

# Pendleton County



**"The Best of Both Worlds"**





# The Best of Both Worlds

Fifth Year Landscape Architecture Advanced Studio

Department of Landscape Architecture

College of Agriculture, University of Kentucky

Lexington, Kentucky

Spring 2005

## Students

Jeremy Charles Alexander

Bradley Gordon Boaz

Kevin Alan McCalla

Joseph Dwain Svec

Nicholas Jerod Conner

Matthew Taylor Horne

Billie Jo Motsch

William Aaron Withrow

## Faculty

Brian Lee, Assistant Professor

Steve Austin, Adjunct Instructor

## Editing Assistance

Karen Goodlet and Zina Merkin

## Acknowledgements

The Fifth Year Landscape Architecture Advanced Studio would like to take this opportunity to recognize and express our thanks to the individuals and groups who contributed to the success of this project. We also wish to convey our special appreciation to everyone who participated in the county meetings and the in-house meetings. We offer apologetic thanks to anyone we have neglected to mention.

**Kent Anness** – Kentucky Division of Geographic Information

**Jeff Auchter** – Kincaid Lake State Park

**Mike Bezold** – Kentucky Transportation Cabinet

**Jeff Burt** – Northern Kentucky Area Planning Commission

**Henry Bertram** – Pendleton County Judge Executive

**Chris Canjar** – UK College of Agriculture, Agricultural Communication Services

**Dr. Owen Collins** – Chair, Pendleton County Planning Commission

**Ken Cooke** – Kentucky Division of Water

**Christy Davis** – Northern Kentucky Area Planning Commission

**Steve