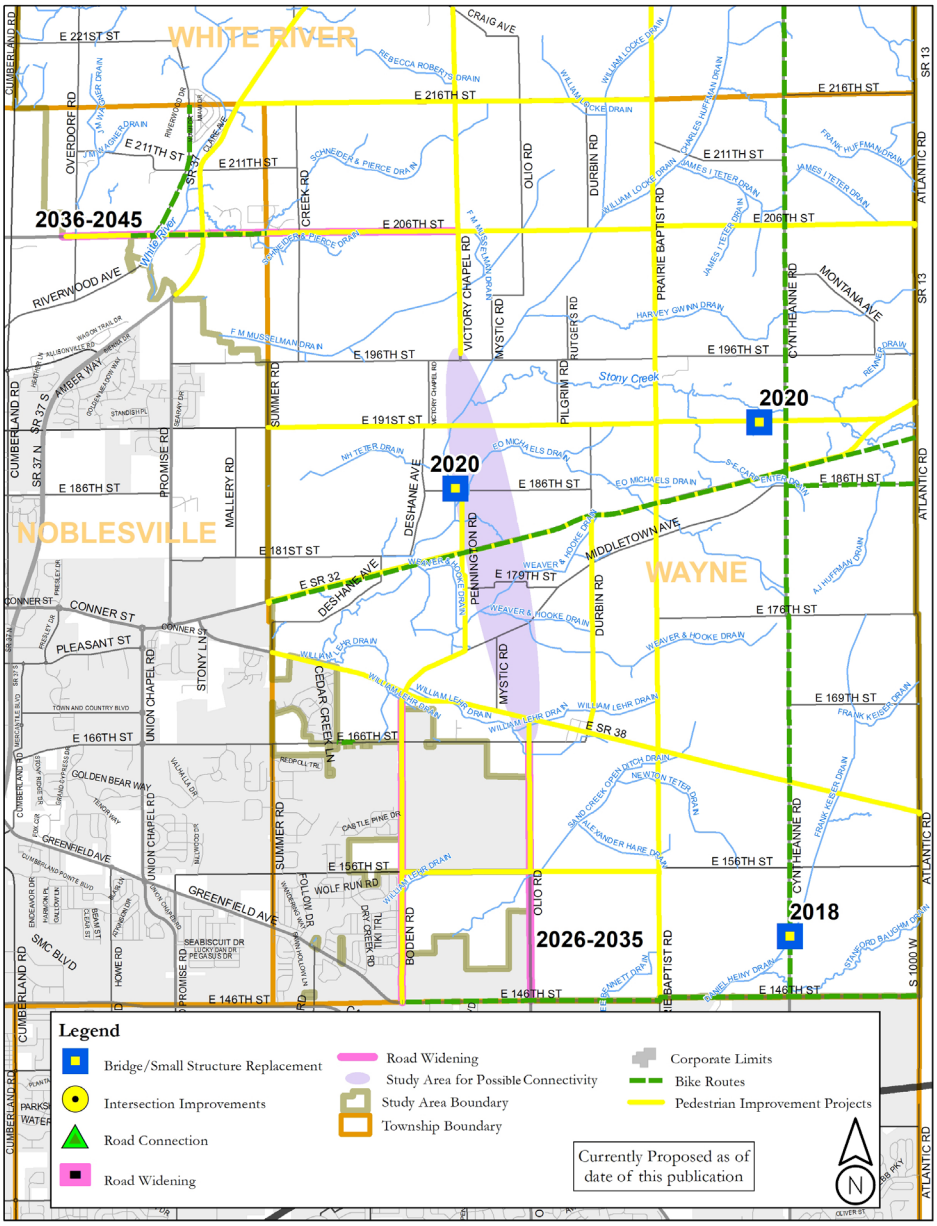
The public survey comments identified intersection improvements along SR 213 (SR 37, 256th St, 266th St, 281st St, 286th St and 296th St) and Lacy Rd (266th St, 281st St and 286th St). Several roads were recommended for widening and other improvement including: 256th St, 266th St, 281st St, 296th St and Strawtown Ave.

At the time of this publication, the MPO is in the process of finalizing their regional bike and pedestrian plans, draft versions these plans indicate potential bike routes along 234th St and Strawtown Koteewi Park. Pedestrian improvement projects have been identified along several major roads in White River Township including portions of SR 37, SR 213, Strawtown Avenue, 216th Street and Prairie Baptist Road.



WAYNE AND NE NOBLESVILLE TOWNSHIPS

EXISTING planned transportation projects in Wayne Township and NE Noblesville Township, as of the date of this publication. Information provided by INDOT, MPO, Ham. Co. Highway Dept.



Primary arterial roads in Wayne Township and part of Noblesville Township in the study area include 206th St, SR 32, SR 38, Cumberland Ave, 146th St, Promise Rd, Borden Rd, Pennington Rd, Victory Chapel Rd, Olio Rd and Cyntheanne Rd.

The Highway Department completed a small structure replacement on Cyntheanne Rd over Keiser Drain in 2018 and another is planned in 2020 on 191st St over an unnamed stream. The small structure replacement on Pennington Rd over Martha Hare Drain has been recently replaced. The widening of 206th St is planned for 2036-2045, Olio Rd in 2026-2035 and the Boden Rd widening is yet to be scheduled. A new road to connect Olio Rd and Victory Chapel Rd has been proposed in the MPO Long-range Plan but a schedule for completion has not been set.

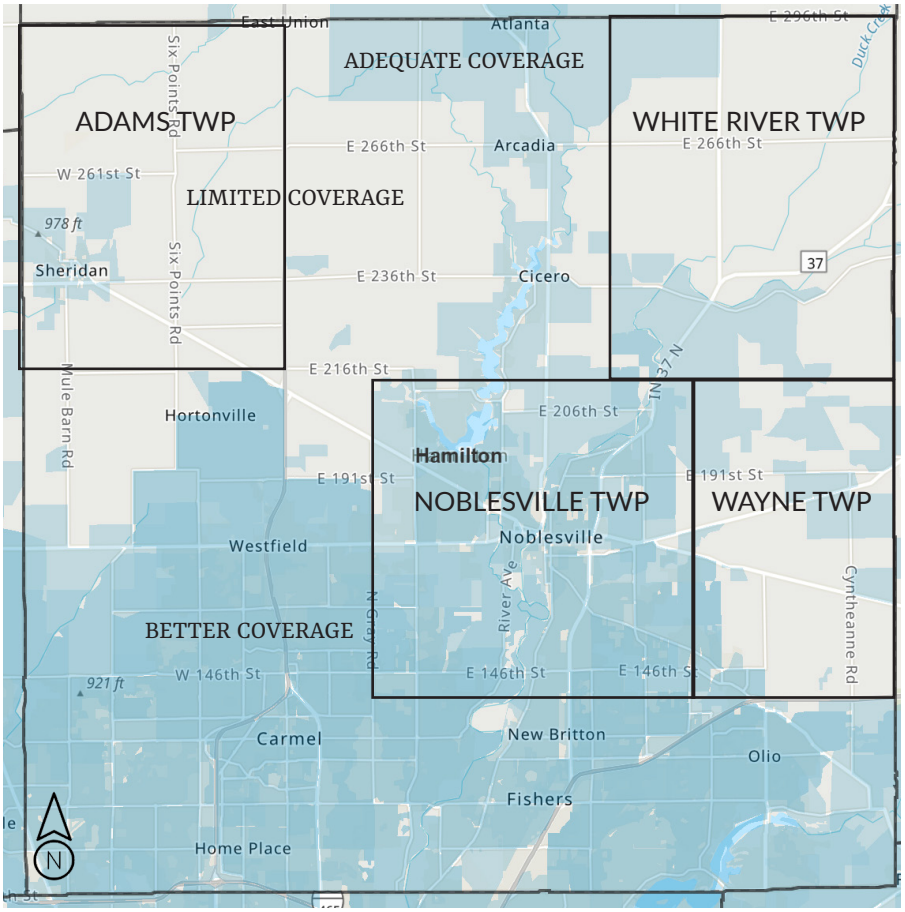
Comments from the public survey indicated road improvements are needed on Olio Rd, 146th St and Cyntheanne Rd. The need for intersection improvements were indicated on Cyntheanne Rd (156th St, 176th St, 186th St, SR 32, 191st St, and 206th St), Prairie Baptist (SR 38, Middletown Rd, SR 32, 191st St and 196th St), SR 38 and Middletown Rd, and Olio (146th St, 156th St and SR 38).

At the time of this publication, the MPO is in the process of finalizing their regional bike and pedestrian plans, draft versions these plans indicate potential bike routes along SR 32, 206th Street and 221st Street. Pedestrian improvements have been identified for SR 37, Victory Chapel Road, Prairie Baptist Road, 206th Street, 191st Street, SR 32 and SR 38.

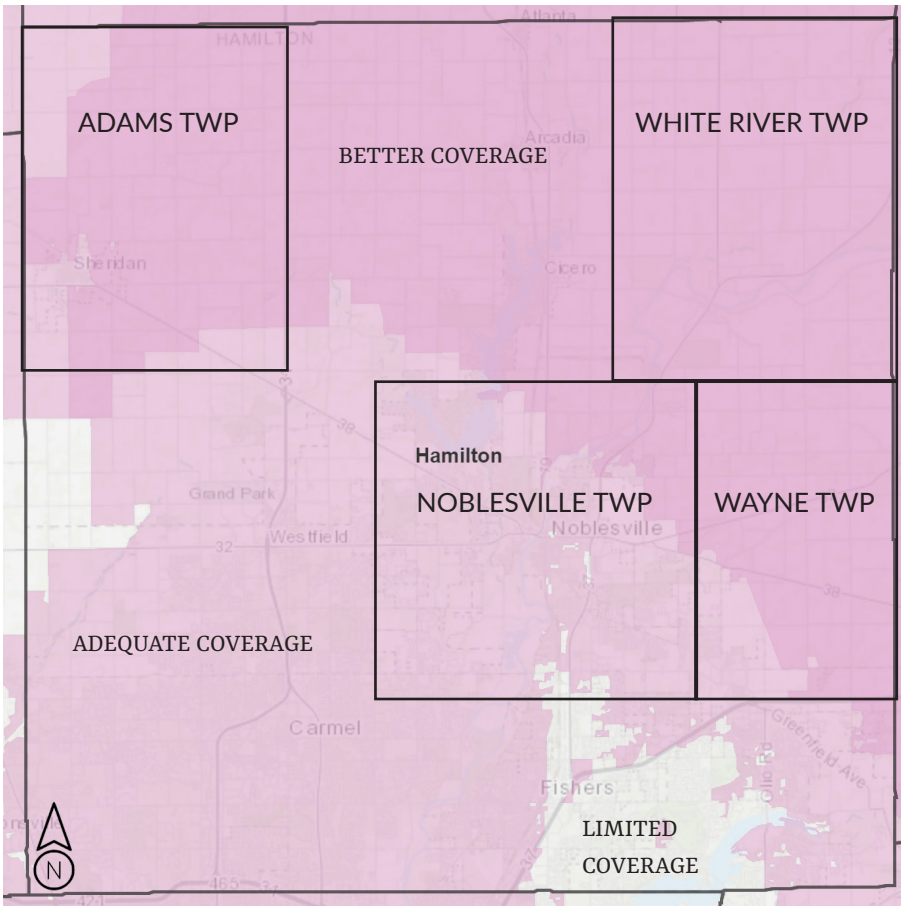
Hamilton County

BROADBAND

The broadband data in these map was derived from the latest FCC Form 477 data.
Last Updated: June 2019 v1
www.fcc.gov/general/broadband-deployment-data-fcc-form-477



WIRE BASED SPEED MAP



WIRELESS BASED SPEED MAP

At each public meeting the planning team heard concerns about the lack of reliable high-speed internet. These maps confirm public input.

The upper right map shows the existing, available, speed to upload or download via a wired cable. The blue colors on the map indicate the higher upload/download speed - up to 1000Mbps. The areas where there is no blue color indicates a critical lack in coverage.

The lower right map shows the existing, available, speed to upload or download via a wireless network. The pink colors on the map indicate the higher upload/download speed - up to 1000Mbps. Generally, there is adequate wireless coverage in the HCPC jurisdiction.

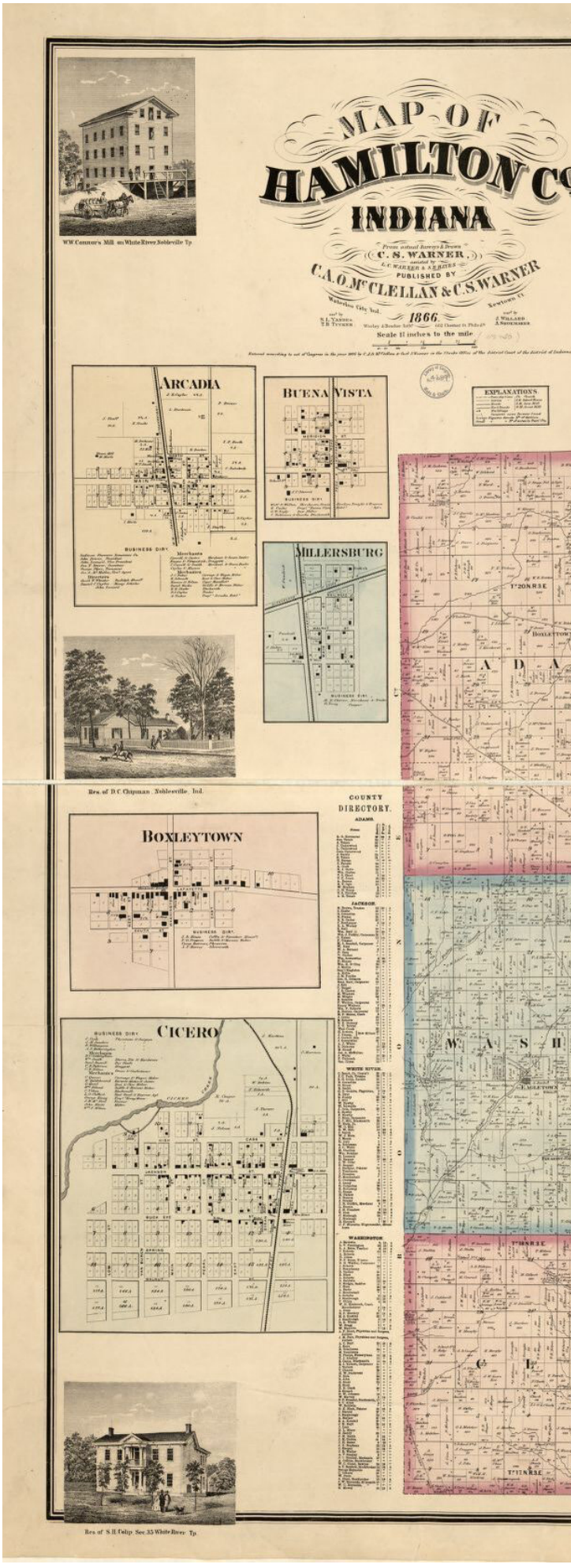
EXISTING LAND USE

Right: 1866 C.A.O. McClellan & C.S. Warner map of Hamilton County

From the beginning, Hamilton County was structured as a rural county with township designated business centers and the rest as farmland. Noblesville, the county seat, was the largest city in the county and Fishers did not exist. These townships, cities, and towns were independent of Indianapolis.

Today, Indianapolis consumes Marion County and Carmel consumes Clay Township entirely. Hamilton County's population has exploded and the cities have become connected. Our population commutes and our culture has evolved to be thriving "edge" cities. As a result and as noted previously, over the past 60 years, Hamilton County has lost 20% of its agricultural land. The township business centers are now nonexistent or working to reinvent themselves in today's marketplace.

The shining beacon of history still stands strong in the Hamilton County Plan Commission's jurisdiction. On average, 85% of the land is zoned agricultural. This is largely due to the thriving farming industry in these townships.





Farm Res. of J. M. Flenders

CLARKSVILLE

BETHLEHEM



Res. of Dr. G. B. Grubbs, Sec. 3. White River Tp.

NOBLESVILLE

STRAWTOWN

WHITE RIVER

EAGLETOWN

T I P T O N C°

JACKSON

WHITE RIVER

SHIELDSVILLE



Res. of E. R. Hall, Noblesville, Ind.

COUNTY DIRECTORY

DEMING

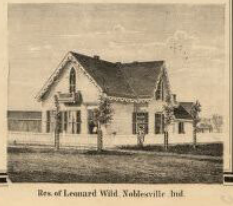
WESTFIELD

NOBLESVILLE

WAYNE

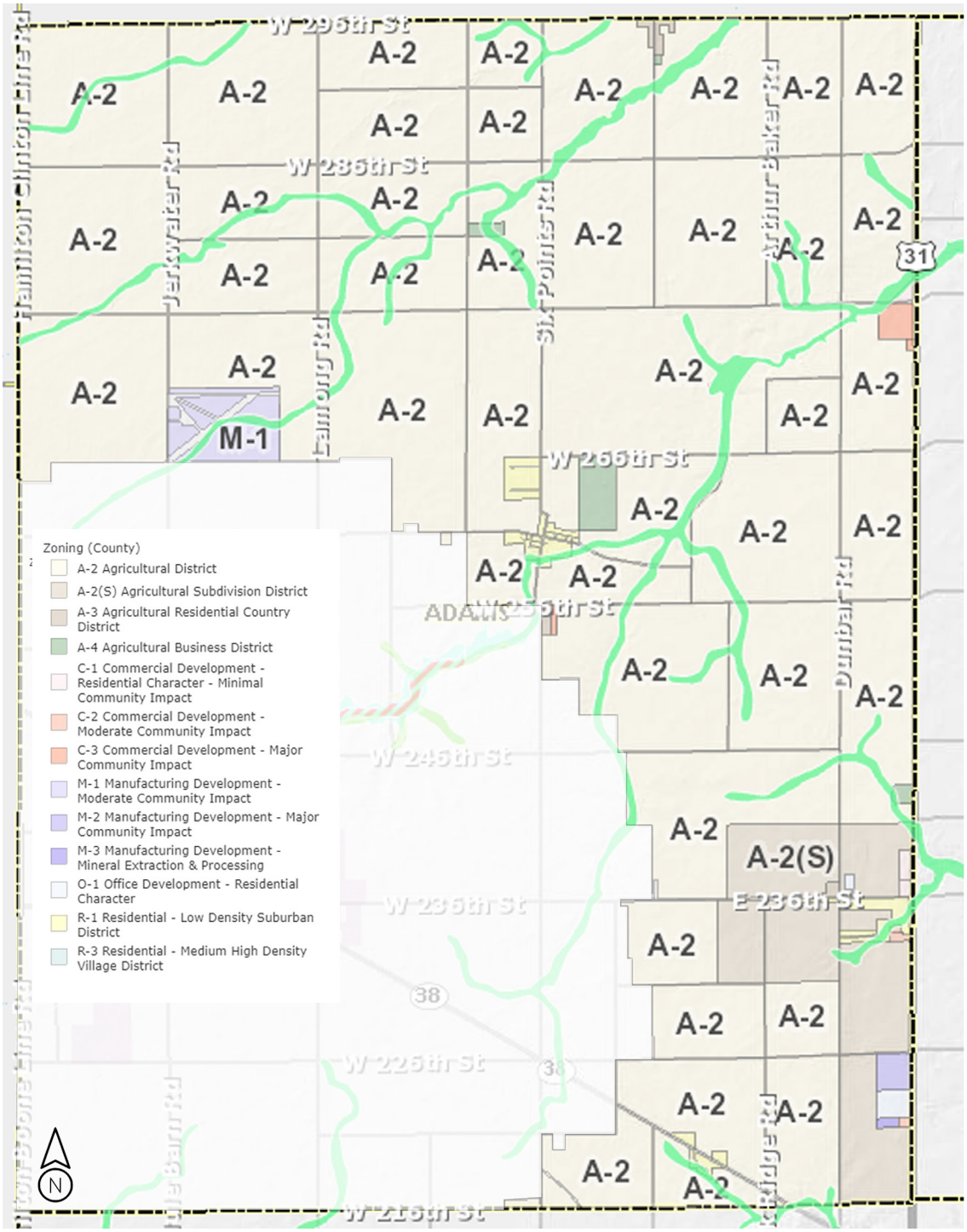
FALL CREEK

DELAWARE



Res. of Leonard Wild, Noblesville, Ind.

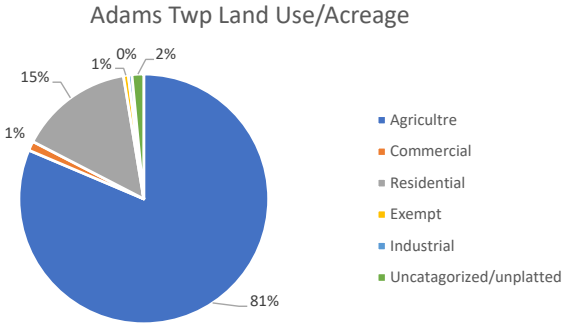
Existing zoning map in Adams Township



ADAMS TOWNSHIP

Existing Land Use

Adams Township has a little over 31,500 acres in the Plan Commission's jurisdiction. Approximately 25,600 acres are designated as A-2 which is the agricultural zone. Per the zoning code, this district permits "the full range of agricultural activities as well as certain planned, large lot residential development with development standards which protect the full range of agricultural uses."



Existing zoning map in White River Township

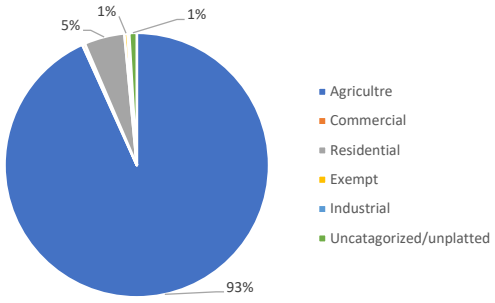


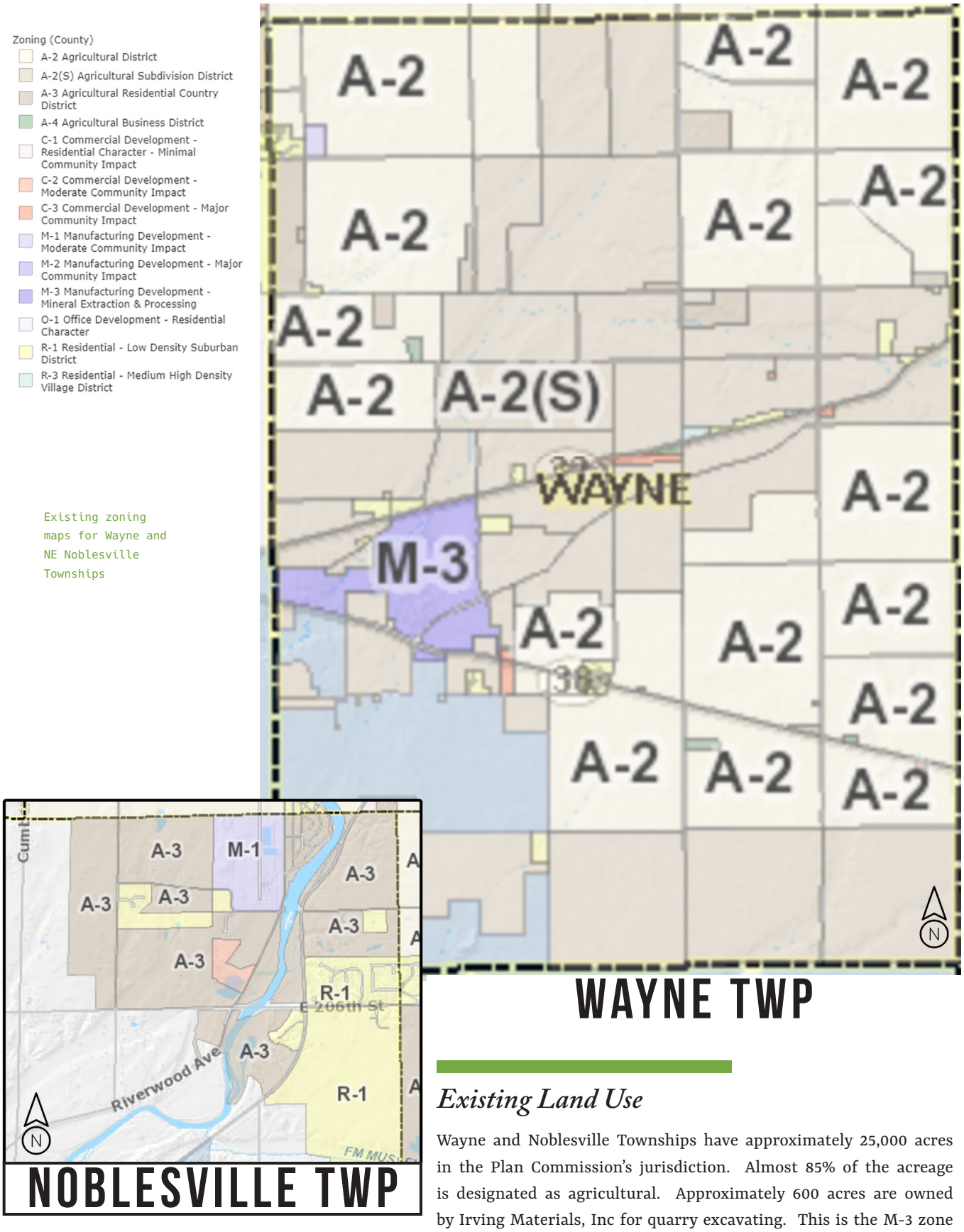
WHITE RIVER TOWNSHIP

Existing Land Use

White River Township has a little over 33,200 acres in the Plan Commission's jurisdiction. Almost 31,000 acres of this township are designated for agricultural uses. Strawtown is the cluster area for residential uses. In addition the County created and continues to expand Strawtown Koteewi Park, a 750-acre park with a natural history center, snow tubing hill, trails, aerial park, horseback riding canoe launch & fishing, archery range, and trails.

White River Twp Land Use/Acreage





Existing zoning maps for Wayne and NE Noblesville Townships

NOBLESVILLE TWP

WAYNE TWP

Existing Land Use

Wayne and Noblesville Townships have approximately 25,000 acres in the Plan Commission's jurisdiction. Almost 85% of the acreage is designated as agricultural. Approximately 600 acres are owned by Irving Materials, Inc for quarry excavating. This is the M-3 zone shown on the map. Wayne Township has seen recent residential growth along the State Roads 32 and 38 corridors.

Sharing and Listening

PUBLIC ENGAGEMENT



White River Township public meeting

The main goal of the Steering Committee for this plan was that it be rooted in citizen input. A multi-tiered approach was taken to glean input from residents and interested community members. Engagement was sought through township public meetings, online surveys, and mailed surveys. Nine public meetings were held throughout 2020; three in each township (with Wayne and NE Noblesville combined). In all 352 people attended in person. Online, a Comprehensive Plan Facebook page was created and surveys were promoted through the social media. Facebook advertising was also used to promote participation within the county limits.

The online survey proved to be a wealth of input given the COVID-19 pandemic. Nearly 600 people responded to the 10-minute survey, of which roughly 400 lived within the Plan Commission's jurisdiction. The county also mailed out 2,541 pamphlets and surveys to residents within the planning jurisdiction. Approximately 200 responses were received back. Detailed analysis and individual responses can be located in the Comprehensive Plan's appendix (a separate document due to the size).

"Thanks for the opportunity to participate"

-Hamilton County Resident

TOWNSHIP MEETINGS



Below: Wayne/NE Noblesville Townships meeting

Three meetings were held in each township. The first set of meetings were held:

Adams Township: 2/27/20
White River Twp: 3/5/20
Wayne/NE Noblesville Twp: 3/12/20

The agendas for these first meetings were two-fold; (1) share the discovered data and analysis with residents, and (2) receive initial thoughts on land use, transportation, environment, and development. The planning team gave an analysis presentation first and then asked for residents to break-out into small groups to discuss their thoughts. The groups then reported back to the entire room with a consensus on the topics.

The second set of meetings were held after COVID-19 quarantine limits were lifted. The team initially was going to have residents discuss in small groups regarding the vision for their respective township. However, due to social distancing and face mask recommendations, the team restructured the meetings into one-on-one conversations at stations. Team members facilitated input through the online survey and then shifted into visioning cards. Residents were asked what types of land uses and quality of life elements would be supported in the township. The team members also asked their opinions on the urban/rural divide and buffer area. These meetings were held:

Adams Township: 8/20/20
White River Twp: 8/25/20
Wayne/NE Noblesville Twp: 8/27/20

The last set of township meetings were structured as a "report back." In all, the team shared information at the first meeting, the residents shared information at the second meeting, and the team reported back at the third meeting to affirm resident input in the plan and present recommendations for policy changes. This final set of meetings were held on:

Adams Township: 11/10/20
White River Twp: 11/5/20
Wayne/NE Noblesville Twp: 10/22/20

"We want to see our farm land preserved."

"We need to improve the maintenance of our open ditches and drains."

"Maybe lower the 10-acre rule."

-Various meeting attendees





Photos from Township meetings. Courtesy of Innovative Planning

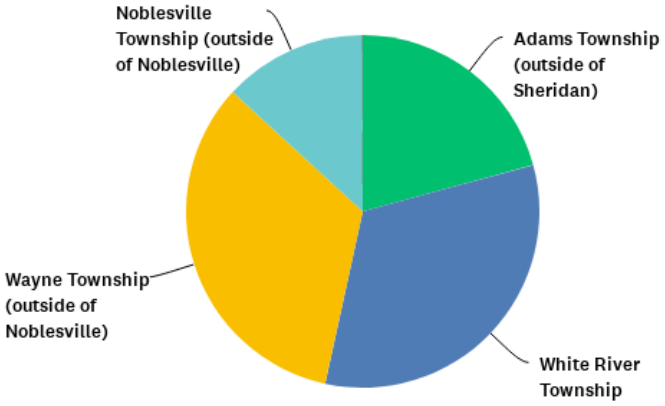
PUBLIC INPUT SURVEYS

In addition to the in-person meetings, the planning team distributed an online long survey and mailed short-form survey. Nearly 600 residents of Adams/White River/Wayne/NE Noblesville Townships responded to both surveys. This sample size produces a 4.5% error margin based on the townships population.

Characteristics of the survey participants include the followings;
98% of respondents own their property. 53% have lived in their home for more than 20 years and 20% have lived in their home for less than 5 years. 50% of the respondents work outside of their township and 10% indicated they were self-employed in agriculture. 50% of respondents felt that the quality of life is remaining the same and 20% felt is was declining.

Response details for all questions are included in the Appendix.

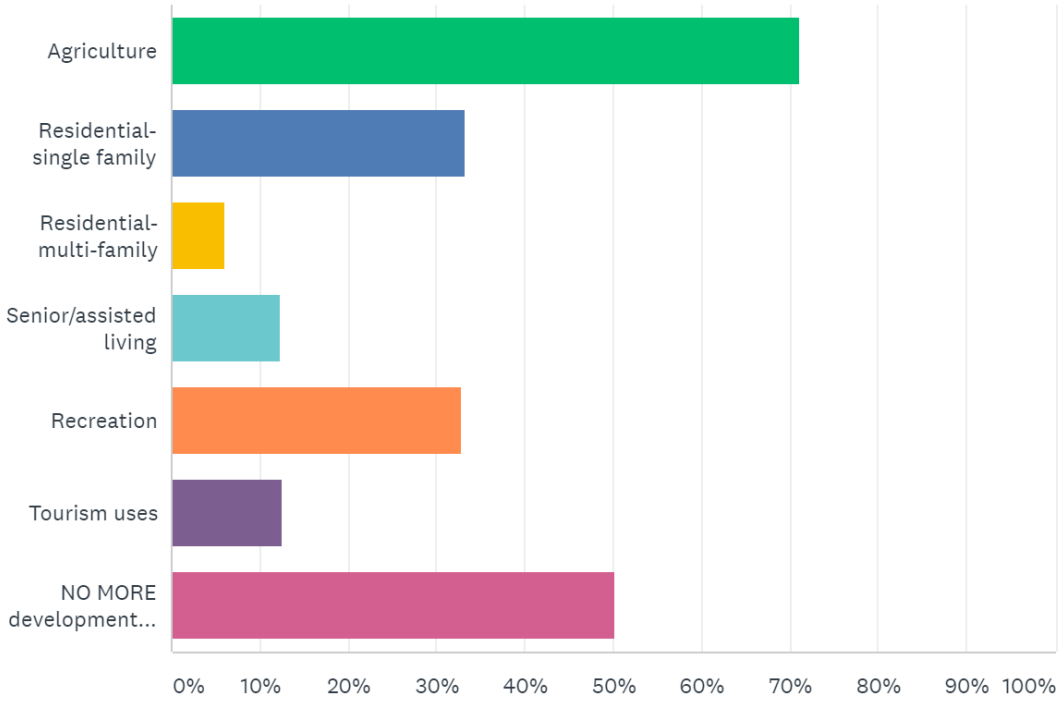
Survey Participant Geography



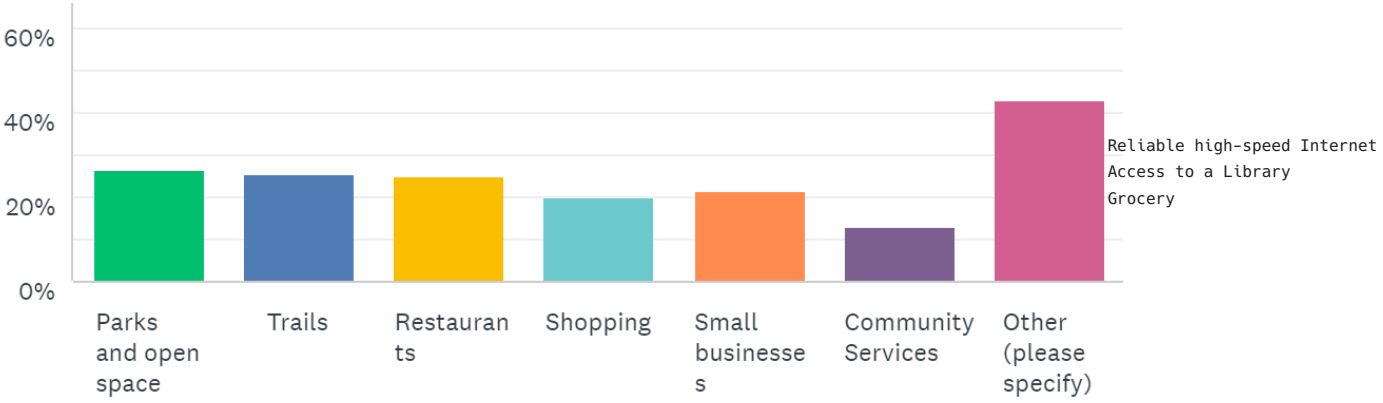
...continued

PUBLIC INPUT SURVEYS

Vision for future land uses



Thoughts on what is missing



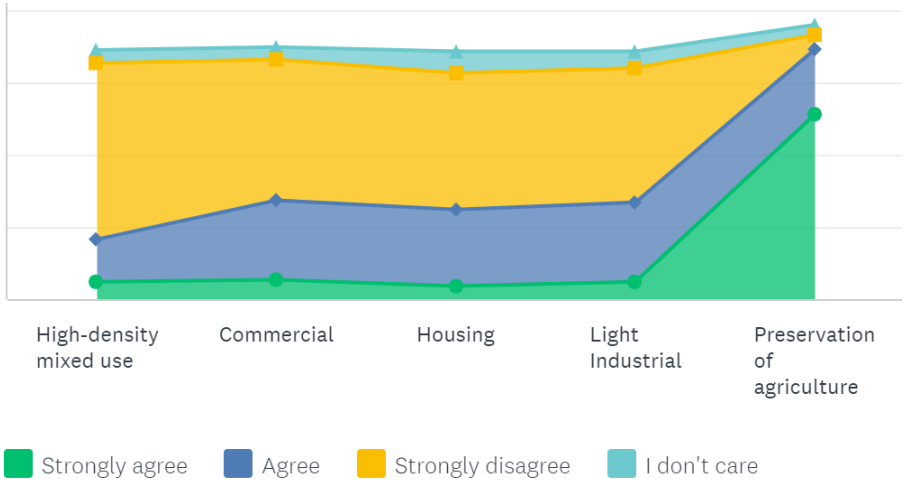
SURVEY KEY TAKE-AWAYS

In addition to the analysis of answers shown below. Several key take-aways from survey participants include the following.

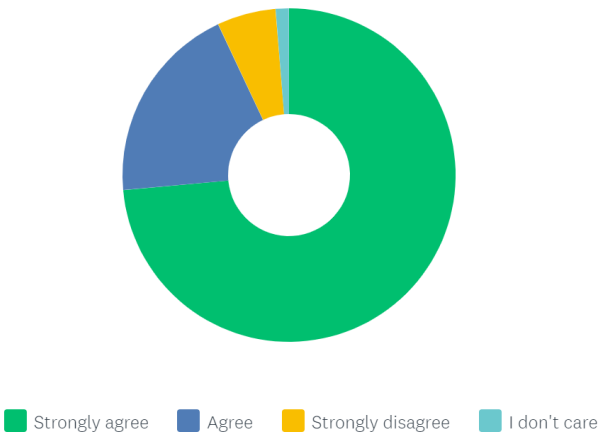
1. They live in Hamilton County Townships because of "community rural character."
2. Nearly 50% of participants felt the quality of life in their township is remaining the same.
3. There is a 50/50 split on agreeing or disagreeing with the current residential minimum lot size of 10 acres.
4. There is a strong preference to preserve existing farmland across all townships.
5. There is a 50/50 split regarding the importance of accessing the White River.
6. Residents have a desire to restrict development in the floodplain.
7. There is a need to address the increased speed and volume of traffic on county roads.
8. 85% of respondents do not see a need for public transportation or they expressed apathy.

Additional public input is included throughout this plan, as it relates to the specific sections.

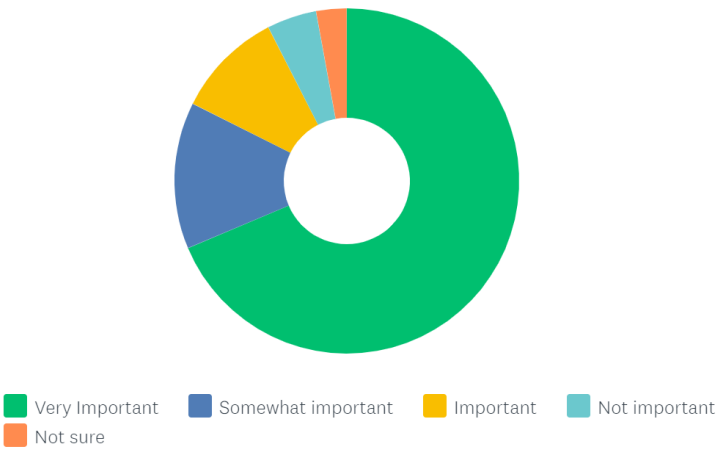
Vision for types of development along major road corridors



Feelings towards preserving agricultural land



Feelings towards preserving flood area/ plain as open space (agriculture, parks, and/or natural)



ANTICIPATED CHANGE

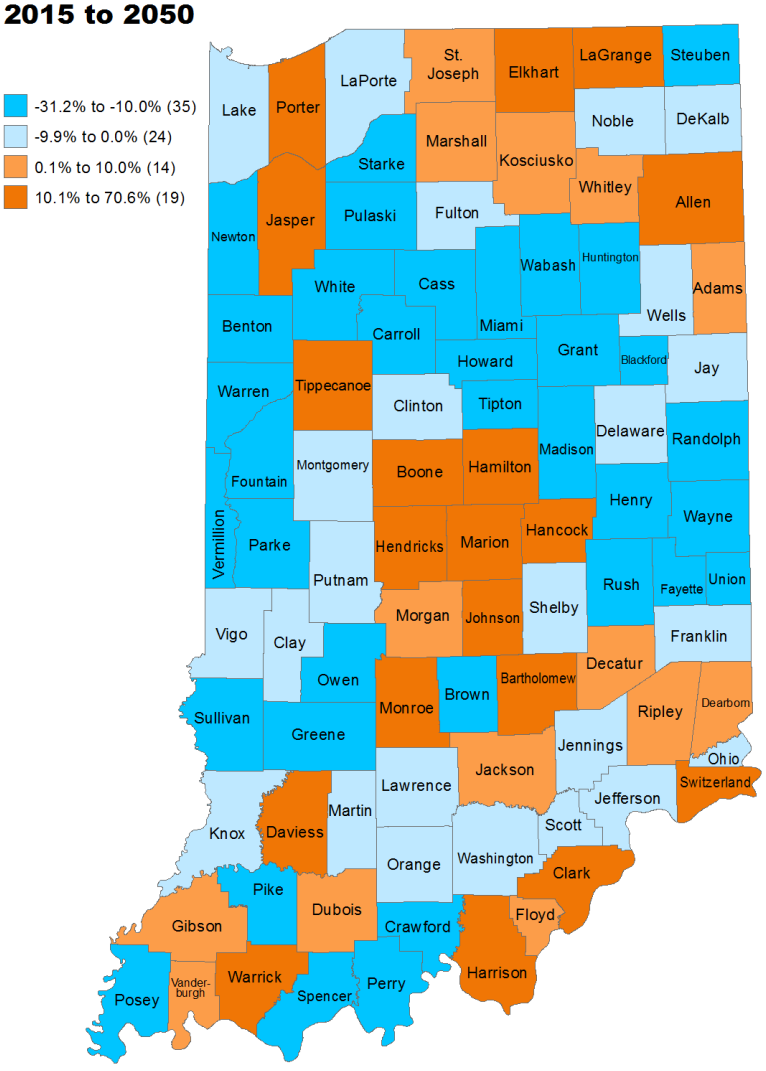
Population Projections

Forecasts in 2018 by the Indiana Business Research Center (Kelley School of Business, Indiana University) projected that Indiana's population will peak over the next five years and begin to decline, by more than three times in 2050. This is partially due to the aging baby-boomer population and the trend of smaller families. More than 20% of the Hoosier population will be over 65 years of age in 2045. Their findings also show that while the state's population is declining, Hamilton County's population is set to grow more than 30%.

The maps to the right predict that retirees will age-in-place and young professionals, ready to start families will be living in Hamilton County.

Population Projections

Percent Change in Total Population, 2015 to 2050



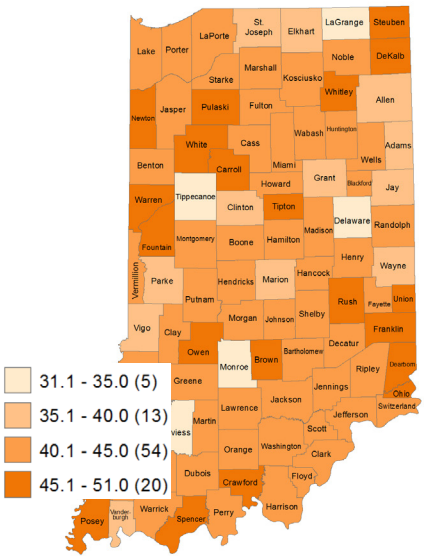
Map Source: Indiana Business Research Center

STATE POPULATION FORECAST

Indiana Business Research Center, Kelly School of Business, Indiana University, May 2018