Garner** – UK College of Agriculture, Agricultural Communication Services

**Barth Johnson** – Community Member

**Lajuanda Haight-Maybriar** – Kentucky Division of Water

**Roger McKinney** – *The Falmouth Outlook* Staff Reporter

**Dr. Lee Meyer** – UK College of Agriculture, Department of Agricultural Economics

**Billy Minton** – UK College of Agriculture, Agricultural Communication Services

**Bill Mitchell** – Pendleton County Community Development Office

**JoEllen Mitchell** – Pendleton County Public School System

**Missy Osborne** – Pendleton County Parks and Recreation

**Eric Pelfrey** – Kentucky Transportation Cabinet

**Brigitte Ramsey** – Pendleton County Board of Education

**Todd Ramsey** – Superintendent, Falmouth Water and Sewer

**Ben Sorrell** – Sherman, Carter, Barnhart – Architects/Landscape Architects

**John Steele** – Pendleton County Property Valuation Administrator

**Steve Thomas** – Pendleton County Board of Education

**Mark Willis** – Burgess and Niple, Ltd

**Randy Wolfe** – Pendleton County Airport Board

**Tom Woofter** – Pendleton County Public School System Athletic Director

**Jack Wright** – Pendleton County Industrial Authority

**Bill Verax** – Pendleton County Board of Education

**Pendleton County Magistrates** – Pendleton County Fiscal Court

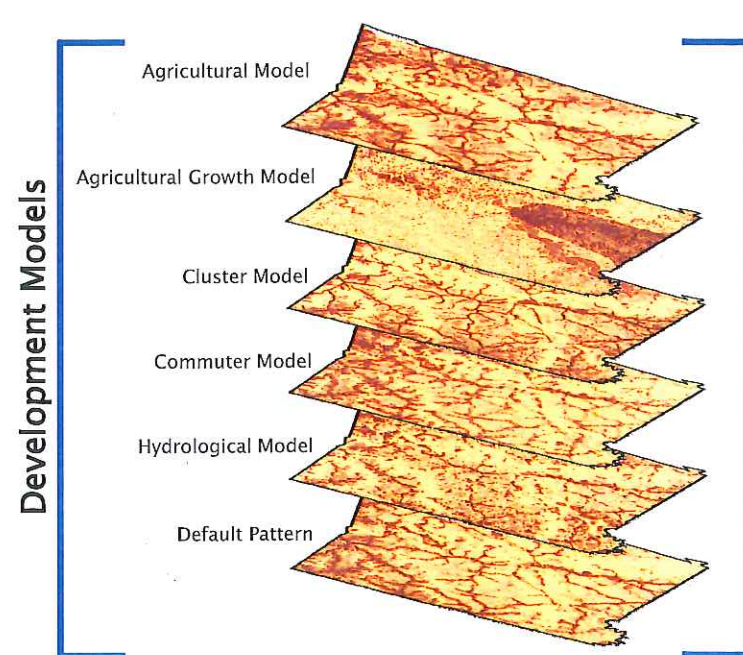
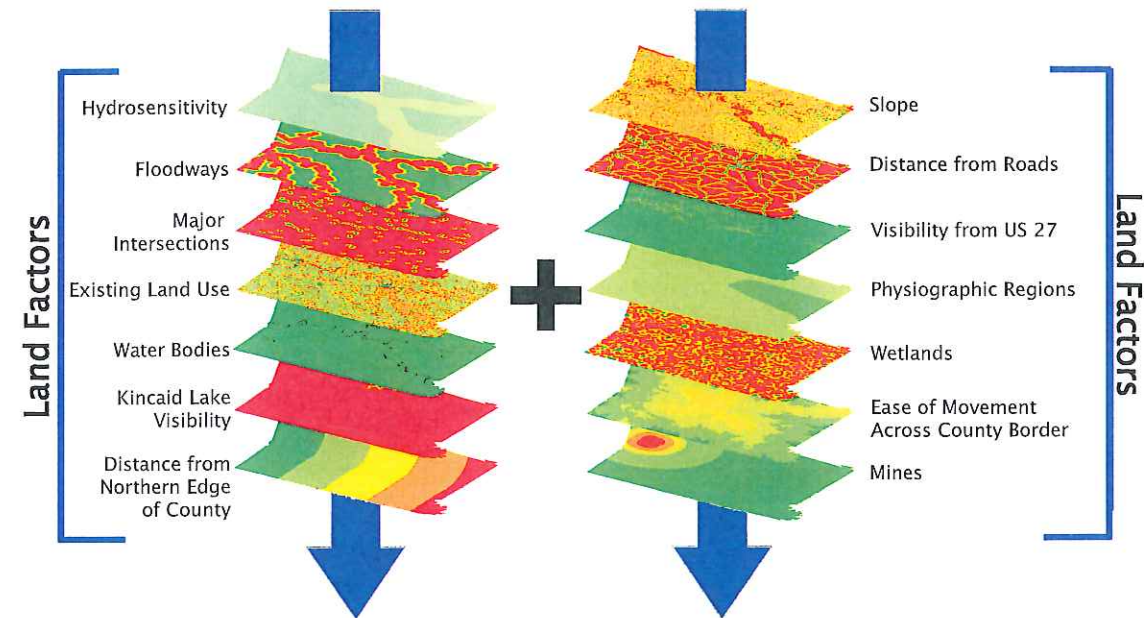


# Pendleton County 2030: Two Paths to the Future

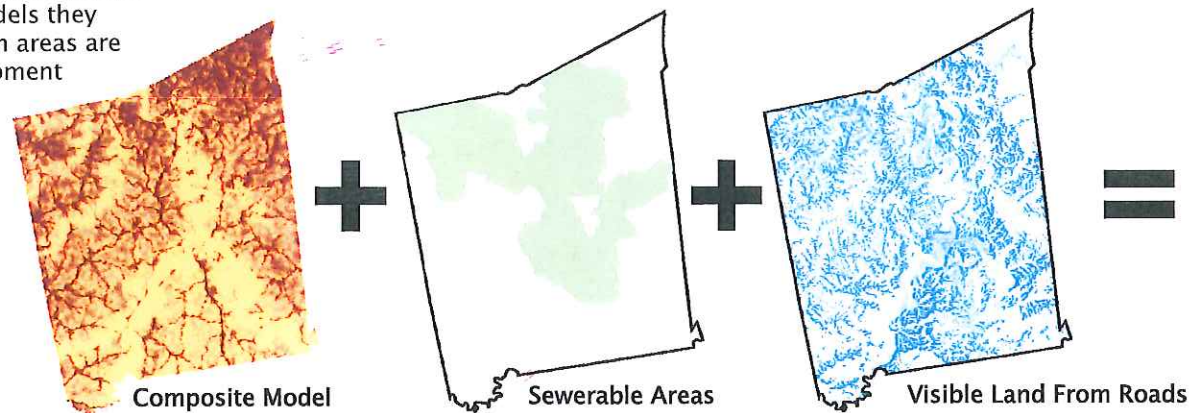
## What Land is Best Suited for Development?