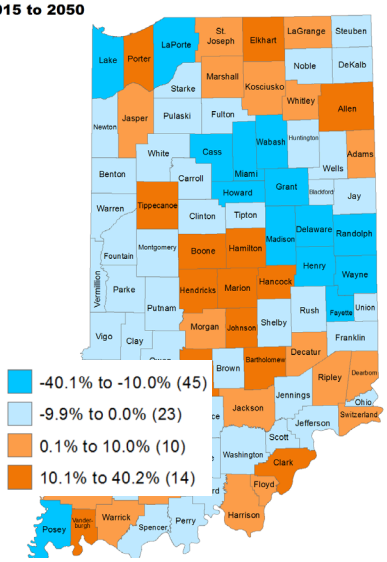
Population Projections

Median Age of Population in 2050



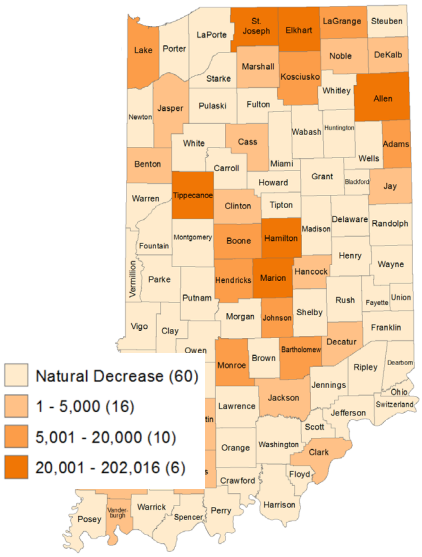
Population Projections

Numeric Change in Total Population, 2015 to 2050



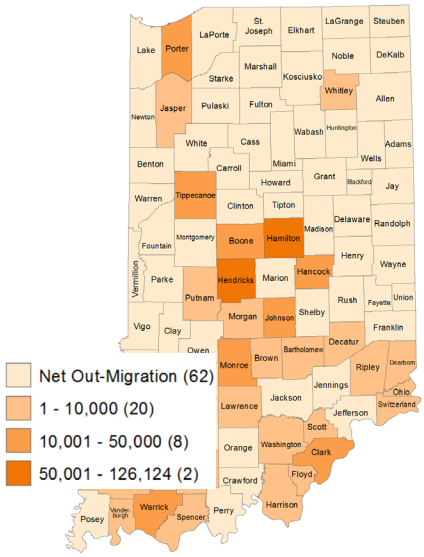
Population Projections

Natural Increase, 2015 to 2050



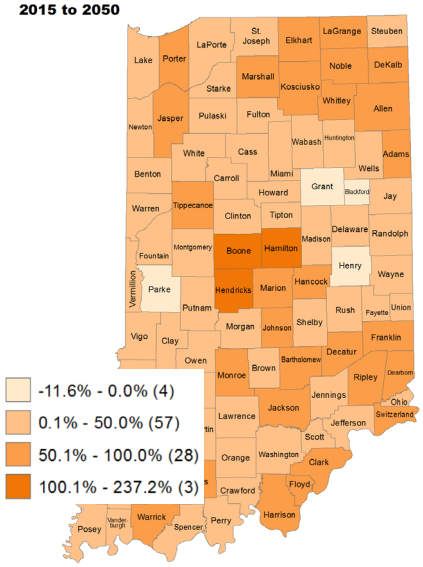
Population Projections

Net Migration, 2015 to 2050



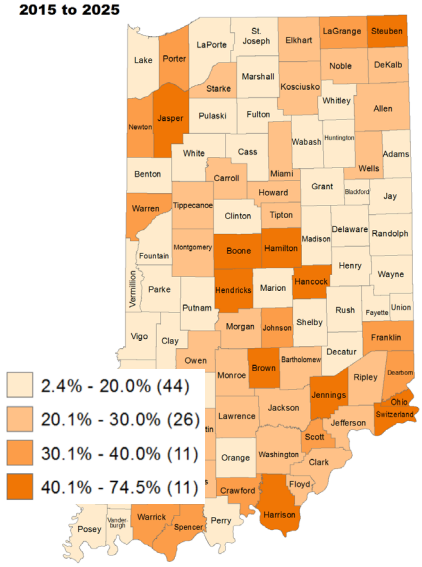
Population Projections

Percent Change in Population Ages 65 and Older, 2015 to 2050



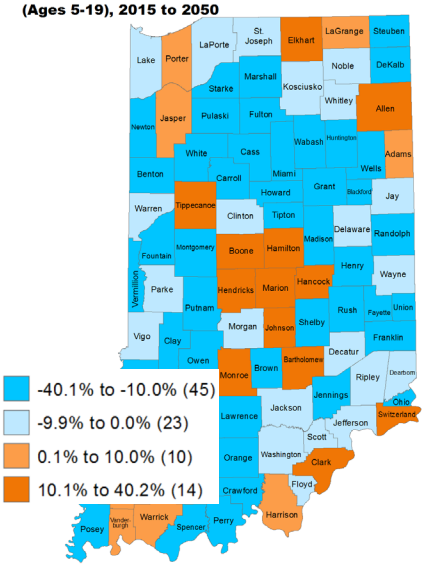
Population Projections

Percent Change in Population Ages 80 and Older, 2015 to 2025



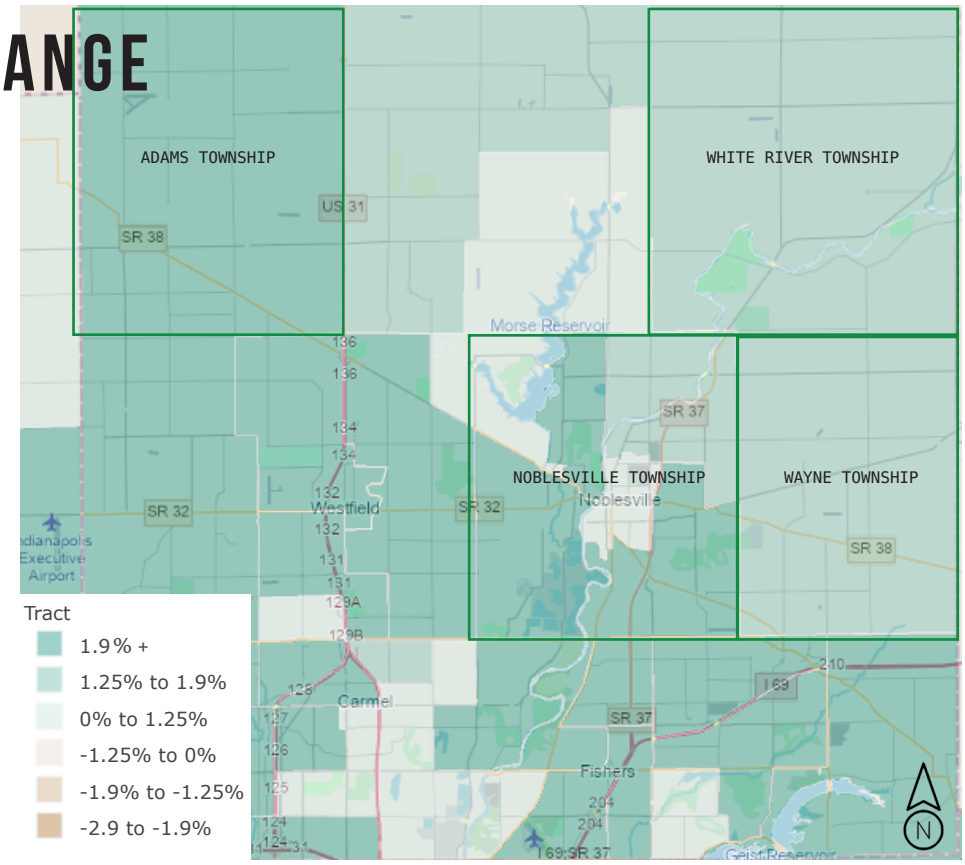
Population Projections

Percent Change in School-Age Population (Ages 5-19), 2015 to 2050



HAMILTON COUNTY POPULATION CHANGE

Below: ESRI Population Growth Map through 2023



Hamilton County's estimated population in 2019 was 338,011, up from the 2010 US Census data of 274,557. The Indiana Business Research Center (IBRC) projects that in 2030, Hamilton County's population will be 435,321. That is a 23% growth in 20 years. This information can be found at STATS Indiana. STATS Indiana collects and communicates data for the State of Indiana. It is maintained by IBRC at Indiana University's Kelley School of Business. The website for this data is www.stats.indiana.edu.

STATS Indiana served as the base data for the following projections.

The forecast for the population of Adams, White River, Wayne, and all of Noblesville Townships is to grow 15% through 2030 based on the shift-share ratio method and using populations of 2010-2018 as base years.

2030 Population Projections

Wayne Township forecast will lead the population growth for the Hamilton County Plan Commission jurisdiction area, excluding all of Noblesville.

Adams Township: 5,600 (+400)
White River Twp: 2,500 (-13)
Wayne Twp: 10,610 (+1,500)
All of Noblesville Twp: 71,800 (+11,872)

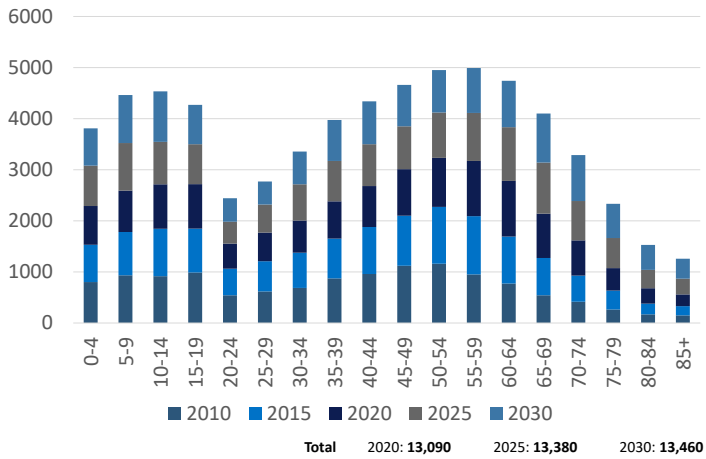
Note: The map above shows a slower growth rate (1.2-1.9%) for the NE corner of Noblesville Township, the Planning Commission's jurisdiction.

This is similar to the Hamilton Heights School Corporation demographic study, which shows a 370 person increase for both townships (Jackson and White River) through 2030, shown below.

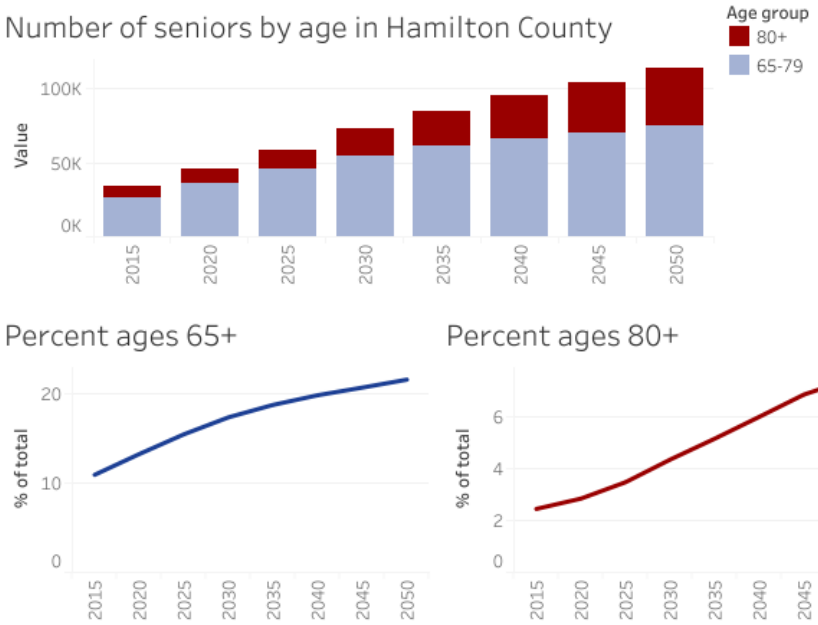


Above: Hamilton Heights School Corporation jurisdiction area

Source: Hamilton Heights School Corporation Demographic Study (Jackson and White River Townships) --December 2018



Total 2020: **13,090** 2025: **13,380** 2030: **13,460**



Left Source: www.stats.indiana.edu/topic/projections.asp using 2015-2050 Indiana population projections from the Indiana Business Resource Center

THRIVING COMMUNITY

The slowing of the townships recent growth spurt is likely due to seniors that are choosing to age in place, see above. In addition, 85% of the available land is currently zoned for agricultural uses.

In 2016, The Indiana University Public Policy Institute created the "Thriving Communities Thriving State" report under the leadership of Kathy Davis and Randall Shepard. It presents BIG IDEAS for counties/cities. One of the ideas is: quality of life/place. The four recommendations include:

1. "Plan and provide for high-quality infrastructure – transportation, water and wastewater.
2. Ensure access, physical and financial, to high-quality and high-speed broadband.
3. Ensure adequate resources to preserve our heritage, develop amenities, and create unique places in a way that promotes a high quality of life.
4. Encourage the regional collaboration of individuals and organizations to promote greater integration of economic activity and higher quality of life (also in leadership recommendations)."

As Hamilton County matures and new leaders take the helm at the Hamilton County Plan Commission, these concepts are key to keeping Hamilton County a great place to live, learn, work, play, and shop.

Hamilton County is a growing and aging county, still leading the state in growth.

RECOMMENDATIONS

"The ultimate purpose of collecting the data is to provide a basis for action or a recommendation."
-W. Edwards Deming

VISION STATEMENT

Throughout the public engagement period, a vision for the Adams, White River, Wayne, and NE Noblesville emerged. The following vision statements serve as the foundation for the recommendations described in this section.

Endorse the agrarian culture and quality of life.

Balance current land uses and growth in a sustainable manner.

Protect floodplains and natural resources.

Strategically encourage economic development in business and agriculture.

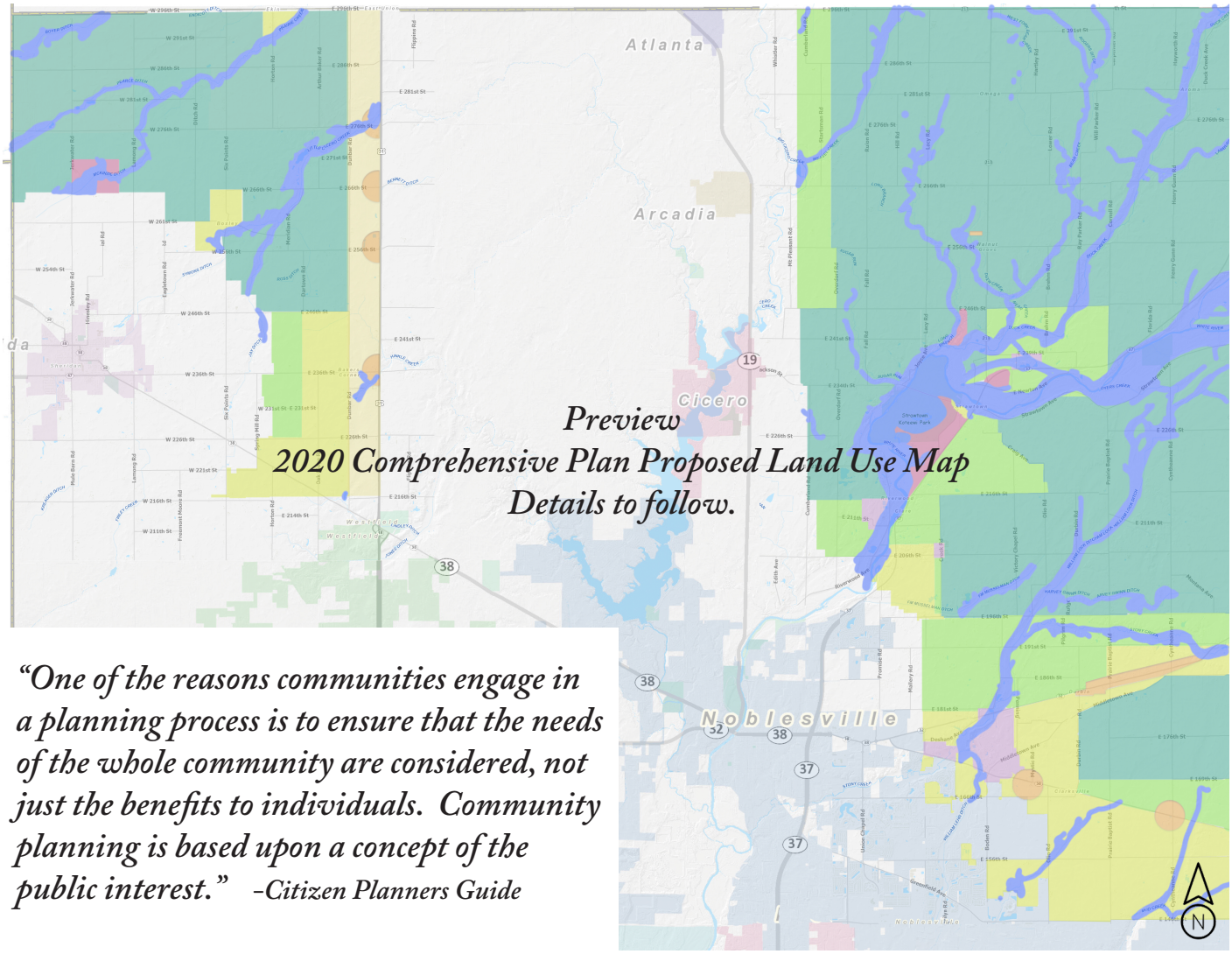
Manage population growth by increasing clusters of population density.

Comprehensive Plan recommendations are just that - recommendations. They are strategic initiatives that, if acted on, would accomplish the Plan Commission's vision statements. These recommendations are not code and they are not policies that have already been adopted. They are strategic inspirations that work towards the project's mission.

> Residents and leaders of Hamilton County shape a land use vision that strikes a healthy balance between environment, community, culture/values, and economy for the Hamilton County Plan Commission to implement over the coming decade.

The following recommendations are intended to be implemented through Plan Commission zoning ordinances, future adopted county-wide policy statements, and by influencing other governing bodies in Hamilton County, the region, and state.

Keep in mind- these recommendations only have a 10-year outlook, the 2020 decade.



Preview
2020 Comprehensive Plan Proposed Land Use Map
Details to follow.

"One of the reasons communities engage in a planning process is to ensure that the needs of the whole community are considered, not just the benefits to individuals. Community planning is based upon a concept of the public interest." *-Citizen Planners Guide*

QUALITY OF LIFE



(1) Livability

SUPPORT POPULATION DIVERSITY

Recommendations

a. Promote ordinance language that is all-inclusive to race, age, income, and other diverse populations.

b. Appointed members of the Plan Commission, Board of Zoning Appeals, and other Planning committees should strive to represent the jurisdiction's population. 2010 Census examples of the jurisdiction demographics include, but are not limited to, 14% minority race, 13% persons age 65 years and over, 50/50 gender split.

PROMOTE AGING IN PLACE

Recommendations

a. Address and define Micro-homes, Elder Cottages, and Shared Housing in the Residential code.
   Allow 2 living areas to permit family members or other caregivers to live near seniors.

b. Promote AIA's safer senior living community strategies and visitability policies, while still meeting all relevant codes. The term refers to single-family or owner-occupied housing designed in such a way that it can be lived in or visited by people who have trouble with steps or with mobility concerns.
   A house is visitable when it meets three basic requirements: (1) one zero-step entrance, (2) doors with 32 inches of clear passage space, and (3) one bathroom on the main floor you can get into with mobility restrictions.

c. Change language in the zoning ordinance that refers to "nursing homes" or "home for the aged". This is outdated language. An accepted term today is "Supportive Housing", "Aging in Place", "Continuum of Care", or "Long-Term Care".

d. Require a deed covenant stating intended use of the second living area as a designated caregivers or families living space and not for rent.

ADOPT A POLICY THAT INCENTIVIZES DEVELOPMENT OF GREEN INFRASTRUCTURE

Green infrastructure Best Management Practice examples are provided in the back of this plan, page 80.

(2) Invest in Recreation

Recommendations

a. Preserve Strawtown Koteewi Park and support recreational activities within the park land

b. Encourage the development of a County Park in Adams Township, as one does not exist today.

c. Promote the expansion of the Monon Trail in Adams Township and the Midland Trace trail in Wayne Township, and other new/ expanded multi-purpose trails.





Above: Manufactured home at the 2019 Louisville Manufactured home show. Image courtesy of Innovative Planning.

Existing/Relevant Hamilton County Consolidated Plan goals for federal grant programs

1. "Housing goals include acquisition of land/ improvements to add affordable units and home repairs to preserve housing units."
2. "Public Services goals include supporting services that provide basic daily living needs."

Above: Hamilton County Housing Authority 2019-2023 Action Plan - for reference only.



Above: Invasive Honeysuckle Rob Routledge, Sault College/Bugwood.org

(3) Housing Stock

SUPPORT AFFORDABLE HOUSING OPTIONS

Recommendations

a. Promote safe and affordable home options in the zoning code.

b. Repeal the Manufactured and Mobile Homes Ordinance.

   Allow all Modular and Manufactured homes as an acceptable structure on a residential lot. These types of homes are built on permanent foundations and find efficiencies by building to State and/or HUD codes off-site.

   Mobile Home Parks should be restricted and not allowed, unless grandfathered due to current existence. These types of homes are truly "mobile". The industry no longer builds these types of homes and are considered unsafe to move after 10 years.

c. Define and restrict Recreational Vehicles from becoming a temporary or permanent home structure.

d. Use inclusionary zoning language in the Residential ordinance to mandate a certain percentage of affordable units for new construction multi-family developments.

e. Consider having a representative of a housing non-profit agency to serve on a planning board.

f. Consider reducing the minimum square footage requirement for single-family homes.

(4) Invasive Species

The Indiana Invasive Species Council has expansive information about the management of Invasive Species, including lists of invasive plant, pests & diseases, animals, animal diseases, and aquatic species which was updated in 2020. Species lists can be found on the Indiana Invasive Species Council website at https://www.entm.purdue.edu/iisc/index.html. Local organizations who can provide invasive species information include the Hamilton County Soil and Water Conservation District and Hamilton County Invasives Partnership (HIP).

Recommendations

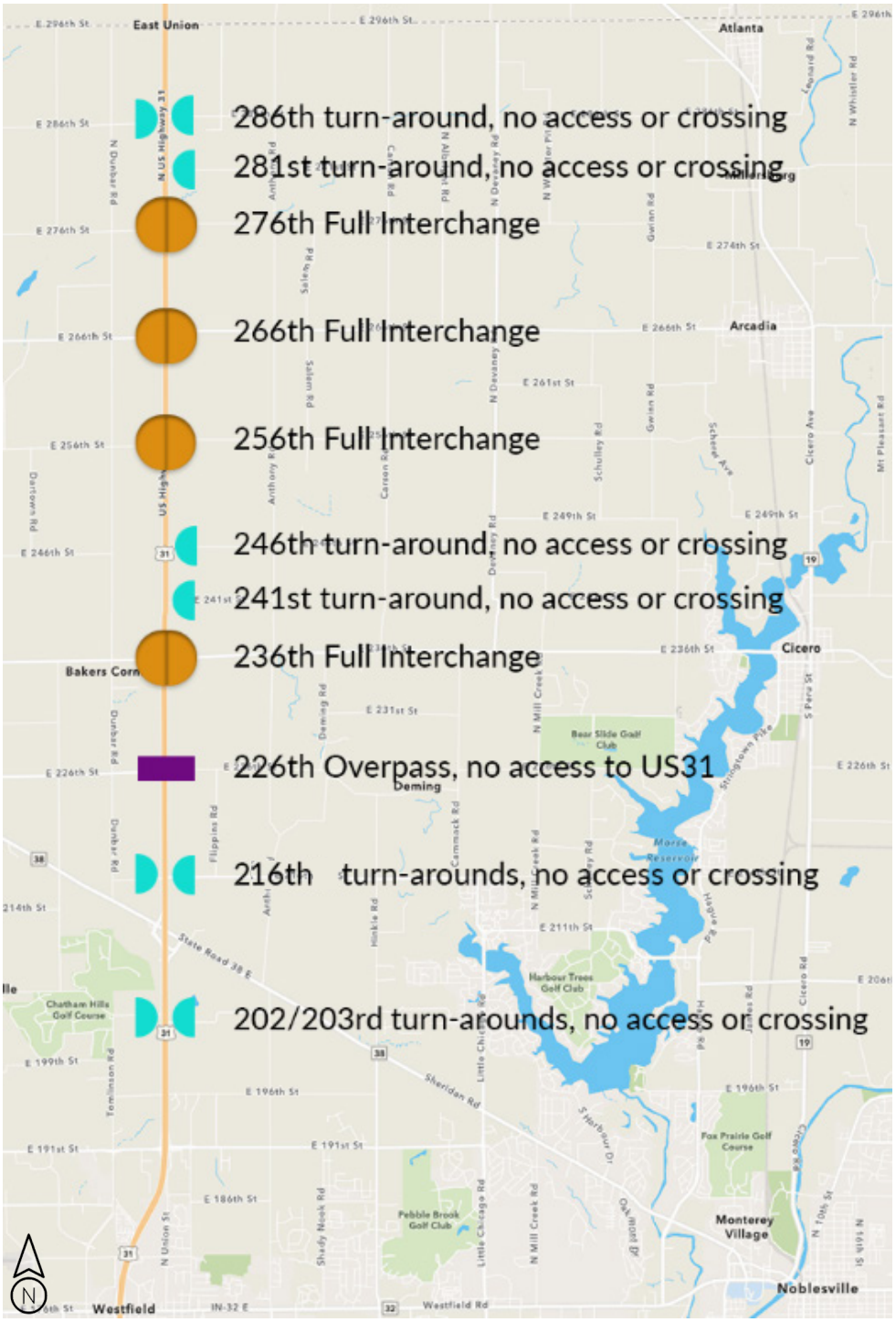
a. Create an ordinance that would restrict the planting of invasive plants and other invasive species.

b. Require Home Owner Associations to include a list of restricted invasive species and a list of suggested native alternatives in their covenants during the planning process, as well as procedures to enforce said restrictions.

c. Develop an educational and incentive program to encourage private landowners to manage invasive species on their properties.

LAND USE

Right: Hamilton County preferred US 31 Corridor Interchange Proposal



(1) Plan for Growth

ENGAGE IN A NEW COMPREHENSIVE PLANNING EFFORT IN 2030

Encourage updates to this document throughout the 2020 decade, as it is a living document. The process to update a Comprehensive Plan is outlined in IC 36-7-4-500.

EXPAND DEFINITIONS

Recommendation

Revisit existing definition to assure alignment with updated state code and consider defining new terms; ie "barn", "horse", "livestock", "fast-food restaurant".

US 31 CORRIDOR

Recommendations

a. Create a US 31 Corridor Overlay zone.

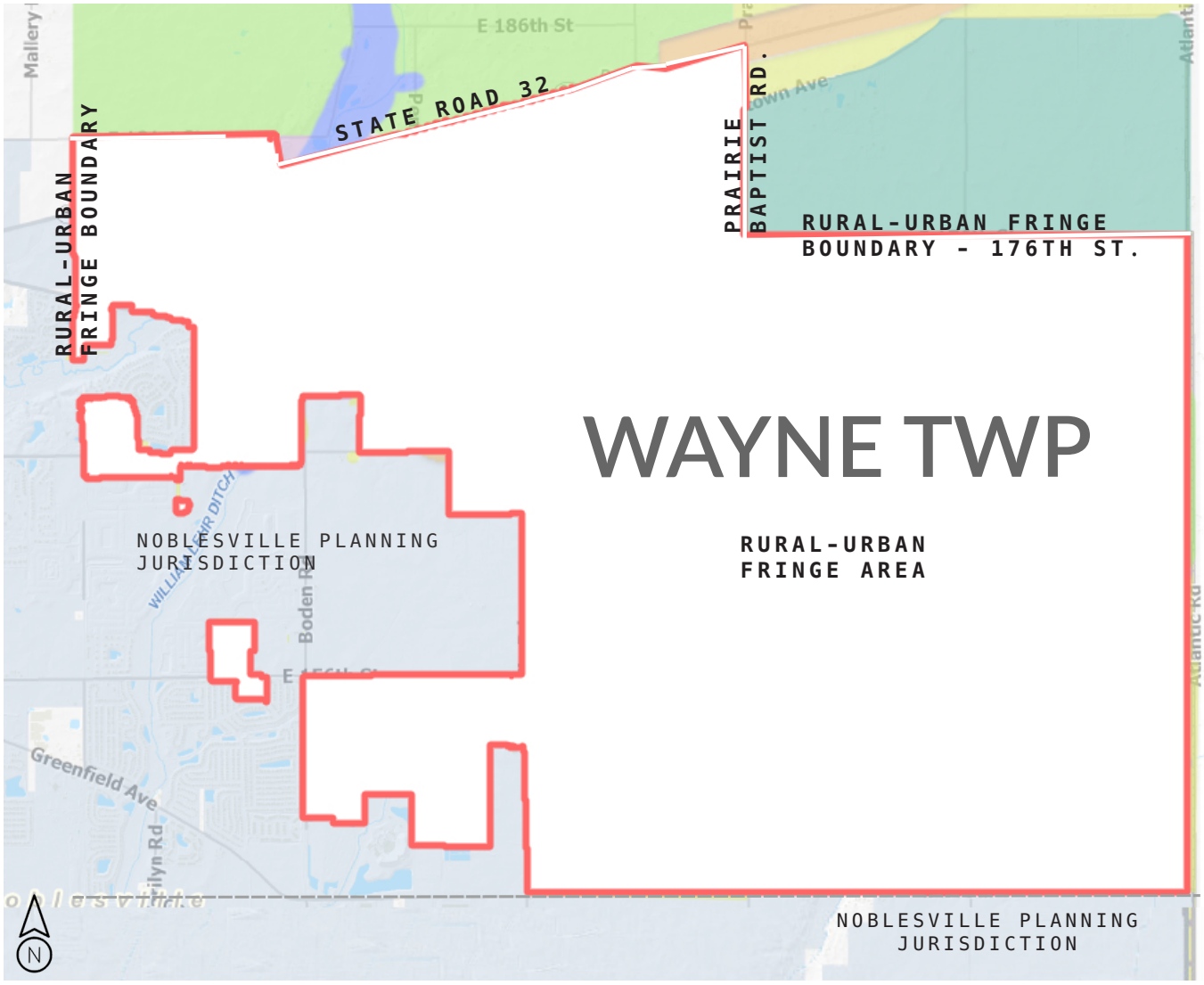
b. Support construction of cul-de-sacs at the intersections of 202/203rd Streets, 216th Street, 241st street, 246th Street, 281st Street and 286th Street. (No direct access to/from or across US 31.)

c. Support construction of an overpass at 226th Street. (No access to/from US 31 but can go across US 31.)

d. Support/promote the construction of full interchanges at 236th Street, 256th Street, 266th Street and 276th Street. (Full access to/from and across US 31.)

e. Support construction of a frontage road on both sides of US 31, serving as a new access road within 1/4 mile of the US 31 right-of-way.

f. Promote rezoning land within 1,500 linear feet of a full interchange to allow multi-family, commercial, and industrial activities.



Above: Proposed Rural-Urban Fringe Overlay Area Map

(1) Plan for Growth (cont.)

RURAL-URBAN FRINGE OVERLAY

Recommendation

Define and establish "Rural-Urban Fringe Overlay" zone. This is a transition zone between county jurisdiction and a city/town. Characteristics of this area would accommodate single and multi-family dwellings, golf courses, agriculture, light retail, and light industrial. The permitted use density would transition from higher-density near the city boundary and shift to lower density as the property location gets closer to the 1.5 mile fringe edge.

Rural-Urban Fringe Areas should be designated as 1.5 miles from the adjacent to a city/town boundary. Urban growth should be limited to within the Rural-Urban Fringe Overlay.

URBAN GROWTH AREA

Recommendation

Define and establish "Urban Growth Areas". The intent of these areas is to manage population growth and sprawl by designating the extent to which greater density development may occur when adjacent to a rural setting. Greater density may be suited for areas that are seeing population growth and/or already have a cluster of improvements. These areas may also be where cities/towns wish to annex and/or increase population density in the future. Within the Hamilton County, this may include; Sheridan, Noblesville, Strawtown, Omega, Bakers Corner, Ekin, and/or Boxley, Urban Growth Areas should allow for smaller permitted lot sizes and a diversity of uses to accommodate a more suburban setting. Urban Growth Areas should be limited to a geographic area.

(2) Rural land use

PRESERVE AGRICULTURAL LAND

According to the Natural Resource Conservation Service (NRCS) National Commodity Crop Productivity Index (NCCPI), the inherent soil properties in Adams, White River and Wayne townships are classified as moderate, moderately high and high for crop productivity. The soils that have the best inherent crop productivity are in the low-lying floodplain areas.

Recommendations

a. Plan land use and provide roads and other public services to sustain most of the Plan Commission's jurisdiction as an agricultural enterprise.

b. Recognize and protect soils that are highly productive when effectively managed.

c. Evaluate the need for a "Greenfield Development Impact Fee", or other mitigation tools, to encourage development to shift towards infill/urban areas rather than consume rural lands.

PROMOTE TO KEEP ACTIVE FARMS IN AGRICULTURAL USE AND PROTECT JOBS IN THE AGRICULTURE ECONOMY

CONSOLIDATE DISTRICTS

Recommendations

a. Create revised/new zoning districts that protect agricultural land and loosen the current 10-acre minimum lot size for residential. Continue to strive to strike a balance between farm management needs and water quality requirements.

b. Determine what agricultural zone will support CAFO/CFO activities.

EVALUATE DENSITY CREDIT LANGUAGE FOR ALL AGRICULTURAL ZONES

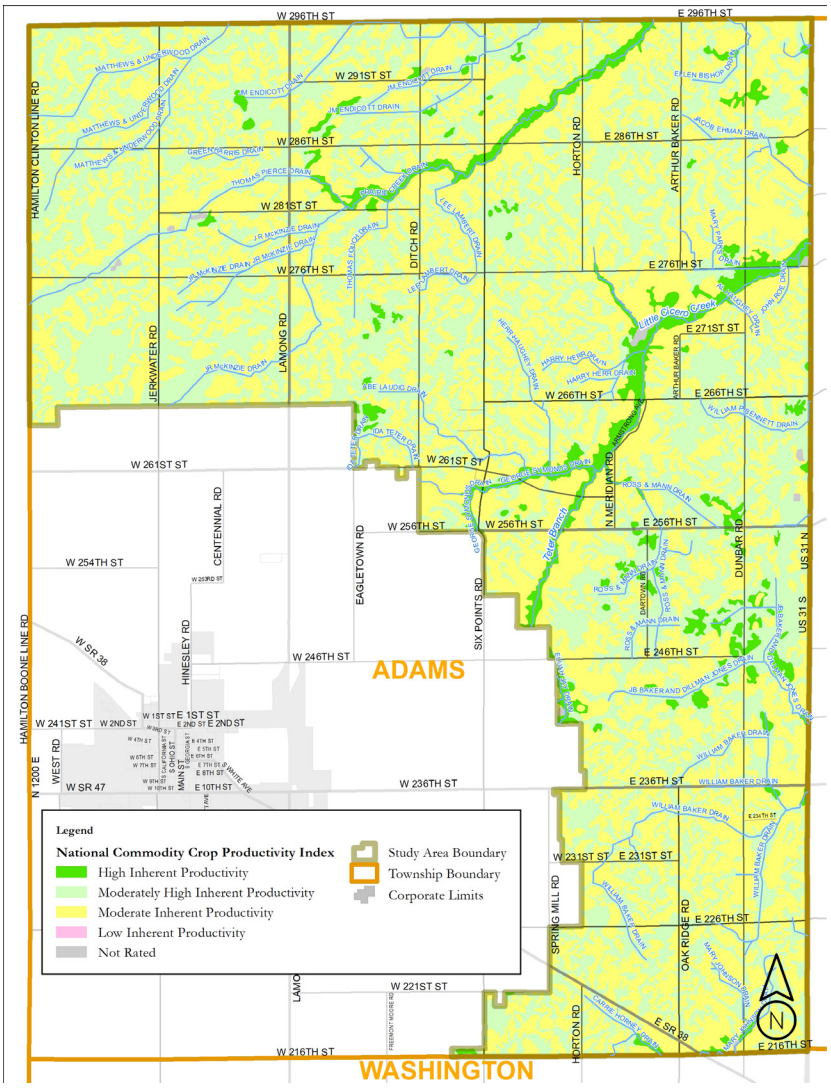
MAINTAIN THAT DEVELOPMENT AND PERFORMANCE STANDARDS FOR NEW OR EXPANDING AGRICULTURAL/LIVESTOCK OPERATIONS SHALL BE OBJECTIVE, SUSTAINABLE, PROACTIVE, AND SCIENCE BASED.

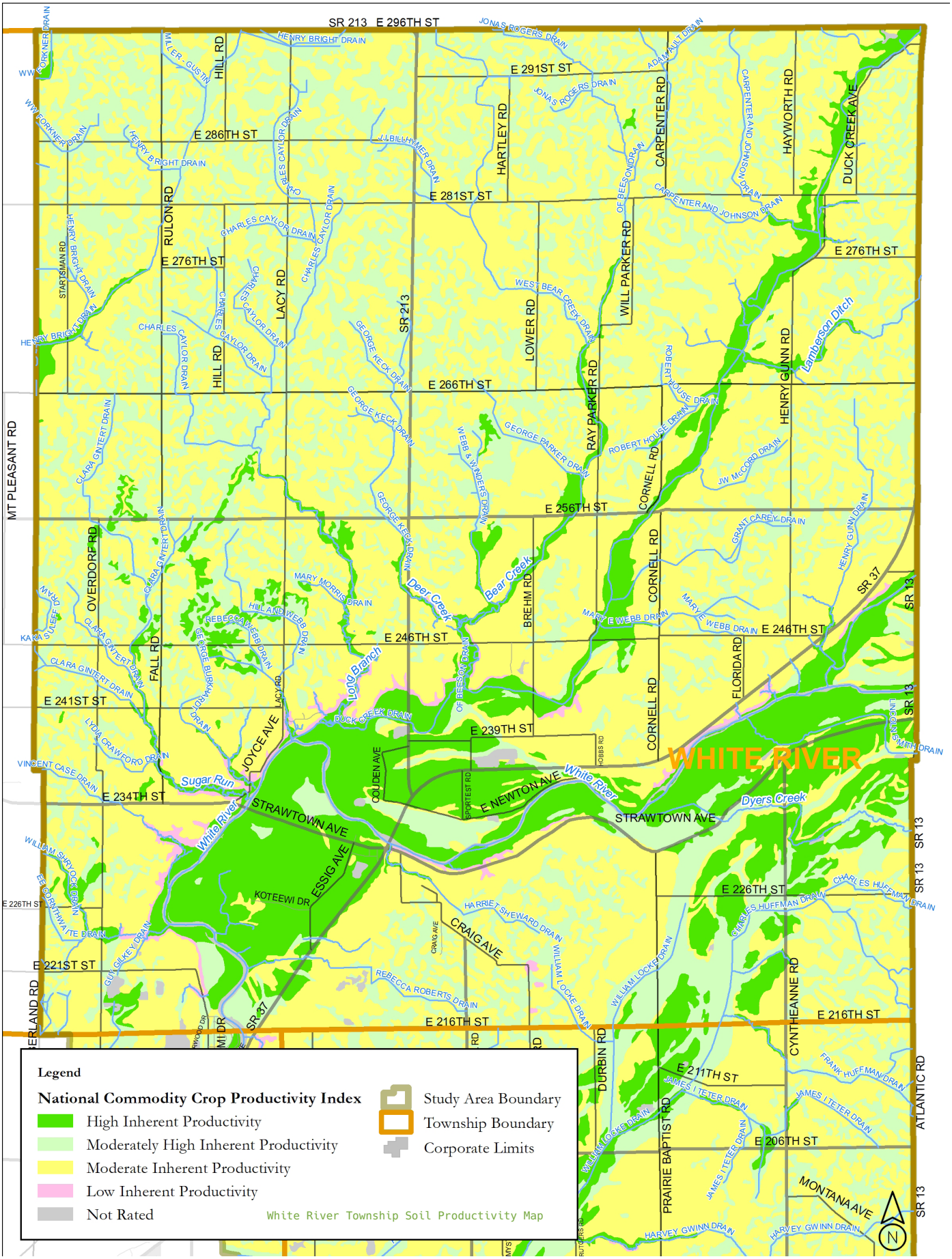
MAINTAIN COORDINATION WITH IDEM FOR CAFO/CFO PERMITS AND CONCURRENCE WITH IC-13-18-10

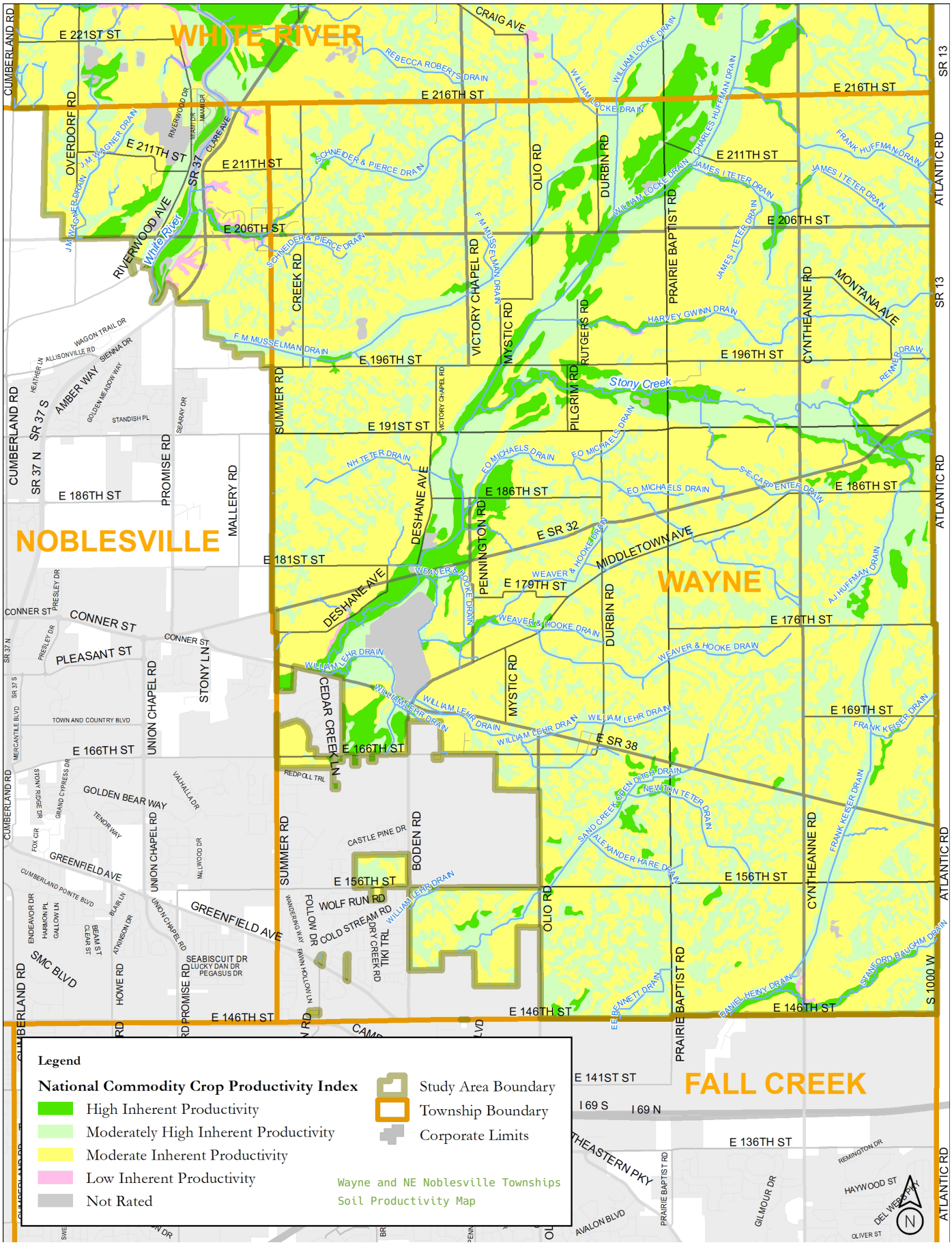




Above: Hamilton County photographs courtesy of Innovative Planning
Below: Adams Township Soil Productivity Map




SR 213 E 296TH ST
E 291ST ST
E 286TH ST
E 281ST ST
E 276TH ST
E 266TH ST
E 256TH ST
E 246TH ST
E 241ST ST
E 239TH ST
E 234TH ST
E 226TH ST
E 221ST ST
E 216TH ST
E 211TH ST
E 206TH ST
HILL RD
RULON RD
LACY RD
SR 213
LOWER RD
HARTLEY RD
CARPENTER RD
WILL PARKER RD
RAY PARKER RD
HAYWORTH RD
DUCK CREEK AVE
HENRY GUNN RD
CORNELL RD
BREHM RD
FLORIDA RD
MT PLEASANT RD
OVERDORF RD
FALL RD
JOYCE AVE
COLDEN AVE
DURBIN RD
CYNTHEANNE RD
PRAIRIE BAPTIST RD
ATLANTIC RD
SR 37
SR 13
STRAWTOWN AVE
E NEWTON AVE
ESSIG AVE
CRAIG AVE
KOTEEWI DR
MONTANA AVE
WHITE RIVER
White River
Sugar Run
Long Branch
Deer Creek
Bear Creek
Dyers Creek
Lamberson Ditch
HENRY BRIGHT DRAIN
CHARLES CAYLOR DRAIN
CLARA GINTERT DRAIN
GEORGE KECK DRAIN
WEST BEAR CREEK DRAIN
GEORGE PARKER DRAIN
ROBERT HOUSE DRAIN
JW McCORD DRAIN
GRANT CAREY DRAIN
HENRY GUNN DRAIN
MARY E WEBB DRAIN
MARY MORRIS DRAIN
HILLARD WEBB DRAIN
REBECCA WEBB DRAIN
WEBB & WINDERS DRAIN
OF BEESON DRAIN
DUCK CREEK DRAIN
LYDIA CRAWFORD DRAIN
VINCENT CASE DRAIN
WILLIAM SHAYLOCK DRAIN
GUY GILKEY DRAIN
HARRIET SHEWARD DRAIN
WILLIAM LOCKE DRAIN
REBECCA ROBERTS DRAIN
CHARLES HUFFMAN DRAIN
FRANK HUFFMAN DRAIN
JAMES I TETER DRAIN
HARVEY GWINN DRAIN
CARPENTER AND JOHNSON DRAIN
JONAS ROGERS DRAIN
ADAM PAULT DRAIN
J.J.BILLHYMER DRAIN
Legend
National Commodity Crop Productivity Index
High Inherent Productivity
Moderately High Inherent Productivity
Moderate Inherent Productivity
Low Inherent Productivity
Not Rated
Study Area Boundary
Township Boundary
Corporate Limits
White River Township Soil Productivity Map
N


WHITE RIVER
NOBLESVILLE
WAYNE
FALL CREEK
E 221ST ST
E 216TH ST
E 211TH ST
E 206TH ST
E 196TH ST
E 191ST ST
E 186TH ST
E 181ST ST
E 179TH ST
E 176TH ST
E 169TH ST
E 166TH ST
E 156TH ST
E 146TH ST
E 141ST ST
E 136TH ST
E SR 32
E SR 38
CRAIG AVE
CUMBERLAND RD
OVERDORF RD
RIVERWOOD AVE
SR 37
CLARE AVE
CREEK RD
OLIO RD
DURBIN RD
PRAIRIE BAPTIST RD
ATLANTIC RD
SR 13
MONTANA AVE
CYNTHEANNE RD
VICTORY CHAPEL RD
MYSTIC RD
RUTGERS RD
PILGRIM RD
SUMMER RD
PROMISE RD
MALLERY RD
DESHANE AVE
PENNINGTON RD
MIDDLETOWN AVE
CONNER ST
PLEASANT ST
STONY LN
UNION CHAPEL RD
CEDAR CREEK LN
BODEN RD
GREENFIELD AVE
GOLDEN BEAR WAY
SMC BLVD
HOWE RD
SEABISCUIT DR
WOLF RUN RD
COLD STREAM RD
DRY CREEK RD
TIKI TRL
FOLLOW DR
S 1000 W
White River
Stony Creek
WILLIAM LOCKE DRAIN
CHARLES HUFFMAN DRAIN
FRANK HUFFMAN DRAIN
JAMES I TETER DRAIN
SCHNEIDER & PIERCE DRAIN
F M MUSSELMAN DRAIN
HARVEY GWINN DRAIN
REMMER DRAIN
EO MICHAELS DRAIN
NH TETER DRAIN
SHE CARPENTER DRAIN
WEAVER & HOOKE DRAIN
AJ HUFFMAN DRAIN
WILLIAM LEHR DRAIN
FRANK KEISER DRAIN
NEWTON TETER DRAIN
SAND CREEK OPEN PIPE DRAIN
ALEXANDER HARE DRAIN
STANFORD BAUGHM DRAIN
DANIEL HENK DRAIN
EE BENNETT DRAIN
J M WAGNER DRAIN
REBECCA ROBERTS DRAIN
I 69 S
I 69 N
THEASTERN PKY
AVALON BLVD
Legend
National Commodity Crop Productivity Index
High Inherent Productivity
Moderately High Inherent Productivity
Moderate Inherent Productivity
Low Inherent Productivity
Not Rated
Study Area Boundary
Township Boundary
Corporate Limits
Wayne and NE Noblesville Townships
Soil Productivity Map

LAND USE

...continued



Above: Hamilton County homestead image courtesy of Innovative Planning

(3) Residential

CONSOLIDATE DISTRICTS

ADOPT A POLICY THAT PROMOTES CONSERVATION SUBDIVISIONS

A Conservation Subdivision would preserve 50% - 70% of the buildable land, plus the areas likely to be unbuildable, such as wetlands, steep slopes, and floodplains. Homes within the subdivision are clustered to avoid the conservation area.

REVISIT THE MINIMUM LOT SIZE

Recommendation

Revise residential codes to permit a tiered lot size rather than all zones having a minimum of 10-acres.

(4) Commercial

CONSOLIDATE DISTRICTS

(4) Commercial (cont.)

DEFINE "FAST-FOOD RESTAURANT" AND DETERMINE ITS USE RESTRICTIONS

SUPPORT HOME BUSINESSES

Recommendation

Revisit home businesses in residential uses, without changing the residential character.

PROMOTE LOCAL BUSINESS

Recommendation

Promote restaurants and shops in County business nodes such as Sheridan, Atlanta, Cicero, and Arcadia.