Landscape Architects place a great value on the land and how land features can guide the planning process. This process uses a variety of land factors comprised of natural and man made features. Illustrated below is the overlay process utilized to explore the lands of Pendleton County and determine where development is most suited as indicated by the following factors.

**Step 1:** Land factors influence the form and direction of development. In this study, 14 land factors were used to determine areas best suited for development. The land use planning process was demonstrated to the public at the first town meeting. In these factors green areas are the best suited for development while red areas are least suitable.

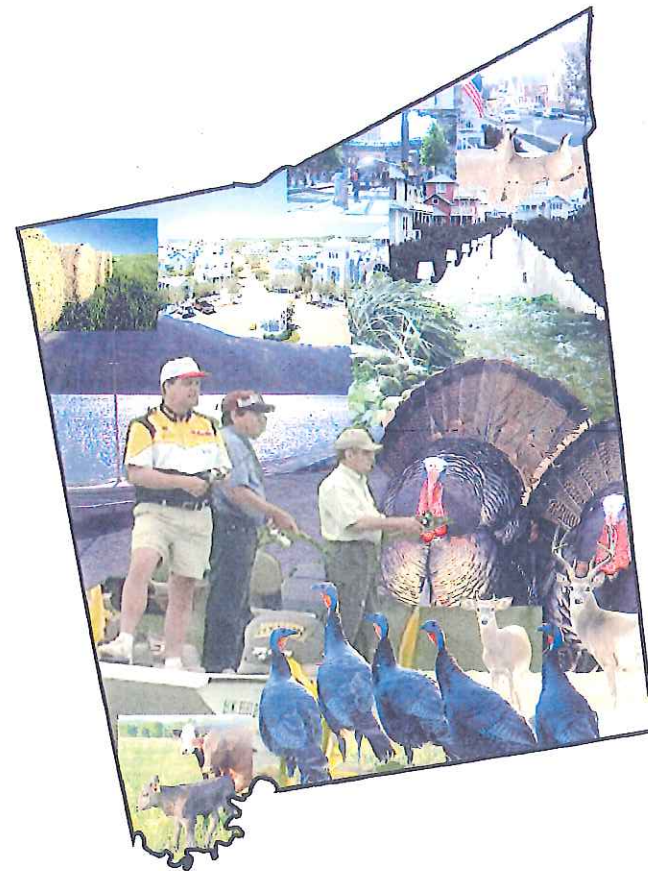


**Step 2:** Six development models (on left) were created based on the 14 factors. These models were discussed with the public during the second meeting. At that meeting, the public provided feedback on which models they preferred. In these models brown areas are the best suited lands for development while yellow areas are the least suitable.



**Step 3:** The public preferred the agricultural and cluster models. The preferred development models were weighted more heavily than the others to create the composite model. Sewer placement and roadway visibility were then incorporated with the composite model. The resulting suitability model was used to create a comprehensive master plan.