RENEWABLE ENERGY

Recommendations

a. Create a solar energy production ordinance.

b. Allow solar energy and solar installations in all land uses.

c. The commercial-use approval process should include:

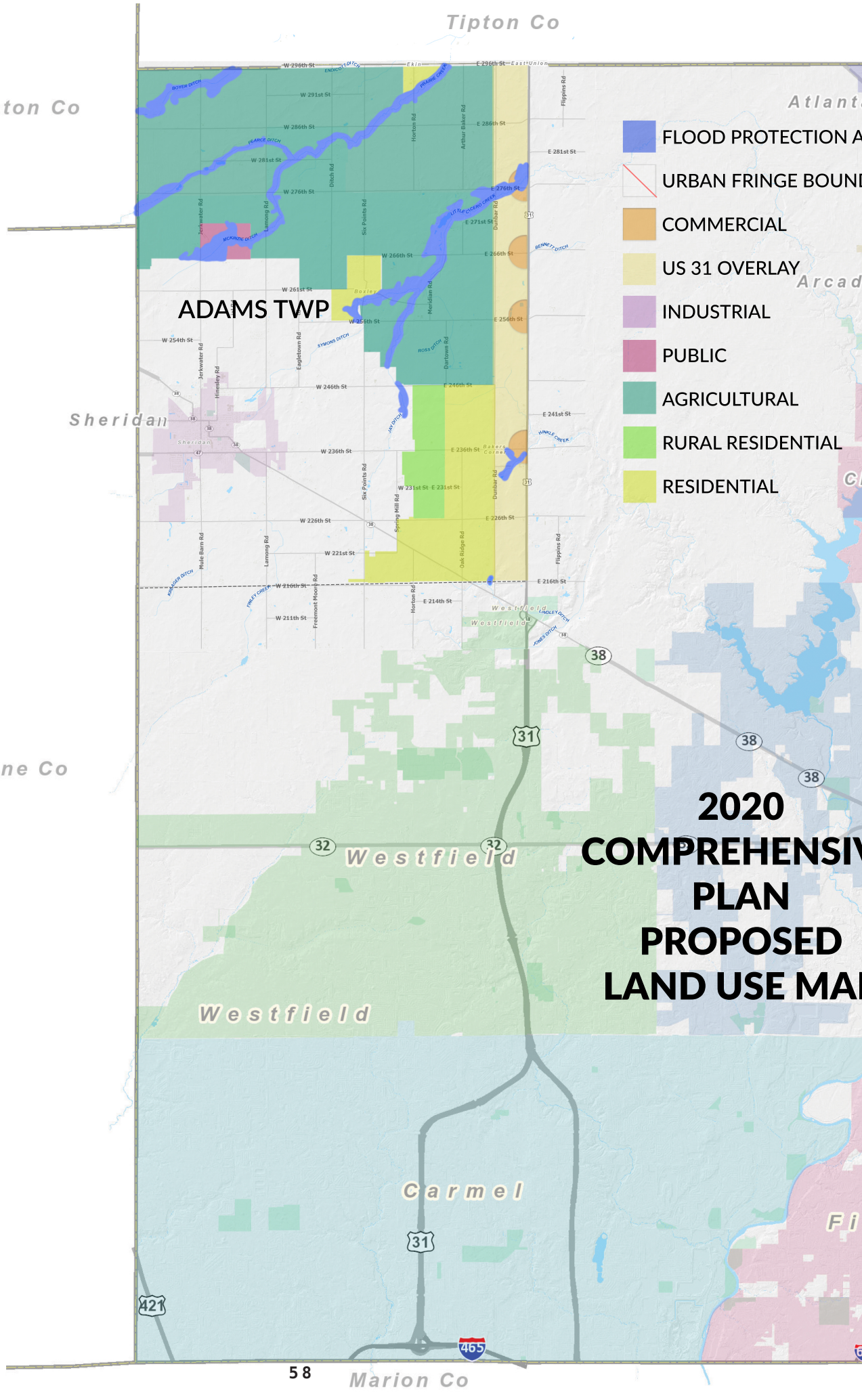
1. Require a development plan,
2. Establish setbacks from property lines,
3. Consider visibility from neighborhood properties,
4. Request a decommissioning plan, and
5. Request an evaluation of infrastructure requirements.

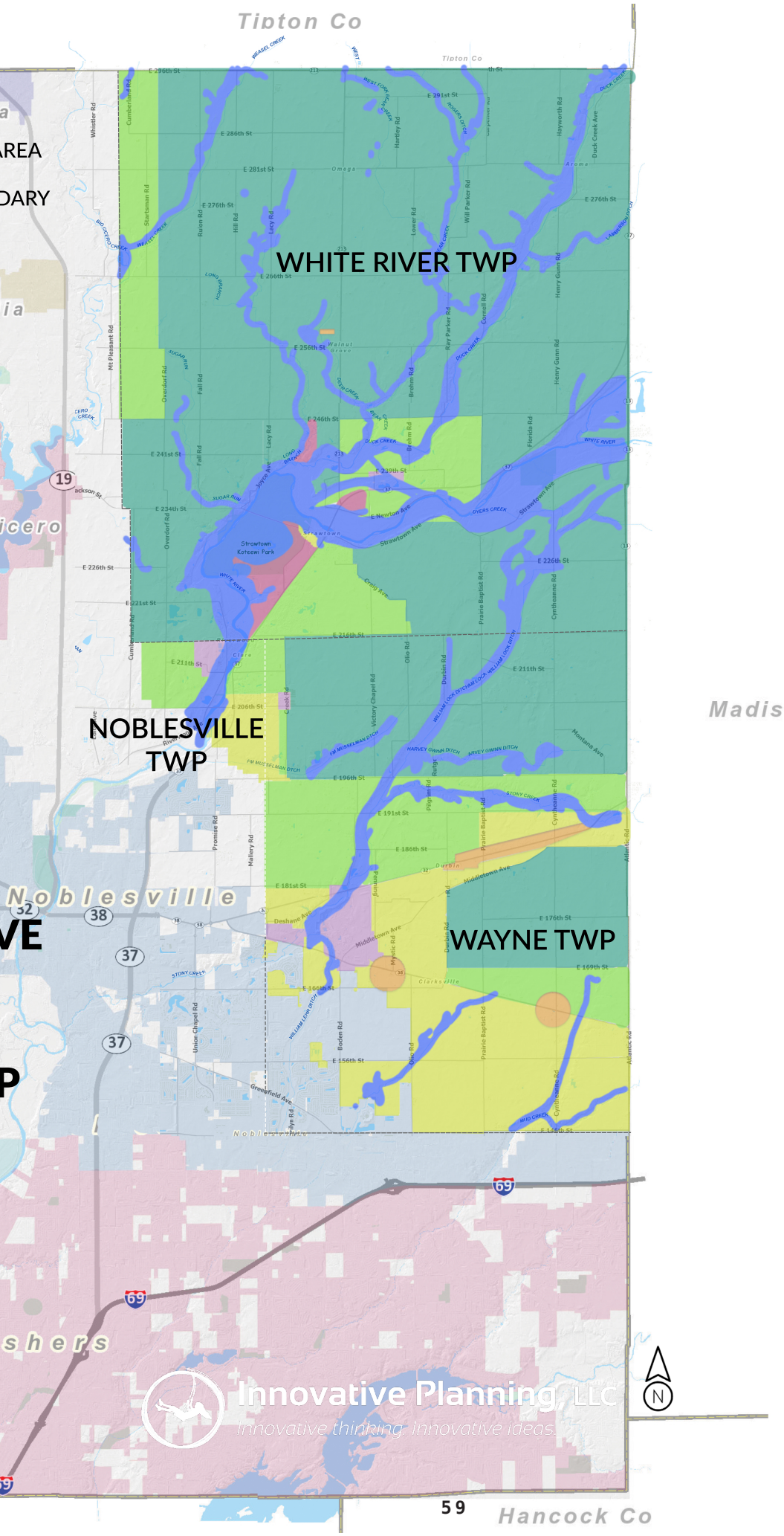
(5) Preservation

PROMOTE AND SUPPORT THE PRESERVATION OF HISTORIC ASSETS

Below: Becks Seed solar panels. Image courtesy of Innovative Planning




Tipton Co
Clinton Co
Boone Co
Marion Co
Sheridan
Westfield
Carmel
ADAMS TWP
FLOOD PROTECTION A
URBAN FRINGE BOUND
COMMERCIAL
US 31 OVERLAY
INDUSTRIAL
PUBLIC
AGRICULTURAL
RURAL RESIDENTIAL
RESIDENTIAL
2020
COMPREHENSIV
PLAN
PROPOSED
LAND USE MA

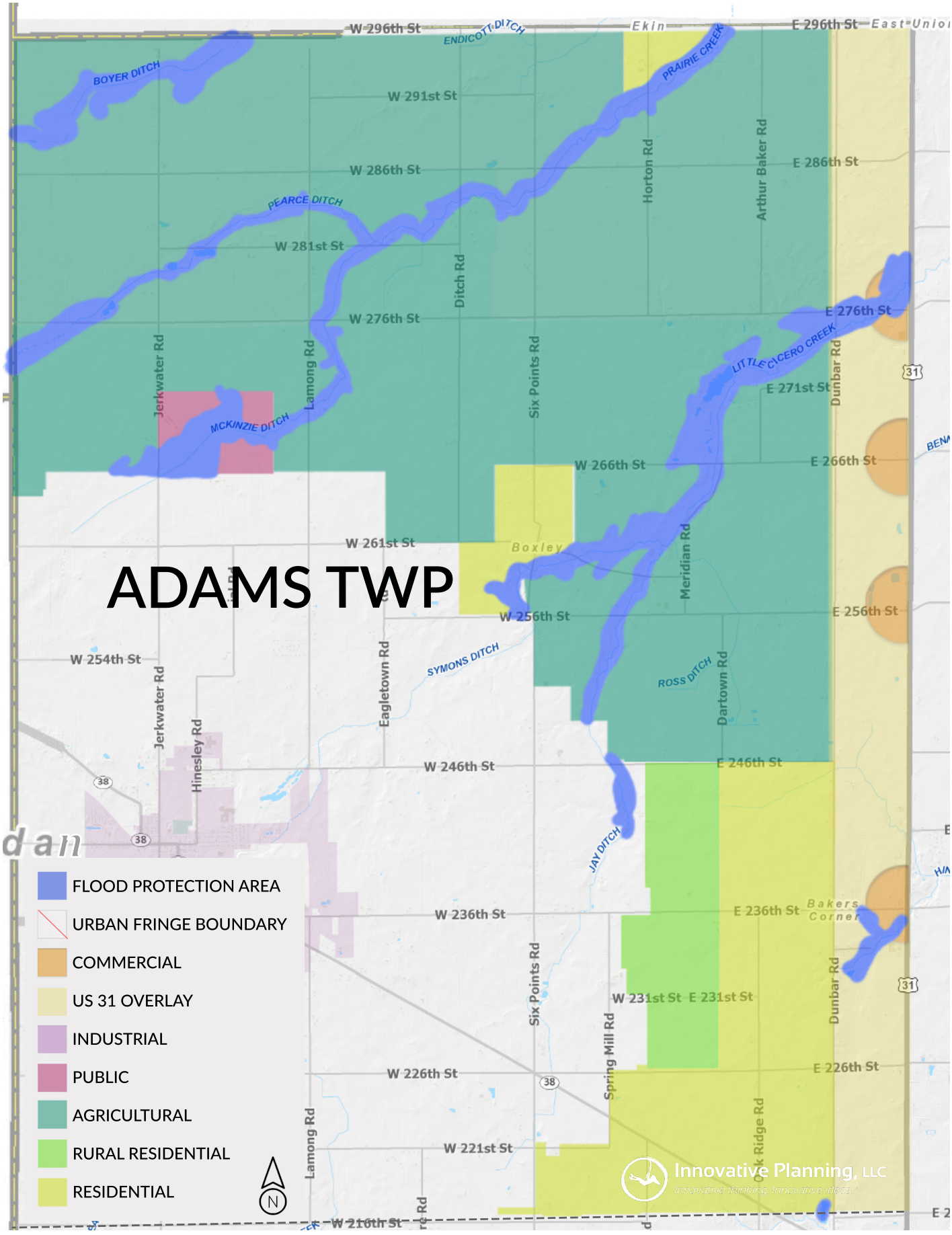


Proposed Land Use Maps

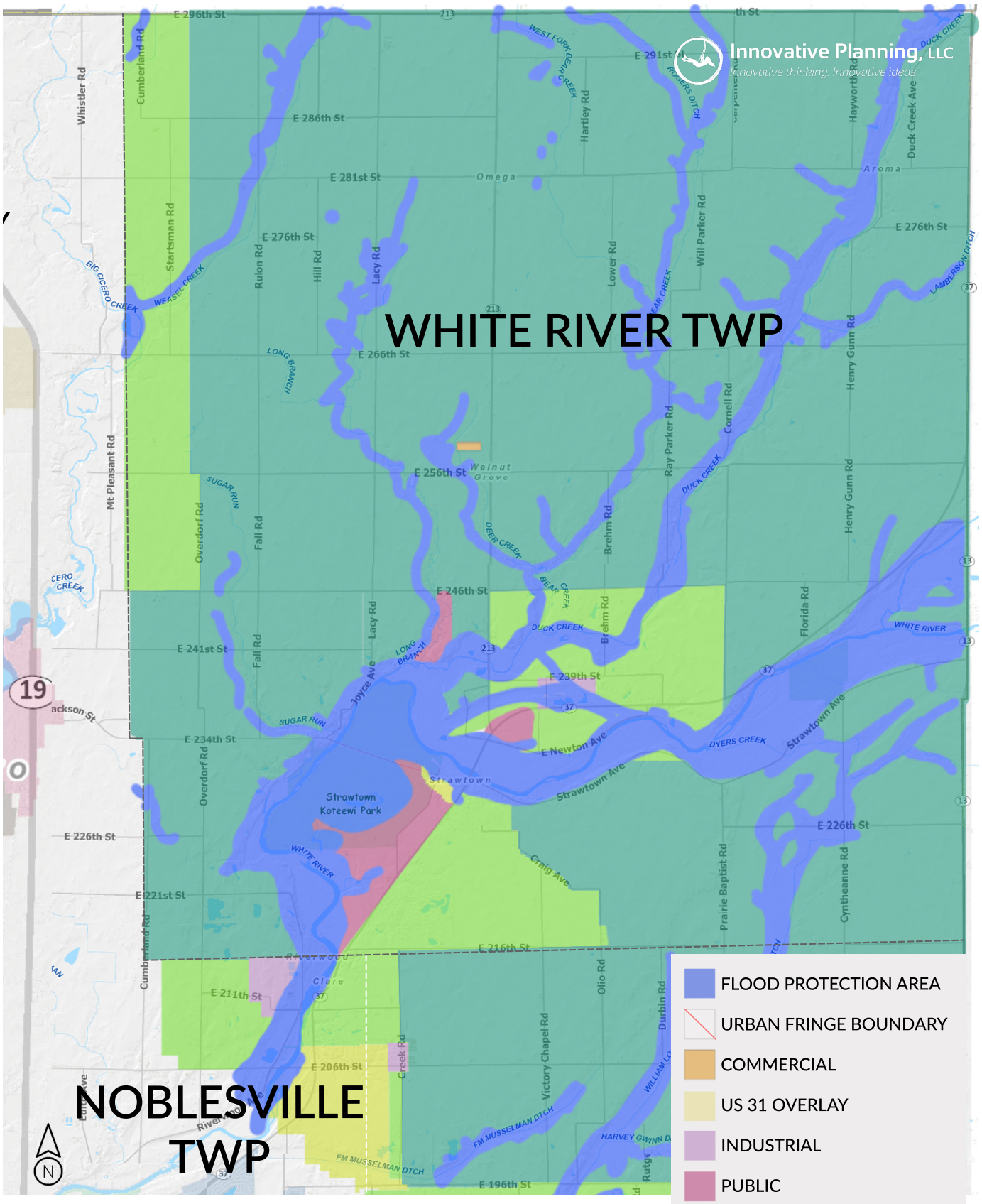
PAGE 60
ENLARGED ADAMS TWP

PAGE 61
ENLARGED WHITE RIVER TWP AND NE NOBLESVILLE TWP

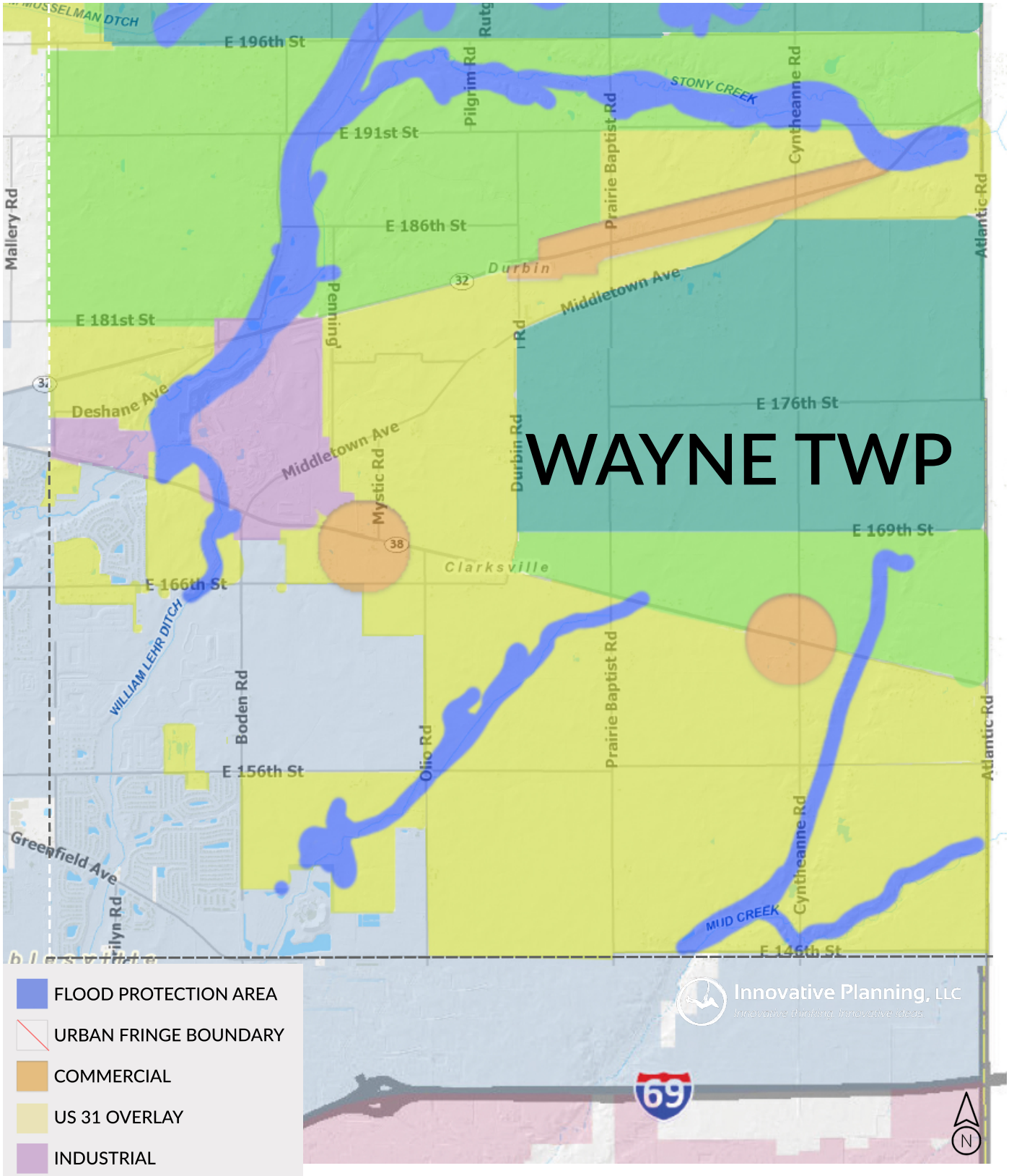
PAGE 62
ENLARGED WAYNE TWP



2020 Comprehensive Plan Proposed Land Use Map



2020 Comprehensive Plan
Proposed Land Use Map



2020 Comprehensive Plan
Proposed Land Use Map

ECONOMIC DEVELOPMENT

"Believe it or not, there are some places in Hamilton County, even within the city limits, which are below the national average for broadband speed"

-Kenton Ward, County Surveyor

(1) Technology

PROMOTE BROADBAND ACCESS AND HIGH-SPEED ACCESS

"Believe it or not, there are some places in Hamilton County, even within the city limits, which are below the national average for broadband speed and some that are below the federal minimum standard," said Kenton Ward, County Surveyor and a member of the NACo Board of Directors. "A lack of high-speed internet is hurting small businesses in rural America. It also limits students' ability to get online and for sick patients to get medical consultation locally unavailable." -The Reporter 5/4/19

There are significant areas with limited high-speed access in the Plan Commission's jurisdiction.

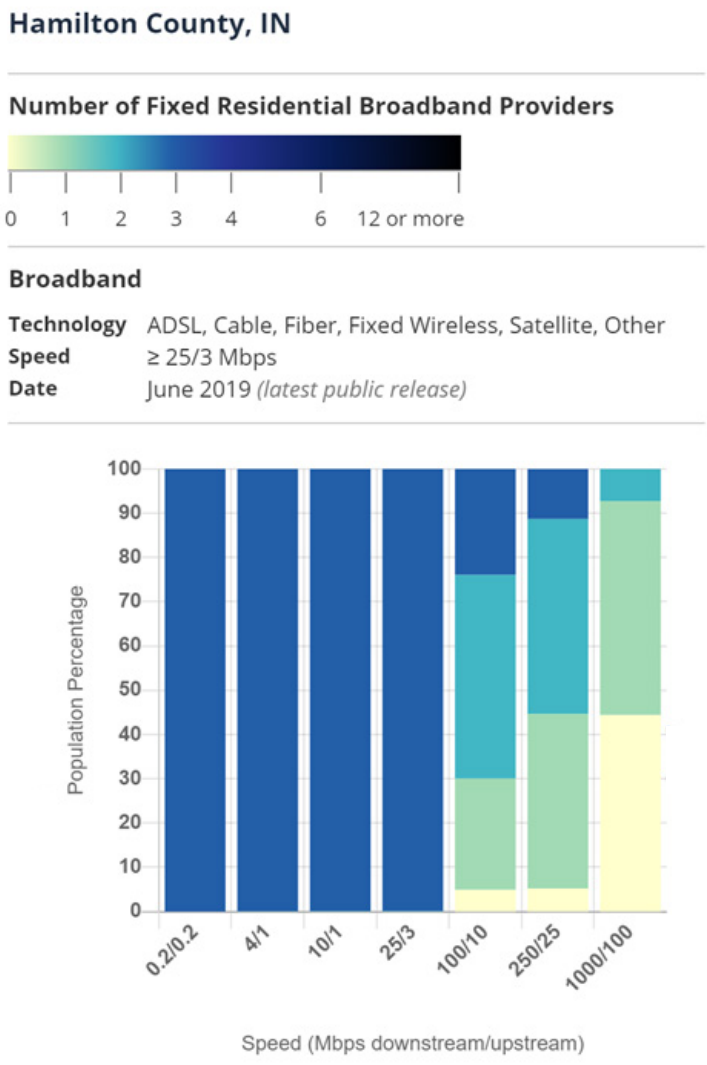
53% of Americans say the internet has been essential during the COVID-19 outbreak - Pew Research Center

Recommendation

Create and adopt a broadband infrastructure plan.

Note: the State of Indiana may have grant funds available for this effort from the National Telecommunications Information Administration.

Below: FCC Fixed Broadband Deployment Information for Hamilton County



(2) Anaerobic digestion for energy and waste management

DEFINE AND ALLOW ANAEROBIC DIGESTION FOR ENERGY AND WASTE MANAGEMENT FOR COMMERCIAL USE

Recommendations

a. The EPA defines anaerobic digestion (AD), as the natural process in which microorganisms break down organic materials. In this instance, "organic" means coming from or made of plants or animals. Anaerobic digestion happens in closed spaces where there is no air (or oxygen).