## The "Best of Both Worlds" Future



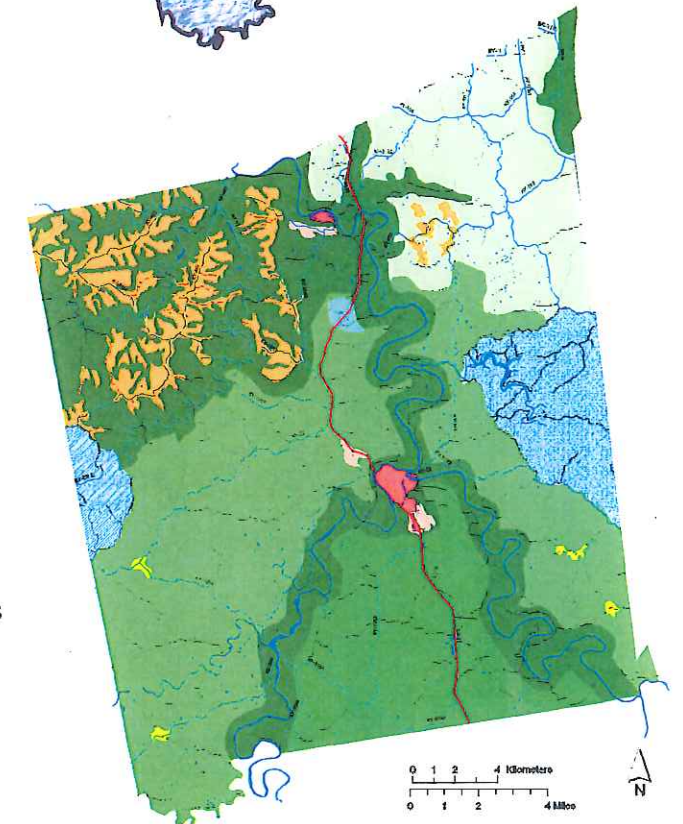
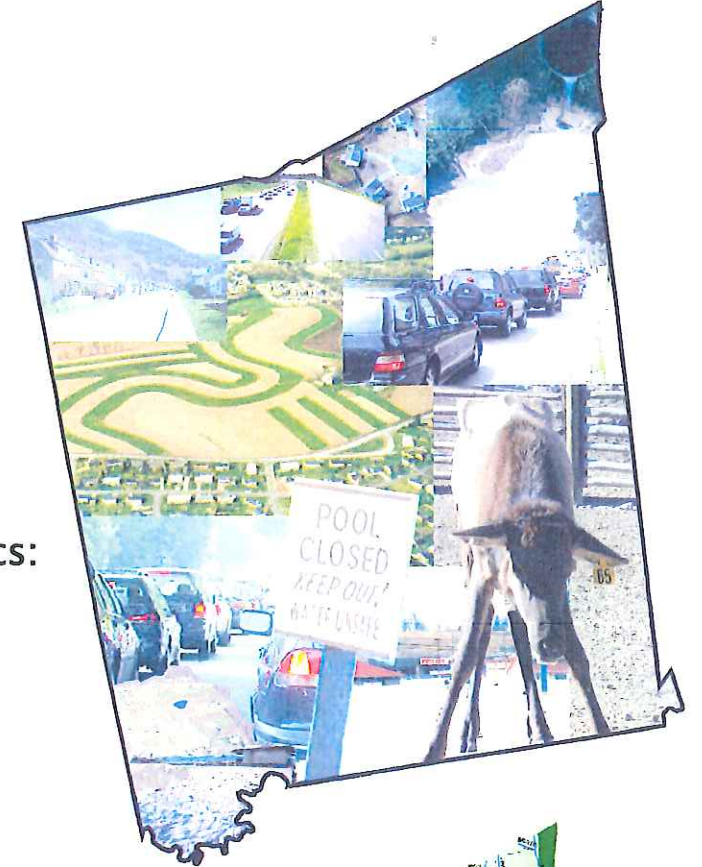
### Desired Characteristics:

- Minimized Future Flood Damage
- Rural Character
- Good Water Quality
- Efficient Transportation System
- Environmental Quality
- Decreased Infrastructure
- Decreased Cost of Services
- Low Property Taxes
- Healthy Deer and Turkey Populations
- Proactive Decision Making
- Economically Successful
- Connections vs. Refuge

### Undesired Characteristics:

- Increased Floods and Damage
- Suburban Sprawl
- Polluted Waters
- Inefficient Transportation System
- Fragmented Wildlife Habitats
- Expensive Infrastructure
- Expensive Cost of Services
- Increased Property Taxes
- Loss of Hunttable Lands
- Reactive Planning
- Stagnant Commerce
- Loss of Community Identity

## The Unplanned Future



Pendleton County Master Plan



# Master Plan:

## “The Best of Both Worlds”

- Value agricultural industry
- Preserve rural character
- Efficient growth and public services
- Protect environment and water quality
- Minimize future flooding and flood damage
- Connectedness

### Northern Clusters

- Mixed use
- Dense growth on municipal sewer
- New growth area
- Series of new towns
- See Development Areas page 4/17

### Sharp Community Park

- Provide location for future school complex
- Place for new active recreation park
- Major hub on greenway system
- Close proximity to new growth
- See Recreation Network page 7/17

### Environmental Protection

- Preserve sensitive lands
- No development on flood plains
- Protect streams and wetlands
- Provide wildlife habitat connections
- Potential land for parks and recreation
- Encourage agriculture that follows best management practices

### Williamstown Lake: Joint Management Area

- Encourage land use cooperation with Grant County
- Preserve water quality
- Increase value for recreation
- See Williamstown Lake Community page 14/17

### Rural Character

- Preserve rural qualities
- Protect viewsheds
- Provide opportunities for recreation
- See Development Areas page 3/17