The following materials are generally considered "organic," and can be processed in a digester: animal manures; food scraps: fats, oils, and greases; industrial organic residuals; and sewage sludge (bio-solids).

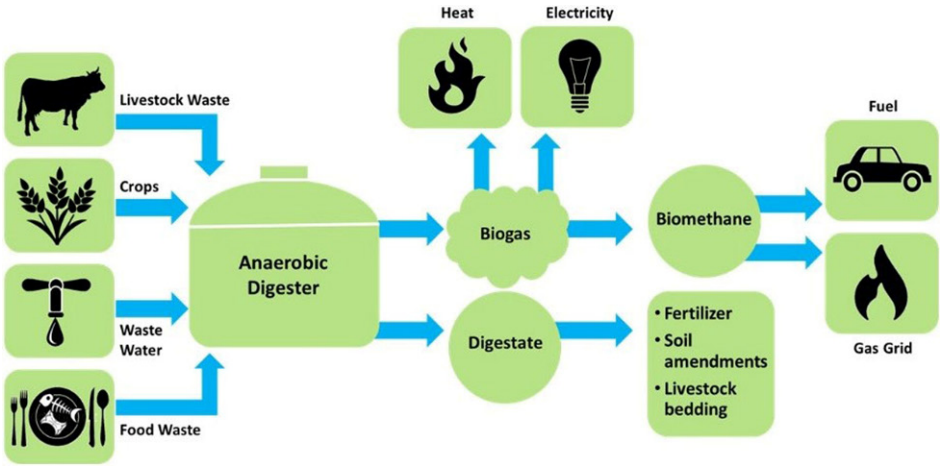
b. In a study commissioned by the Great Lakes Regional Biomass Energy Program ("Agricultural bio-gas casebook- 2011 update"), the following benefits were documented for dairy operations:

Revenue from annual electricity sales or cost offsets generated $32–$78 per head.* (* Resale of electricity depends on state and utility policies.)

Annual bedding costs were reduced by using digested manure instead of other bedding materials.

After digestion, manure has improved nutrient availability, reduced acidity, and reduced odor. By avoiding fertilizer purchases, producers saved $41–$60 per head (from dairy cattle).

Below: Provided by Environmental and Energy Study Institute, Anaerobic digestion process (Graphic by Sara Tanigawa, EESI)



Odor control is a key factor in being a good neighbor. It increases quality of life on and off the farm, helps producers avoid complaints and lawsuits, allows continuation of the operation or the ability to site new facilities and will increase operational flexibility.

Anaerobic digestion reduces pathogens associated with manure discharges - Mosier, M. (1998). "Anaerobic digesters control odors, reduce pathogens, improve nutrient manageability, can be cost competitive with lagoons, and provide energy too!" - Resource Conservation Management, Inc. Presentation at Iowa State University.

"Biomass is plant or animal material used for energy production; Biogas is the mixture of gases produced by the breakdown of organic matter in the absence of oxygen, primarily consisting of methane and carbon dioxide."
-Wikipedia

CREATE AN ORDINANCE FOR BIOMASS DIGESTERS

Recommendation

The approval process should include;

1. Public hearing,
2. Require a development plan,
3. Setbacks from property lines,
4. Request a decommissioning plan, and
5. Request an evaluation of infrastructure requirements.

(3) Agritourism

Indiana General Assembly defined an agritourism activity as: (1) an activity at an agricultural, horticultural, or agribusiness operation where the general public is allowed or invited to participate in, view, or enjoy the activities for recreational, entertainment, or educational purposes, including farming, ranching, historic and cultural agricultural activities, self-pick farms, or farmers' markets; (2) an activity involving an animal exhibition at an agricultural fair; or (3) natural resource based activities and attractions, including hunting, fishing, hiking, and trail riding.

PROMOTE AGRITOURISM ACTIVITIES IN AGRICULTURAL DISTRICTS

Recommendation

The Indiana State Department of Agriculture report, "Planning for Agritourism, A Guide for Local Governments and Indiana Farmers," outlines the following Vision for Agritourism. Allow Agritourism uses while maintaining the rural character and preserving farmland of the area and protecting the health, safety, and welfare of the citizens.

Agritourism presents a unique opportunity to combine aspects of tourism and agriculture to provide a number of financial, educational and social benefits to tourists, producers and communities.

Agritourism gives producers an opportunity to generate additional income and an avenue for direct marketing to consumers. It also enhances the tourism industry by increasing the volume of visitors to an area and the length of their stay.

Agritourism also provides communities with the potential to increase their local tax bases and new employment opportunities.

In addition, agritourism provides educational opportunities to the public, helps preserve agricultural lands and allows the development of businesses that cannot later be outsourced to other countries.

Allowing agritourism uses in the Agricultural and Residential Districts provides: (1) Enhancement of the economic viability of the farm and provides on-site employment opportunities; (2) Generates additional income and/or off season income for the farmer; (3) Interaction and education of local citizens and visitors about the importance of farming; (4) Increased awareness of local agricultural products; and (5) Develops a new consumer market.

Recommendation

The approval process should include;

1. Require a development plan,
2. Setbacks from property lines,
3. Request an evaluation of infrastructure requirements.



(4) Aquaculture

SUPPORT AQUACULTURE ACTIVITIES AS A PERMITTED USE IN AGRICULTURAL ZONES

Indiana's agricultural economy includes aquaculture (fish farming), hydroponics (growing plants in water with nutrients) and aquaponics (integrated fish and hydroponics farming). These enterprises produce fish for human consumption, recreational fishing and ornamental display. There are diverse species of fish produced in Indiana, and the interest in aquaculture and aquaponics results from the availability of resources such as vacant farm buildings, large open ponds and water bodies. On the demand side, there is strong consumer preference for sustainably produced foods, local foods and fresh foods, which can lead to improvements in quality of environment and healthy local communities. (Kwamena Quagrainie, Purdue University, Community Planning for Agriculture and Natural Resources)

Recommendation

The approval process should include;

1. Public hearing,
2. Require a development plan,
3. Setbacks from property lines,
4. Request a decommissioning plan, and
5. Request an evaluation of infrastructure requirements.



Above: Fish Farm
Below: Orchard Farmer



(5) Local food systems

IMPROVE HEALTHY FOOD ACCESS

Recommendations

Promote farm to table policies.

SUPPORT THE DEVELOPMENT AND ADOPTION OF JOINT-USE AGREEMENTS

Recommendations

Joint-use agreements would allow private parties, on publicly owned sites or institutional facilities, to garden, distribute, and sell.

ADAPT

Recommendations

Review and revise ordinances accordingly to permit new food, beverage, and farm-related operations.

"Hamilton County's model for work, play, live and visit serves as example for others to emulate."

–Hamilton County Tourism



Above: Pasture image courtesy of Innovative Planning

ECONOMIC DEVELOPMENT

continued...

(6) Equestrian Planning

The jurisdiction of the Hamilton County Plan Commission largely consists of agricultural open space and is prime land to accommodate equine activities. A recent Ag Census from the US Department of Agriculture indicates that Hamilton County ranks 18th of Indiana's 92 counties in horse and pony population. Commercial breeding, training, boarding and riding lessons along with personal horse ownership are some of the equine land uses appropriate for the county's planning area. Equine activity also creates related economic development as it increases the demand for hay production, veterinarian services, feed and tack retail services, as well as farrier services. Equine land use supports the open space and rural character objectives of the Comprehensive Plan and the use of trails at Koteewi Park.

ENCOURAGE EQUINE ACTIVITIES AS A PERMITTED USE IN THE AGRICULTURAL AND RURAL RESIDENTIAL ZONES

Recommendations

a. Establish development standards for various horse activities, including multi-use trails.

b. Determine appropriate buffer requirements when adjacent to commercial or residential uses.

c. Review the horse density standards per acre and other equine best practice standards to promote and support equine land use.

d. Engage the equine community, county parks and recreation officials and land owners to determine if, when and where additional trails might be developed, giving due consideration to access, connectivity and private property rights. An outcome may be considerations for additional equine-related amenities at Koteewi Park.

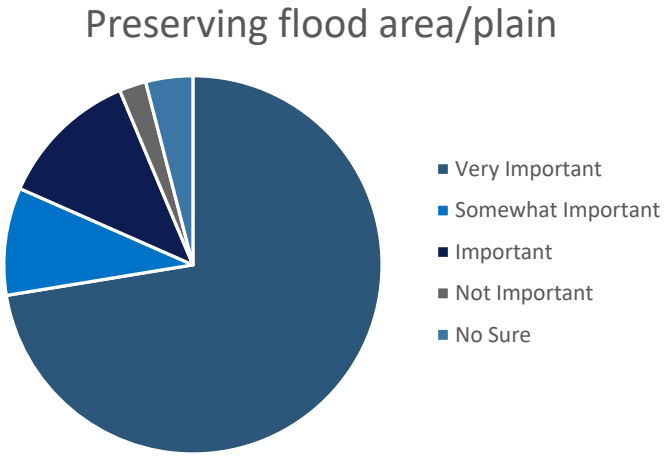
STORMWATER & FLOODING

Below: Hamilton County Bridge, image courtesy of Byron R. Settles-Hamilton County

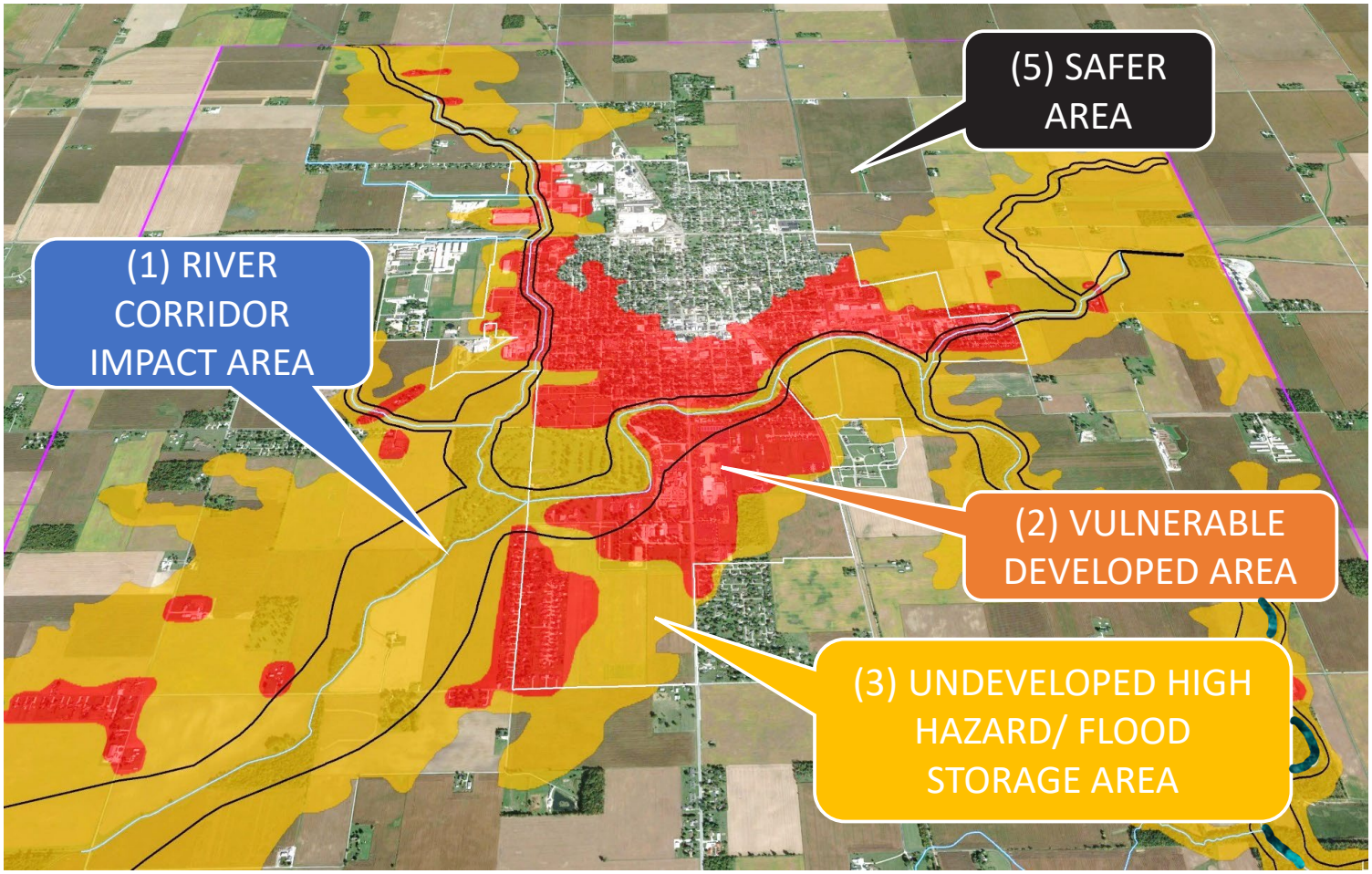


The first policy listed in the 2006 Hamilton County Comprehensive Plan was to "protect and steward the environment and natural resources". It included strategies and policies that focused on managing stormwater to protect rivers and streams, promote natural landscapes and implement green infrastructure practices. The public input gathered as part of this 2020 Comprehensive Plan Update supported protecting waterways and restoring stream health; floodplain function for flood storage of current and future increased precipitation; and maintaining agriculture, park and natural areas as the predominant land use in the floodplain.

As much as possible, the floodplain should be undeveloped and used for agriculture, natural areas and parks. On privately owned land, this may require identifying willing landowners and partnering them with local land trusts, USDA, IDNR and the Hamilton County SWCD to outright purchase, accept land donations, or hold conservation easements on undeveloped properties in the floodplain. Many of these programs have incentives to help with implementation, such as cost-share funding, purchase agreements, and property tax reductions. Depending on the program, funds may be available to restore or enhance natural features on the site like wetlands, forest, or prairie as well as provide long-term maintenance of the protected property. Another incentive program is the "Carbon Off-Set" bill that will create a system that benefits both large companies nationwide and Indiana forest and agriculture landowners. A vote on this bill is expected in the 2021 Indiana legislative session.



Above: Public Input concerning the importance of preserving flood area/plain.





Above: Example of Flood Resilience Planning areas, as defined. Image courtesy by Christopher B. Burke
Below: Hamilton County image courtesy of Innovative Planning

Planning Area	Area Boundary
(1) River Corridor Impact Area	Floodway or FEH area, whichever is greater
(2) Vulnerable Developed Area	Existing developed land in the SFHA
(3) Undeveloped High Hazard/Flood Storage Area	Undeveloped land in the floodway fringe
(4) Moderate Flood Hazard Area (not shown)	Area subject to flooding extreme events (500-year)
(5) Safer Area	Outside SFHA but within planning jurisdiction
(6) Watershed	Entire drainage area

STORMWATER & FLOODING

continued...

(1) Achieve flood resiliency and reduce future flood-related risk by maintaining the natural and beneficial function of floodplains.

Flood resilience is the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse flood events. This can be achieved by defining flood resilience planning areas and adopting land-use planning policies that direct growth, economic development, and capital improvement projects to areas that are less vulnerable to flooding. These policies support the natural and beneficial function of floodplains. In addition to land use polices, flood mitigation projects can be implemented to protect the people and critical assets that already exist in the vulnerable flood risk areas.

There are six flood resilience planning areas that are defined by the fluvial erosion hazard (FEH), special flood hazard areas (SFHA) and watershed boundary. These areas are based on the existing flood boundaries regulated by FEMA and IDNR. The area boundary, explanation and recommended action for each of these flood resilience planning areas is described next and illustrated on maps for Adams, White River and Wayne townships.

This recommendation is supported by mitigation practices in the 2018 Hamilton County Multi-Hazard Mitigation Plan (MHMP) to protect existing, and prohibit development of new, critical infrastructure in the floodplain; to prioritize flood areas to show flood risk; and to incorporate risk assessment into the Comprehensive Plan to better guide future growth and development.

(1) RIVER CORRIDOR IMPACT AREA

The river corridor impact area is defined by the floodway or FEH boundary, whichever is greater. The floodway provides for the primary conveyance of flood water and the FEH is the area the stream needs to naturally meander. Buildings and infrastructure in the river impact area risk damage from flooding and/or stream-bank erosion.

Recommendation

Adopt a "River Corridor Impact Area" overlay zone to conserve this area as undeveloped land. Agriculture, parks (no structures) and natural areas are suitable land uses. Any land disturbance including fill or excavation should be prohibited.

(2) VULNERABLE DEVELOPED AREA

This area includes buildings that are already present in the SFHA (floodway and floodway fringe). Since these areas are in the floodplain, they have been or are expected to experience flood-related losses. Strategies to achieve flood resilience in this area may include acquisition of the most vulnerable buildings, flood-proofing non-residential structures, establishing compensatory flood storage areas and preparing a flood response plan for emergency response and evacuation. Mitigating structures in the floodplain is increasingly important as flood insurance premiums move toward actuarial rates and the overall flood insurance program is transitioning from one that is deterministic to a more probabilistic understanding of flood hazards and risk.

Planning Area	Area Boundary
(1) River Corridor Impact Area	Floodway or FEH area, whichever is greater
(2) Vulnerable Developed Area	Existing developed land in the SFHA
(3) Undeveloped High Hazard/Flood Storage Area	Undeveloped land in the floodway fringe
(4) Moderate Flood Hazard Area (not shown)	Area subject to flooding extreme events (500-year)
(5) Safer Area	Outside SFHA but within planning jurisdiction
(6) Watershed	Entire drainage area

Recommendations

a. Inventory existing buildings in the SFHA and identify appropriate mitigation strategies (voluntary acquisition, flood-proofing and/or compensatory flood storage, etc.).

b. Prepare a flood response plan for emergency response and evacuation of endangered public.

(3) UNDEVELOPED HIGH HAZARD/FLOOD STORAGE AREA

This area is the undeveloped land in the floodway fringe. In its natural, undeveloped state, this area provides flood storage, improves water quality, recharges the groundwater, habitats for plant and animal biodiversity, open space for recreation and rich soils for agricultural production. Keeping this area undeveloped maintains the natural and beneficial function of the floodplain; especially the ability to provide critical flood storage of existing and anticipated future floods.

STORMWATER & FLOODING

continued...



Right: Hamilton County image courtesy of Innovative Planning

Recommendation

Adopt a "High Flood Hazard/Flood Storage Area" overlay zone and limit land use to agriculture, parks and natural areas. Buildings and land alterations that impact flood storage should be limited. Where unavoidable, compensatory flood storage should be required and enforced under the authority of the County Surveyor. Absolutely no critical facilities should be allowed in the SFHA.

(4) MODERATE FLOOD HAZARD AREA

This area is defined by the 500-year floodplain or 0.2% annual exceedance probability. This is the area that is subject to flooding during an extreme event. Development of critical facilities as well as access to these facilities should be discouraged in this flood hazard area.

Recommendation

Discourage development of critical facilities.

(5) SAFER AREA

This area is the land with higher elevations and is outside of the floodplain (including the 500-year. Public policy and investment in capital improvement efforts should steer development into the safer area. In these areas, conservation design, low impact development and green infrastructures should be used to improve stormwater management. Refer to Planning Worksheets at the end of this plan for sample best management practices.

Recommendation

Plan for and promote growth and development in safer areas that are less vulnerable to flooding.

(6) WATERSHED

This designation identifies the land within the entire watershed. Strategies for flood resilience include coordination and partnership with various jurisdictions within the entire White River watershed to slow, spread, and infiltrate flood water through encouraging adoption of higher, No-Adverse-Impact (NAI) development standards, adoption of natural resource overlay zones, and watershed-wide stormwater and flood risk management master plans.

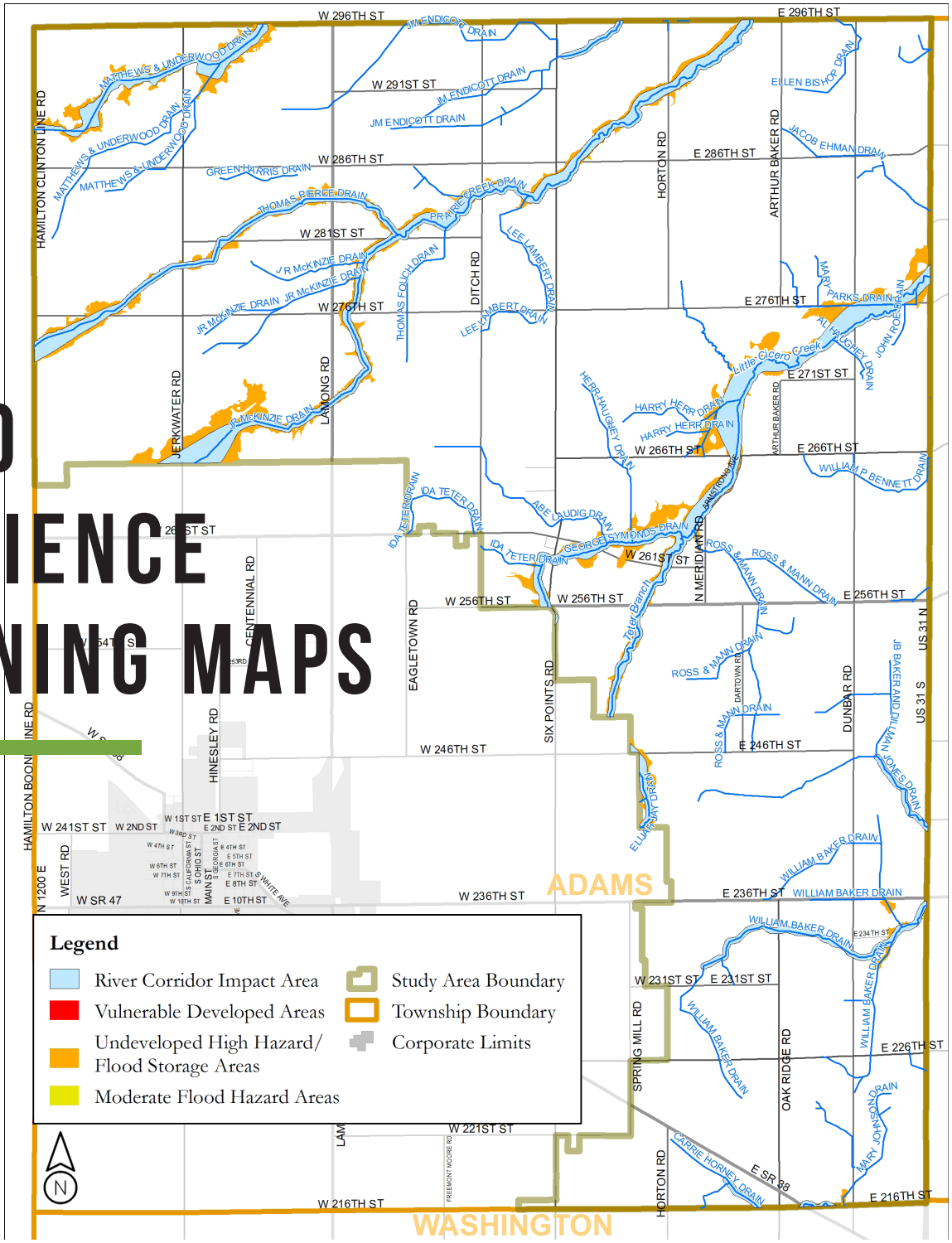
Recommendation

Promote coordination and partnerships to implement practices which slow, spread and infiltrate flood water, such as the NAI development standards, natural resource overlay zone, watershed master plan.

As much as possible the floodplain should be undeveloped and used for agriculture, natural areas and parks. On privately owned land, this may require identifying willing landowners and partnering them with local land trusts, USDA, IDNR and the Hamilton County SWCD to outright purchase, accept land donations, or hold conservation easements on undeveloped properties in the floodplain. Many of these programs have incentives to help with implementation such as cost-share funding, purchase agreements, and property tax reductions. Depending on the program, funds may be available to restore or enhance natural features on the site like wetlands, forest, or prairie as well as provide long-term maintenance of the protected property. Another incentive program is the 2021 proposed "Carbon Off-Set" bill that will create a system that benefits both large companies nationwide and Indiana forest and agriculture landowners. A vote on this bill is expected in the 2021 Indiana legislative session.

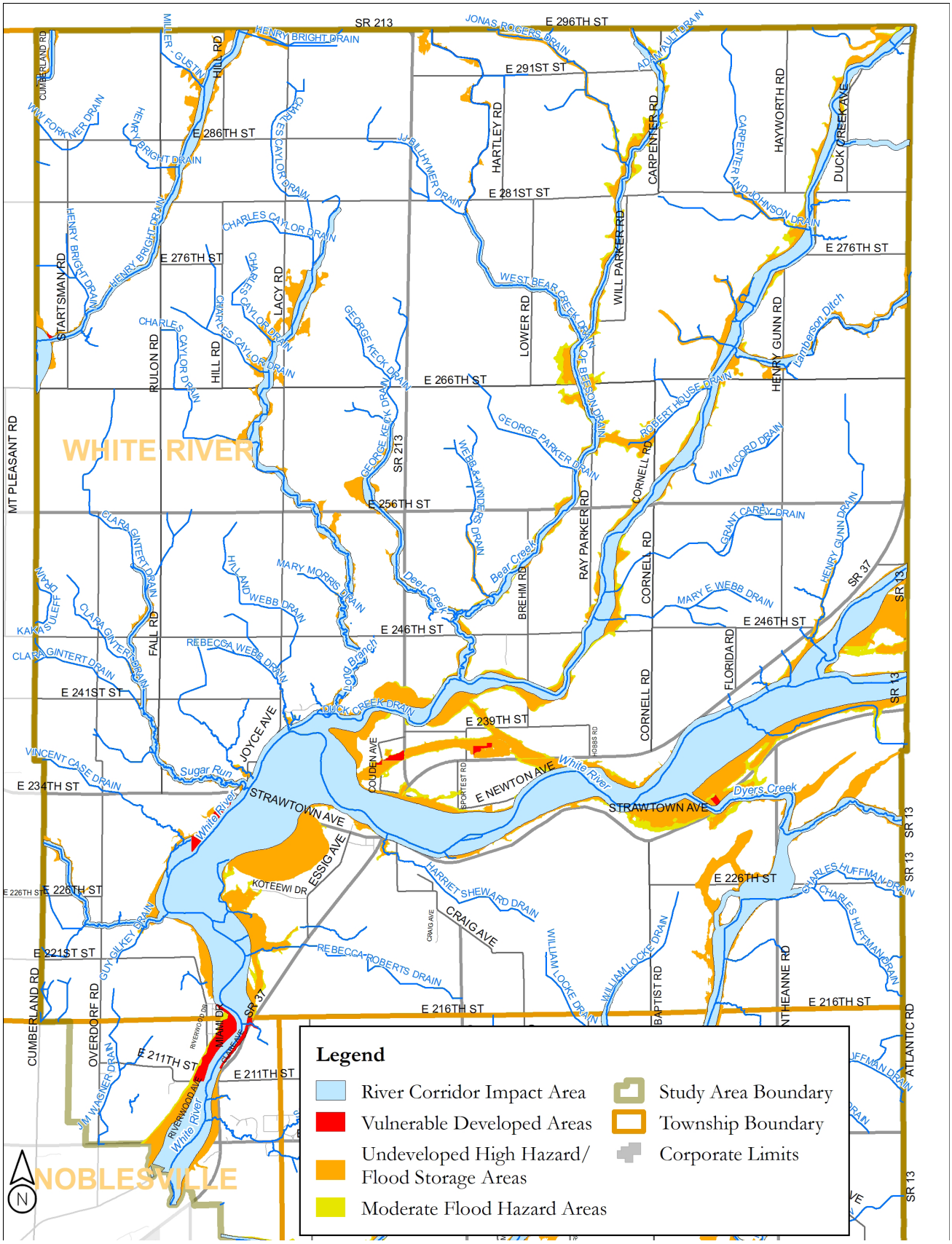
Township

FLOOD RESILIENCE PLANNING MAPS



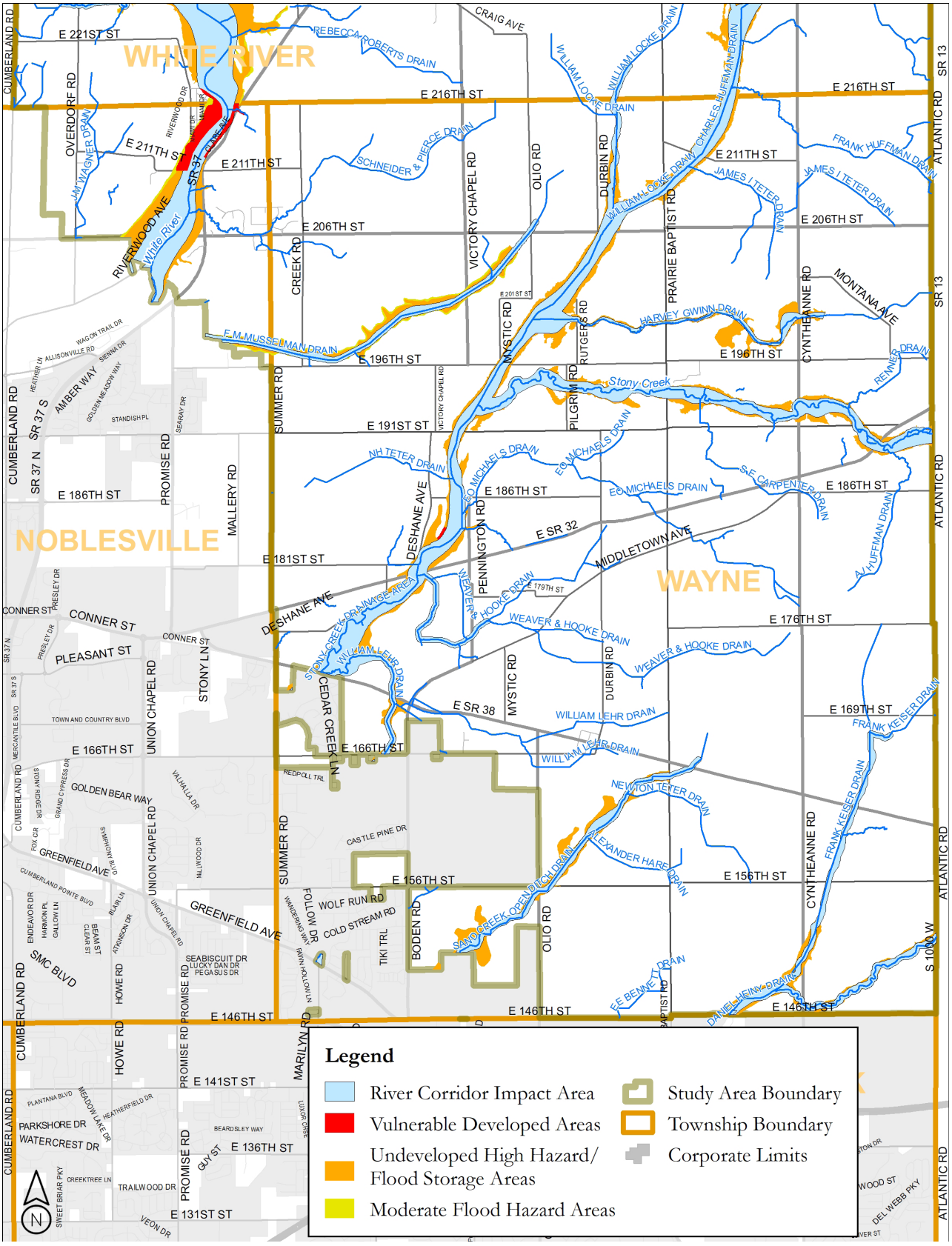
Recommended Flood Resilience Planning Areas in Adams Township

ADAMS TWP



WHITE RIVER TWP

Recommended Flood Resilience Planning Areas in White River Township



WAYNE & NE NOBLESVILLE TWPS

Recommended Flood Resilience Planning Areas in Wayne Township

STORMWATER & FLOODING

continued...



Example of a Two-Stage Ditch

(2) Improve regulated drains to better manage stormwater quantity and quality.

Regulated drains are a critical part of the stormwater infrastructure with the intent to convey runoff as efficiently and quickly as possible. Indiana Drainage Law allows the County Surveyor a 75-foot easement for maintenance access. The easement is measured, on either side, from the centerline of the underground tiles and top of bank for open drains. Many of these tile drains were installed in the late 1800s and do not have the capacity to handle the increased runoff from changes in agricultural practices, loss of wooded fence rows, forest and urbanization. As reconstruction is needed and space is available, the Surveyor is working toward converting tile drains to open drains. The following actions are recommended to better manage stormwater quantity and quality in regulated drains.

Recommendations

a. Promote two-stage drain design as older drains need reconstruction. A two-stage ditch is a modification of the traditional open regulated drain and has been successfully constructed throughout Indiana. The design mimics the natural meandering flow of a stream and adds benches in the channel to function as a floodplain that filters and stores water during a flood. The result is a more stable channel, additional flood storage, and nutrient removal without compromising capacity.

b. Enforce the 75-foot drainage easement and emergency maintenance procedures by educating landowners, less familiar with regulated drains, to not dump leaf litter/waste or brush in the drain or build unauthorized structures.

c. Consider piloting a program of alternating pockets of native trees and native grasses in the regulated drain easement. The native grasses allow access points for periodic maintenance and, once established, the grasses and trees will filter sediments and pollutants to improve overall stream health and provide additional corridors for wildlife.



Image courtesy of Byron R. Settles- Hamilton County

(3) Promote soil health and sustainable agricultural practices to improve water resources.

In agricultural areas, the health of the soil has been found to have a noticeable impact on runoff amounts. More organic material in the soil equates to an increase in soil moisture potential, or the ability of the soil to store water. There are also substantial benefits for agriculture in terms of decreased energy overhead and increased drought tolerance. The Hamilton County Soil and Water Conservation District (SWCD) provides guidance and cost-share funding to both urban and rural landowners interested in the soil health practices recommended below.

Recommendations

a. Promote the use of cover crops and no till practices to improve soil health, moisture absorption and reduce runoff from home lots and farm fields into nearby waterways. This practice is especially important at the edge of fields where maneuvering heavy equipment compacts the soils.

b. Encourage rural landowners with livestock to prepare a "Manure Management Plan" that details the storage, land application or transfer of manure. Land application of manure adds organic matter and improves the soil structure. However, ensuring that manure application does not degrade water quality should be a primary goal in developing any manure management plan. Pollutants in manure include pathogens, nutrients (particularly phosphorus and nitrogen), and organic material that can deplete oxygen in surface waters.

c. Restore soil structure that has become severely compacted from heavy farm and construction equipment. Depending on the severity, runoff from compacted soil can be as bad as that from impervious surfaces like concrete. Promote deep ripping which is a process of mechanically breaking up compacted soil layers to loosen hard layers as deep as 20 inches. This process restores soil health for plant growth, absorption and storage for rainfall and infiltration for groundwater recharge.

d. Promote native vegetation in road rights-of-way, regulated drains, stormwater ponds, wetlands and natural areas. Native vegetation is more resilient to climate conditions, improves soil health, benefits wildlife and requires less maintenance than traditional turf grass and ornamental plants.

(4) Implement the principles of the White River Vision Plan that are applicable to the jurisdiction area.

The White River Vision Plan (WRVP) is a community-driven plan to enhance 58 miles of the White River in Marion and Hamilton Counties. The following are the principles that are most applicable to the study area. The plan includes more details and should be referenced for specifics for implementation.

WRVP PRINCIPLE #1: RESTORE AND ADAPT

Restore the river's environment and ecology to enhance its natural function, steward its diverse community of life and adapt to a climate resilient future.

Recommendations

a. Protect and restores the river's floodplain and build resilience to changing climate conditions.

b. Strengthen river infrastructure to protect communities from flooding, encourage safe recreation and restores native plant, fish, and wildlife populations.

WRVP PRINCIPLE #2: STEWARD RIVER HEALTH

Enhance community stewardship of the river's health by increasing opportunities for meaningful, lasting connections and experiences that add value to the quality of life of residents.

Recommendations

a. Improve water quality and reduce stormwater runoff volume.

b. Manage urban and natural ecosystems in a coordinated manner.

Below: Source, White River Vision Plan, 2019



WRVP PRINCIPLE #8: HONOR OWNERSHIP AND LAND-USE PATTERNS

Balance community sentiments with long-term aspirations that honor ownership and use patterns along the river.

Recommendations

a. Strengthen the role of existing landowners, residents, organizations and businesses along the river in decision-making.

b. Ensure everyone shares in the costs and benefits of change along the river.

c. Facilitate continued community outreach and engagement as the White River Vision Plan is implemented.

d. Respect private land rights and make public investment only on publicly accessible land.

WRVP PRINCIPLE #9: PARTNER ACROSS BOUNDARIES

Partner across boundaries to collaboratively manage the White River system and create efficient operations and sustainable governance.

Recommendations

a. Facilitate strong connections between a variety of people and places.

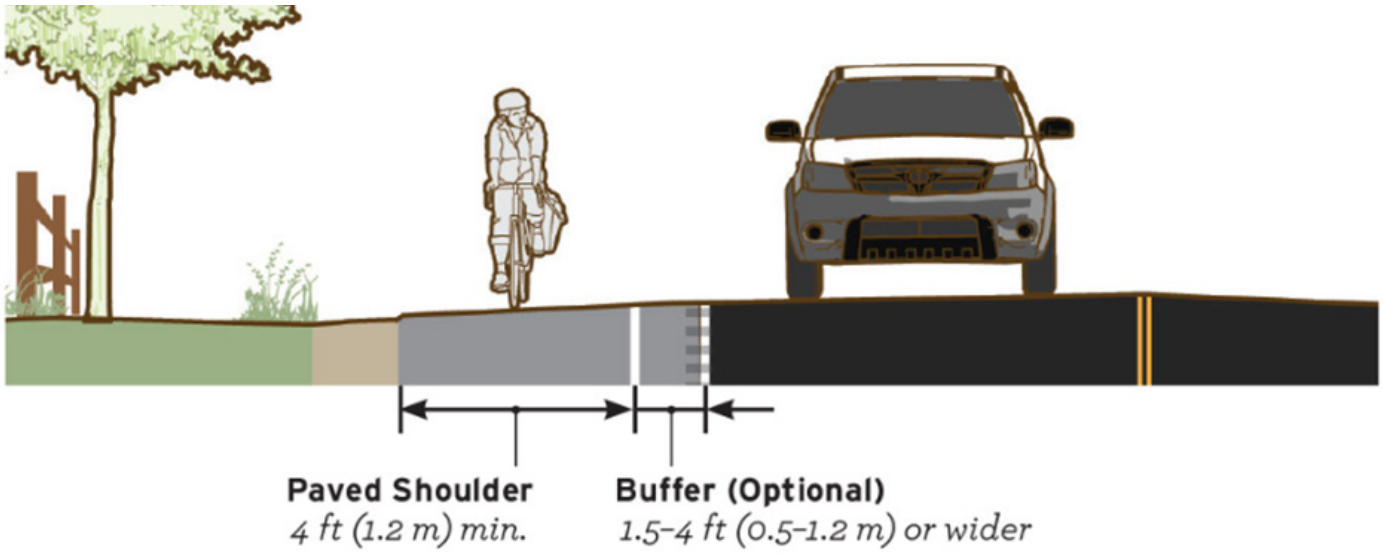
b. Foster the hard work and dedication of the many organizations that were actively bettering the Whiter River before this plan.

c. Work at all levels of government to ensure the river is sustainability governed.

d. Empower local government to steward investments in and along the river.

TRANSPORTATION

Below: Example of Wide Paved Shoulder
Source: Rural Design Guide



(1) Update the Hamilton County Thoroughfare Plan to provide an efficient and safe transportation for a growing population and variety of road users.

The overall theme from the public during the development of this comprehensive plan update, as it relates to transportation, was that improvements to the county roads should not destroy the rural character. There was an overwhelming concern about the increased speed and volume of traffic on county roads, adequate space to maneuver large farm machinery. A few citizens also expressed concern about the potential conflict with non-motorized users.

Recommendations

a. Balance land use and transportation decisions to promote the safe and efficient movement of vehicular traffic and the rural character of Adams, White River and Wayne townships.

b. Refer to work completed by the Indianapolis Metropolitan Planning Organization, the Central Indiana transportation planning organization.

c. Where appropriate, incorporate the concept of complete streets into future road projects. INDOT has developed a Complete Streets Guideline and Policy to promote the design and construction of a multi-modal transportation system where all users – motorists, cyclists, pedestrians, transit and freight – can safely share the road network. On county roads where bike lanes, sidewalks and multi-modal trails are not feasible, a simpler solution is to incorporate wide paved shoulders. This allows space for cyclists and pedestrians as well as vehicular traffic. The width of the paved shoulder should be proportional to the functional classification of the road. Rumble stripes and pavement contrast and color markings would help define the space and provide additional safety features. The wider shoulder on county roads would also allow additional space for large farm machinery entering and exiting farm fields.

d. Evaluate and improve Safe Routes to Schools.

e. Review and determine best intersection infrastructure design to handle existing and growing traffic demands (i.e. 4-way stop, signal, roundabout).

f. Taking into consideration public input throughout the Comprehensive Planning process, review and determine if previously proposed road improvement/ connection projects are still relevant and/or appropriate.

g. County Highway Department shall engage in an active public input process during the update to the Thoroughfare plan.

(2) Establish a Rustic Roads Program

Explore a Rustic Roads Program that designates county roads with unique rural vistas for leisurely travel of all modes of transportation. Such a program should not prohibit road improvements necessary for public safety. The criteria and designation of roads to include in this program should come from the County Highway Department as part of the Thoroughfare Plan Update.

Making it happen...

IMPLEMENTATION



County's role

Recommendations

PLAN ADOPTION

The adoption of this 2020 update is to replace, in whole, any and all previous Comprehensive Plans for Hamilton County.

BE IN THE KNOW

All County elected or appointed officials, and department directors, should receive a hard copy of this Comprehensive Plan. This plan was written for implementation and requires leadership to be informed to adequately apply recommendations.

STAND FIRM

Despite requests from the public, the plan should be adhered to, as it serves as a guide for all other efforts within the Plan Commission's jurisdiction. Leadership should remain steadfast in observing the plan when variance requests are made.

GET TO KNOW HOW LOCAL BUSINESS WORKS

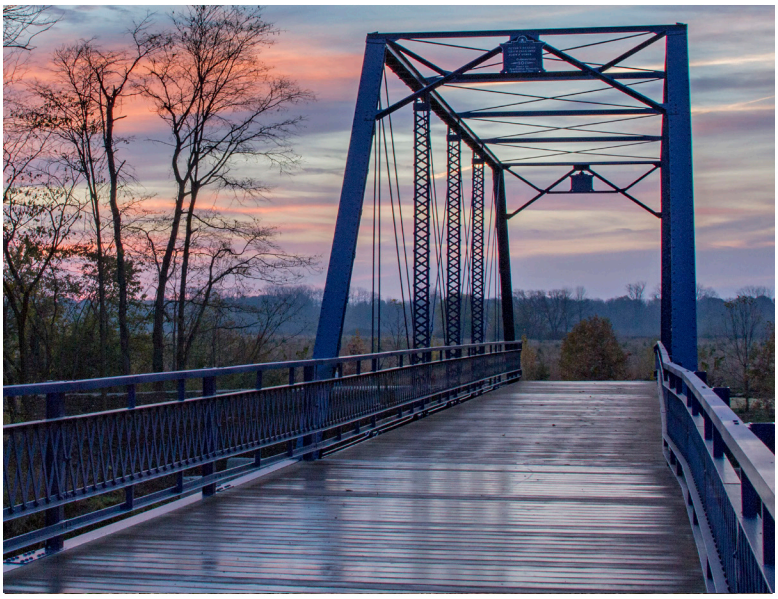
Hamilton County Plan Commission members should tour local farms and become familiar with the local farming business.

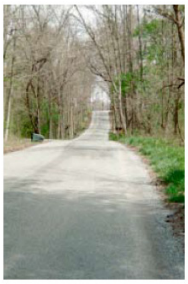
PLANNING WORKSHEETS

Below: excerpt from the June 2006 HCPC Comprehensive Plan and bridge image courtesy of Byron R. Settles-Hamilton County











The following pages are excerpts from the June 2006 Hamilton County, Indiana Comprehensive Plan Update. The concepts presented in these worksheets are still relevant today and can be used as a resource for homeowners, business owners, developers, and county leadership.

Sample Stormwater Best Management Practices

This Toolbox contains detailed descriptions of stormwater Best Management Practices (BMPs) and their application in various development scenarios.

Planning/Zoning related practices serve as the first step to achieving quality watershed management after policies for watershed protection have been established. Planning should occur first at the broadest scale to identify areas to be protected. Zoning can then be used to implement the land use plan. Zoning provides a means to either prevent development in sensitive areas or control the types and designs of developments and the treatment of the landscape within them. Floodplain and open space zoning are good examples. Planning at the site scale is used to avoid sensitive areas and develop a site plan that respects the natural lay of the land, thereby minimizing negative stormwater and other impacts and the need for structural stormwater management measures.

Stormwater BMPs are stormwater management measures used to minimize onsite and offsite hydrologic and water quality impacts due to runoff by attempting to incorporate and reestablish natural hydrologic processes into the built environment. These measures can be designed and implemented in new developments as well as retrofit into existing development in cost efficient ways. Stormwater BMPs have the capability to significantly improve the quality of stormwater runoff as well as quality of life. The practices discussed here include Bioswales, Filter Strips/Level Spreader, Green Roofs, Naturalized Detention, Porous Pavement, Rain Barrels/Cisterns, Rainwater Gardens, and Vegetated Swales.

Landscaping, as a BMP, stands alone in its own category due to the importance of vegetation in biodiversity, aesthetics, habitat, cooling of ambient air, and stormwater management. Native landscapes, including native prairies and wetlands benefit stormwater management through the infiltration and cleansing of runoff. Properly designed landscapes that incorporate native vegetation and hydrologically and ecologically appropriate plants can facilitate a high quality of stormwater management.

Each BMP is discussed on the following pages beginning with its definition, and continuing with its range of applicability, associated benefits, and finally some potential design considerations.

Definition - a brief description of the BMP relative to stormwater management.

Applicability - Where and how each BMP is most applicable is addressed in three aspects - scale, applicable situations, and effectiveness:

Scale

Watershed/County: Applied at a regional scale such as watershed or county.
Town/Village: Applied at municipal or other scale with common zoning authority.
Neighborhood: Applied at development or other sub-municipal scale.
Lot: Applied within individual residential lot or commercial parcel.

Applicable Situations

Retrofit: Applied to existing developed areas, infill, and redevelopment.
New: Applied to new development.
Roofs: Applied on roofs or used to treat roof runoff.
Streets: Applied on or used to treat runoff from public/private streets and roads.
Driveways: Applied on or used to treat runoff from driveways.
Parking Lots: Applied on or used to treat runoff from parking lots.
Lawns: Applied on or used to treat runoff from exiting open lawns that are generally planted with turfs, such as parks, campuses, individual yards, etc.
Sensitive Areas: Applied on ecologically sensitive areas such as remnant habitats, flood-plains, wetlands, steep slopes, and highly erodible soils.

Effectiveness

Runoff Rate Control: Practices that control or reduce runoff rates.
Runoff Volume Control: Practices that can control or reduce runoff volumes.
Physical Habitat Preservation/Creation: Practices that can preserve, introduce, or provide wildlife habitats.
Sediment Pollution Control: Practices that can remove suspended solids from runoff.
Nutrient Control: Practices that have the ability to reduce or remove nutrients such as nitrogen and phosphorus from runoff.
BOD Control: Practices that can remove constituents that exert a Biological Oxygen Demand in runoff.
Other Pollutant Control: Practices that can reduce and remove other pollutants such as heavy metals and petroleum based hydrocarbons.

Benefits - Other positive effects that the individual or system of practices perform. Benefits can be specific to stormwater management or be more general to various functions and values for the quality of life.

Design Considerations - Design recommendations and suggestions that should be considered when implementing the specific BMP. Drawings are not illustrated for construction, but rather as a general guidance on the components of the practice.

Watershed Stormwater Management Applicability

Tools	Scale				Applications							
	Watershed/ County	Town/ Village	Neighbor-hood	Lot	Retrofit	New	Roofs	Streets	Drive-ways	Parking Lots	Lawns	Sensitive Areas
Planning/Zoning												
Conservation Development	X	X	X			X		X	X	X	X	X
Open Space/Natural Greenway	X	X	X		X	X						X
Stormwater BMPs												
Bioswales			X	X	X	X		X		X		
Filter Strips/Level Spreaders			X	X	X	X			X	X	X	X
Green Roofs				X	X	X	X					
Naturalized Detention	X	X	X		X	X	X	X	X	X	X	X
Porous Pavement			X	X	X	X		X	X	X		
Rain Barrels/Cisterns				X	X	X	X					
Rainwater Gardens				X	X	X	X		X		X	
Vegetated Swales			X	X	X	X	X	X	X	X	X	
Landscaping												
Native Landscaping			X	X	X	X	X	X	X	X	X	X

"X" = practices that are applicable to corresponding scale and applications

Watershed Stormwater Management Effectiveness

Tools	Effectiveness						
	Runoff Rate Control	Runoff Volume Control	Physical Habitat Preservation/ Creation	Sediment Pollution Control	Nutrient Control	BOD Control	Other Pollutant Control
Planning/Zoning							
Conservation Development	H	H	H	H	H	H	H
Open Space/Natural Greenway	-	-	H	-	-	-	-
Stormwater BMPs							
Bioswale	H	H	-	H	H	H	H
Filter Strips/Level Spreader	M	M	-	H	H	H	H
Green Roof	H	H	-	-	-	-	-
Naturalized Detention	H	-	M	H	H	H	H
Porous Pavement	H	H	-	H	M	M	H
Rain Barrels/Cistern	-	M	-	-	-	-	-
Rainwater Garden	M	M	-	-	-	-	-
Vegetated Swale	M	M	-	M	M	M	M
Landscaping							
Native Landscaping	-	M	M	M	M	M	M

"H" = High effectiveness; "M" = Moderate effectiveness; " –" = Not Applicable

"This Comprehensive Plan Update is grounded in an ecologically-based planning approach…" -Page 4 of 2006 Comp. Plan

Planning / Zoning

conservation development



residential conservation development
(Prairie Crossing, IL)

Definition

- Site planning and design approach that preserves existing natural areas and utilizes naturalized drainage and detention measures for stormwater management.

Applicability

Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐ Lot
Applications	☐	Retrofit	☒	New			
	☐	Roofs	☒	Streets	☒	Driveways	
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas	
Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control	

Benefits

- Preserves significant natural features and open space.
- Minimizes changes in runoff volumes, rates, and water quality typically associated with urban development.
- Improves views and site aesthetics, while at the same time providing site drainage and water quality functions.

Design Considerations

- Onsite natural areas should be identified and preserved.
- Existing natural drainageways should be incorporated into site plan.
- Roadway should generally follow ridge lines.
- Impervious runoff should be routed through naturalized drainage systems integrated into the site plan.
- Use of native vegetation adapted to expected hydrologic conditions will improve runoff reduction and water quality benefits
- Naturalized drainage systems should be protected from construction site runoff during establishment.



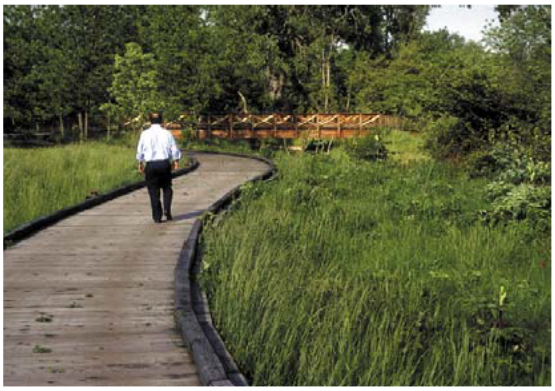
conservation moderate density residential site plan
(Conservation Design Forum)

Planning / Zoning

open space / natural greenway

Definition

- Designation of linear open space and/or natural areas as greenways to preserve significant natural features, create ecologically functioning networks, and to accommodate aesthetic, recreational, and/or transportation uses.



open space greenways can provide recreational as well as habitat and water quality benefits

Applicability

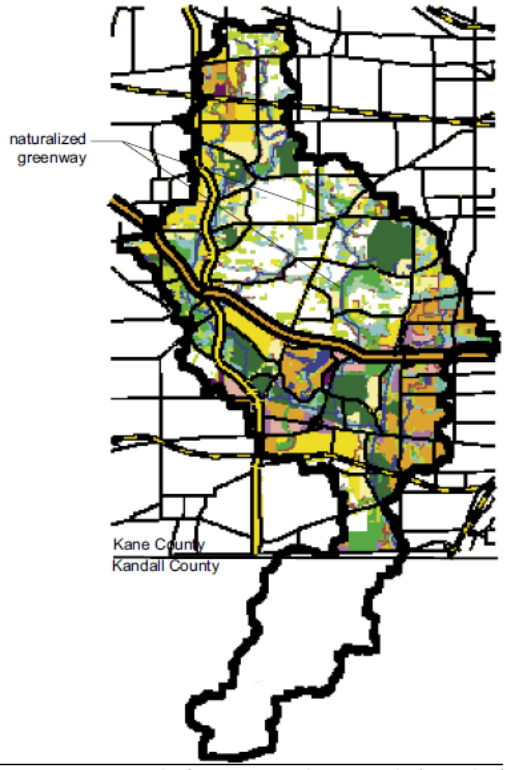
➢ Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐ Lot
➢ Applications	☒	Retrofit	☒	New			
	☐	Roofs	☐	Streets	☐	Driveways	
	☐	Parking Lots	☐	Lawn	☒	Sensitive Areas	
➢ Effectiveness	☐	Runoff Rate Control	☐	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☐ Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control	

Benefits

- Preserves large contiguous natural areas and resources.
- Provides opportunity for wildlife movement and habitat within an ecological network.
- Provides alternative and connected passive recreation and transportation opportunities.

Design Considerations

- A natural resources inventory should be completed to identify significant natural features and functioning ecological networks.
- Significant cultural features should also be integrated into the network.
- Buffer requirements, open space/floodplain zoning, conservation easements, and conservation design should be used together to implement greenway networks.



a natural greenway system connects key natural features in the Blackberry Creek Watershed area (Conservation Design Forum)

bioswale



bioswale in a parking lot (Tellabs, Napeville, IL)
(Conservation Design Forum)

Definition

- Vegetated swale system with an infiltration trench designed to retain and temporarily store stormwater. Bioswales are planted with native grasses and forbs that enhance filtration, cooling, and cleansing of water in order to improve water quality and prevent sealing of subsoils.

Applicability

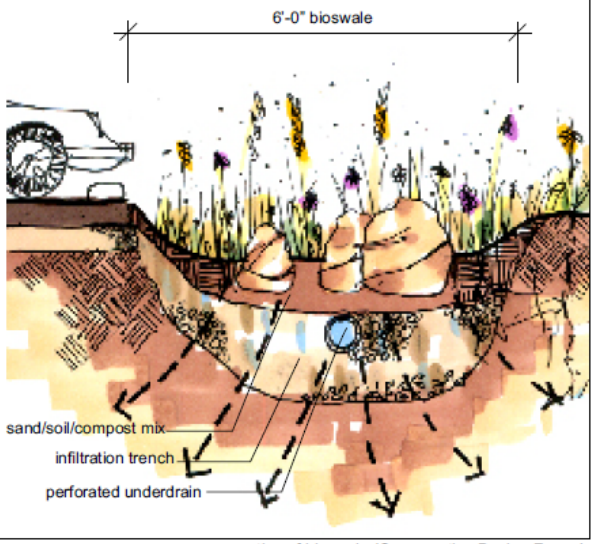
Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot
Applications	☒	Retrofit	☒	New				
	☐	Roofs	☒	Streets	☐	Driveways		
	☒	Parking Lots	☐	Lawn	☐	Sensitive Areas		
Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

Benefits

- Reduces impervious runoff volumes and rates.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Can reduce detention needs.

Design Considerations

- Bioswales must be sized and designed to account for drainage area and soils.
- Filtration benefits can be improved by planting native deep-rooted vegetation.
- Infiltration storage should be designed to drain in 24 hours to prevent sealing of subsoils.
- Topsoil should be amended with compost and/or sand to improve organic content for filtering and to achieve adequate infiltration rates.
- Bioswales should be protected from construction site runoff to prevent sealing of topsoil and/or subsoils.
- Direct entry of stormwater runoff into infiltration trench should be prevented to protect groundwater quality and to prevent sealing of subsoils.
- Underdrain should be sufficiently low in the trench to provide adequate drainage of aggregate base of adjacent paved areas but sufficiently high to provide infiltration storage.



cross section of bioswale (Conservation Design Forum)

filter strip/ level spreader



Coffee Creek Center level spreader installation (Chesterton, IN) (Conservation Design Forum)

Definition

- A filter strip is an area with dense, preferably native vegetative cover used to filter and absorb runoff from impervious areas. A level spreader is a trench laid on the contour to distribute runoff over filter strip areas.

Applicability

Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒ Lot
Applications	☒	Retrofit	☒	New			
	☐	Roofs	☐	Streets	☒	Driveways	
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas	
Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control	

Benefits

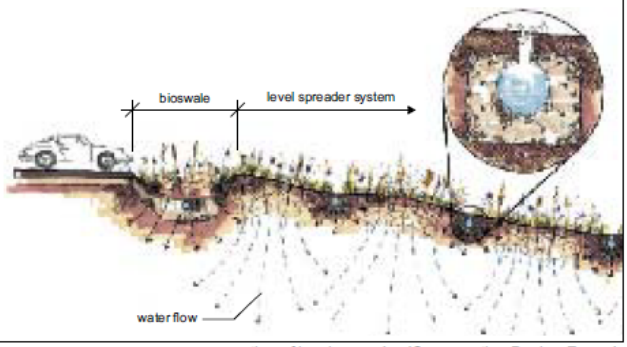
- Reduces runoff volumes and rates by allowing runoff to infiltrate over a large area.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Deconcentrate storm sewer and detention basin discharges to dissipate energy, reduce scour, and better mimic historic runoff patterns to receiving waterbody.
- Can reduce detention needs.



filter strips/level spreader

Design Considerations

- Filter strips/level spreaders must be sized and designed to account for drainage area, slope and soils. Chronic hydraulic overloading of filter strips may cause erosion.
- Filtration benefits can be improved by planting native deep-rooted vegetation and by minimizing the slope.
- Infiltration storage within the level spreader trench should be designed to drain in 24 hours to prevent sealing of subsoils.
- Compaction of filter strips should be avoided and/or topsoil should be amended with leaf compost and coarse sand to improve filtration, infiltration and plant establishment.
- Runoff should be diverted away from filter strips during construction until vegetation is established.



cross section of level spreader (Conservation Design Forum)

green roof



green roof (Chicago City Hall, IL) (Conservation Design Forum)

Definition

- Vegetated roof system designed to retain and slow rainwater runoff on the top of roofs. Green roofs are generally planted with drought and wind tolerant vegetation.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☐	Neighborhood	☒ Lot
➢ Applications	☒	Retrofit	☒	New			
	☒	Roofs	☐	Streets	☐	Driveways	
	☐	Parking Lots	☐	Lawn	☐	Non-Buildable	
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☐ Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control	

Benefits

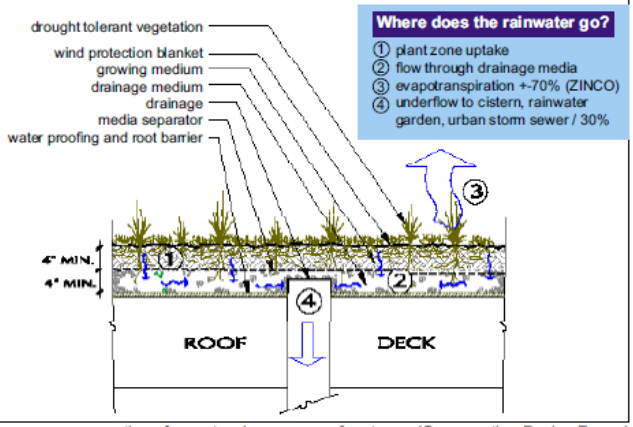
- Significantly reduces runoff volumes and rates as well as thermal impacts (50 - 90% reduction in annual runoff).
- Can reduce detention needs.
- Contributes to reduction in urban heat island effect.
- Can reduce energy requirements associated with heating and cooling.
- Creates opportunities for outdoor space as roof top gardens.



greenroof can be applied on various roofs and scales (Germany)

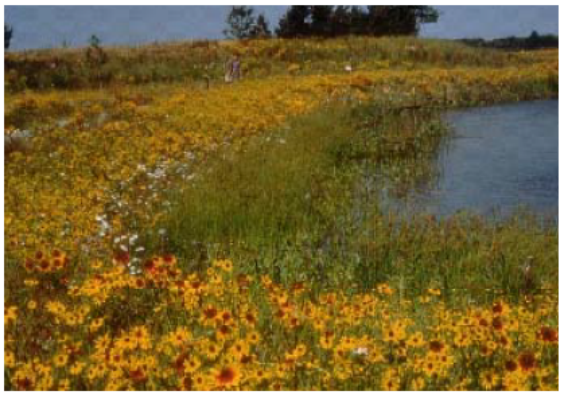
Design Considerations

- Structural load capacity of existing roof system must be evaluated.
- Plant material, such as succulents, that are drought tolerant, should be used on lightweight "extensive" green roof systems.
- A wider range of vegetation may be used on heavier, "intensive" green roof systems with deeper growing medium.
- Use of a granule drainage layer will improve retention and detention benefits relative to drain boards.



cross section of an extensive green roof systems (Conservation Design Forum)

naturalized detention



naturalized wetland detention on Tellabs industrial campus (Bolingbrook, IL) (Conservation Design Forum)

Definition

- Naturalized detention basins are used to temporarily store runoff and release it at a rate allowed by ordinances. Native wetland and prairie vegetation improves water quality and habitat benefits. Naturalized detention may also be used as a retrofit to achieve water quality benefits.

Applicability

Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐ Lot
Applications	☒	Retrofit	☒	New			
	☒	Roofs	☒	Streets	☒	Driveways	
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas	
Effectiveness	☒	Runoff Rate Control	☐	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control	

Benefits

- Reduces runoff rates.
- Recognized by virtually all stormwater agencies as approved method of controlling stormwater runoff.
- Very effective at removing sediment and associated pollutants.
- Provides attractive site amenity when properly designed and not used as sole BMP on sites with high pollutant/ nutrient runoff.

Design Considerations

- Should be sized to control release to allowable rate.
- Size should reflect use of upstream BMPs.
- Water level fluctuations should be limited to 3-4 feet (during 100-year storm) to maximize plant diversity.
- Shallow water entry angles will minimize shoreline erosion, improve water quality benefits, increase aquatic habitat and plant diversity and provide safety ledge.
- May be used as retrofit along stream corridors to prevent direct discharge of stormwater runoff.



a well designed naturalized wet detention provides extra open space and resting place

porous pavement



porous pavement driveway

Definition

- Permeable or perforated paving materials or pavers with spaces that allow transmission of water to aggregate base and subsoils. Runoff is temporarily stored in the base for infiltration into the subsoils and/or slow release to storm drain system.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot
➢ Applications	☒	Retrofit	☒	New				
	☐	Roofs	☒	Streets	☒	Driveways		
	☒	Parking Lots	☐	Lawn	☐	Sensitive Areas		
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

Benefits

- Reduces runoff volumes and rates.
- Recharges groundwater and sustains base flow.
- Filters sediments and associated pollutants from runoff.
- Can reduce detention needs.



porous pavement allows infiltration through the paving material

Design Considerations

- Base and subbase materials should be coarse aggregate with no fines to allow adequate drainage and prevent frost heave.
- Subgrade should be graded at minimum 1% slope to allow drainage when water entry rate exceeds infiltration capacity of subsoils.
- Subsoils should be compacted to the minimum level necessary to achieve structural stability.
- Geotextiles should be used between base and subgrade to improve structural stability and separate base from subgrade.
- Underdrains should be placed at edge of pavement to provide drainage as necessary to prevent ponding in the base for periods greater than 24 hours.



porous pavement in parking lot

rain barrel/ cistern



rain barrels in back yard (Conservation Design Forum)

Definition

- A vessel used to capture and temporarily store rainwater for various uses, including greywater reuse and irrigation.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☐	Neighborhood	☒ Lot
➢ Applications	☒	Retrofit	☒	New			
	☒	Roofs	☐	Streets	☐	Driveways	
	☐	Parking Lots	☐	Lawn	☐	Sensitive Areas	
➢ Effectiveness	☐	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☐ Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control	

Benefits

- Reduces runoff volumes.
- Conserves water for reuse.
- Provides irrigation water during watering restrictions.

Design Considerations

- At the residential scales, rain barrels located at downspouts will typically be used.
- One inch of rainfall over 1,000 square feet of roof area is equivalent to 625 gallons of rainwater.
- Rain barrels can be used in combination with rainwater gardens, green roofs and other stormwater BMPs to increase stormwater benefits.
- Larger cisterns in some settings may be used to provide greywater for use in toilet flushing and other non-portable uses.



a cistern system collects rainwater from Chicago Center for Green Technology (Chicago, IL) (Photo: Conservation Design Forum)

rainwater garden



rainwater garden planted with vegetation that attracts butterflies (Maplewood, MN)

Definition

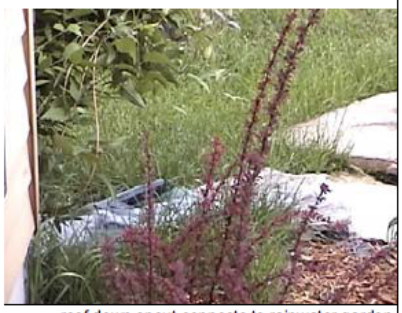
- A landscaped garden designed to retain and detain stormwtaer runoff from individual lots and roofs.

Applicability

Scale	☐	Watershed/ County	☐	Town/Village	☐	Neighborhood	☒	Lot
Applications	☒	Retrofit	☒	New				
	☒	Roofs	☐	Streets	☒	Driveways		
	☐	Parking Lots	☒	Lawn	☐	Sensitive Areas		
Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☐	Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control		

Benefits

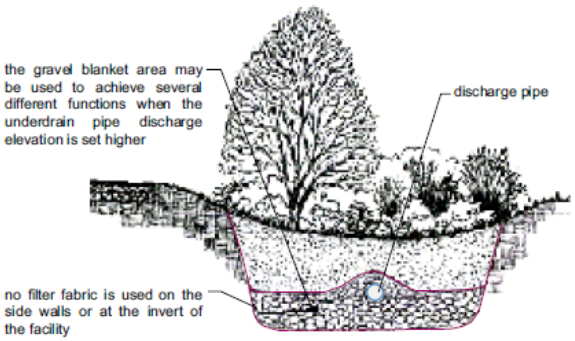
- Reduces runoff volumes and rates from lawns, roofs, and driveways.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Can reduce detention needs.
- Can increase aesthetic value for the properties.
- Can provide wildlife habitat.



roof down spout connects to rainwater garden (Glen Ellen, IL)

Design Considerations

- Rainwater gardens must be sized and designed based on drainage area, soils, and desired runoff volume reduction.
- Filtration and nutrient control benefits can be improved by planting native vegetation.
- The soils in the top 18″ to 24″ should be amended with leaf compost and coarse sand to enhance organic content and improve permeability.
- Where subsoil infiltration rates are low (less than 0.5 to 1.0 in/hr), a gravel trench with underdrain should be used to encourage drainage between events.
- Maximum ponding depths should generally be limited to 6″ to 12″ unless underdrains are used.



rainwater garden cross section (Low Impact Development Center)

vegetated swale



vegetated swales planted with native grasses and forbs along the street

Definition

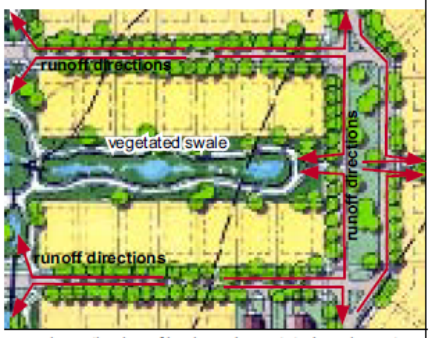
- Vegetated swales are planted stormwater features that convey, retain, infiltrate, and cleanse stormwater.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒ Lot
➢ Applications	☒	Retrofit	☒	New			
	☒	Roofs	☒	Streets	☒	Driveways	
	☒	Parking Lots	☒	Lawn	☐	Sensitive Areas	
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control	

Benefits

- Reduces runoff volumes and rates.
- Provides conveyance and water quality benefits in one stormwater feature.
- Reduces sediment and nutrient runoff.
- With proper design, can reduce detention needs.



schematic plan of back yard vegetated swale system (Conservation Design Forum)

Design Considerations

- Vegetated swales must be sized to convey design runoff rate (typically 10-year storm).
- Filtration benefits can be substantially improved by planting native deep-rooted grasses and forbs and by minimizing the slope.
- Topsoil may be amended with compost and/or coarse sand to improve organic content for filtering and to improve infiltration and retention of runoff.
- Vegetated swales should be protected from construction site runoff to prevent sealing of topsoil and/or subsoils.



back yard vegetated swales

native landscaping



prairie planted in residential development area (Mill Creek, IL)

Definition

- Establishment of native vegetation in either large restoration projects or smaller gardening projects. Native landscaping is often a component of other BMPs such as detention, filter strips, bioswales, and rainwater gardens.

Applicability

Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot
Applications	☒	Retrofit	☒	New				
	☒	Roofs	☒	Streets	☒	Driveways		
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas		
Effectiveness	☐	Runoff Rate Control	☒	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

Benefits

- Reduces runoff volumes.
- Increases infiltration rates.
- Increases ability to remove nutrients.
- Increases organic content of soils.
- Increases permeability of compacted soils.
- Reduces irrigation and fertilization requirements.
- Reduces use of fossil fuels and air pollution relative to turf landscapes that require regular mowing and maintenance.
- Provides wildlife habitat.



comparison of root structure between lawn and various native plants in the Illinois and Mid West Region (Conservation Research Institute)

Design Considerations

- Some local "weed" ordinances may need to be amended to allow native and taller vegetation.
- Plant diversity and health is maximized by annual burning. Plots may be mowed and then burned to prevent spread of fire on small sites. Fall burning will select for prairie wildflowers.
- On compacted soils, amendment may be necessary to increase organic content, improving success of establishment.



Blackwell Prairie (IL)