### Hamlets

- Diverse development
- Add to rural character
- Provide affordable housing options
- Preserve historical agricultural development style
- See Development Areas page 4/17

### Butler

- Maintain urban quality
- Encourage commercial growth
- Mix of housing types
- Preserve historic qualities

### Urban Expansion

- Provide space for new growth in association with Butler and Falmouth
- Protect new development from floods
- Maintain quality of existing cities
- Mixed use by building

### Northern Clusters

### Rural Residential

- Discourage dense growth around mines
- Mix residential and agriculture
- Recreational opportunities
- See Development Areas page 3/17

### Kincaid Lake: Joint Management Area

- Cooperative land use planning with Bracken County
- Protect watershed from more development
- Protect state investment in lodge
- Attract visitors with natural amenities
- See Kincaid Lake State Park page 12/17

### Urban Expansion

### Falmouth

- See City of Falmouth board page 8/17

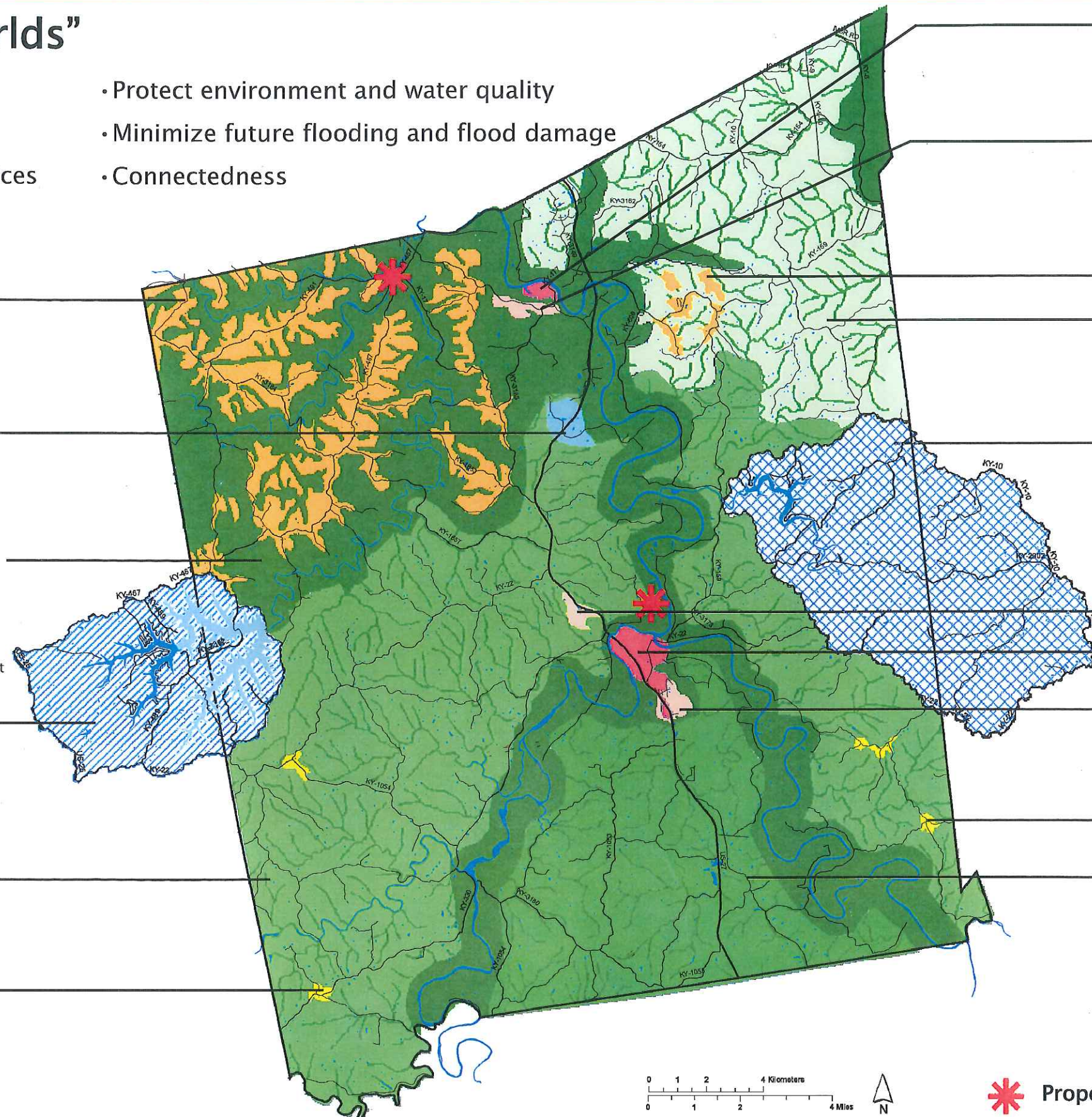
### US 27 Node

- See US 27 Board page 5/17

### Hamlets

### Agriculture

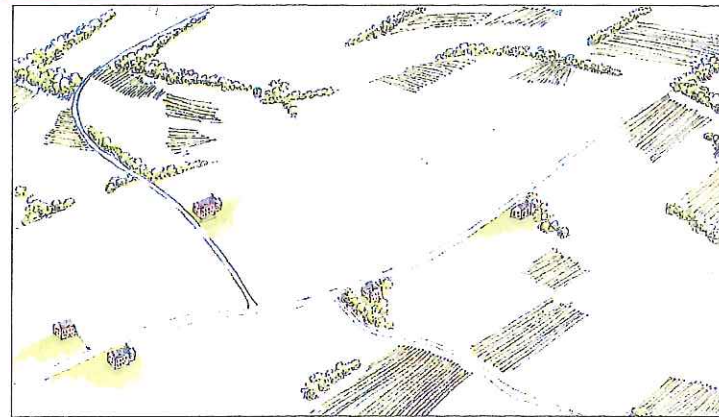
- Preserve existing farms
- Maintain economic value
- Protect agricultural identity
- Provide space for rural recreation
- Protect habitat connections
- See Development Areas page 3/17





# Development Trends: Agriculture, Rural Character, and Rural Residential

## Agriculture



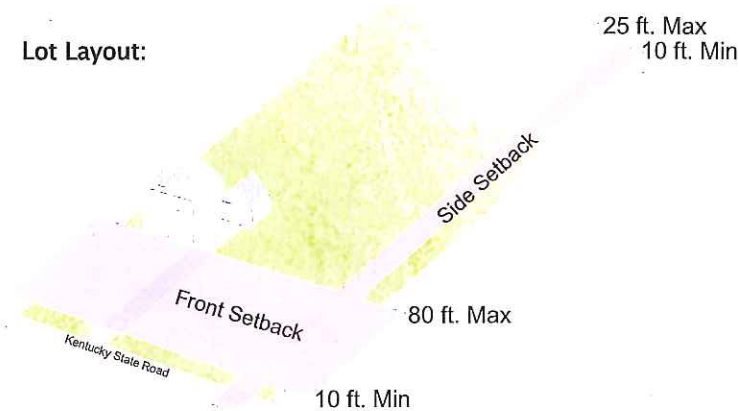
80 Acre Lot Minimum = 1 House on 100 Acres

**Intent:** To preserve and enhance the agricultural industry.

Several ways to achieve this:

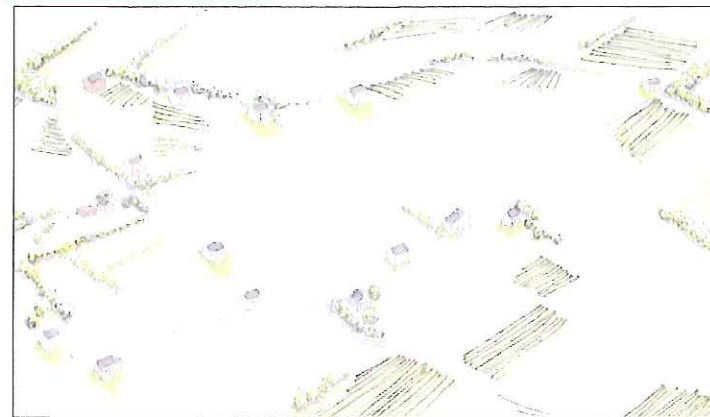
- Large lot zoning (minimum lot size of 80 Acres)
- Purchase of Development Rights
- Transfer of Development Rights
- Cluster development at current densities
- Minimal conditional uses

Lot Layout:



- The above is a one acre segment of an 80 acre lot illustrating front and side setbacks.
- Lots should be a minimum of 150' wide at building setback with no limit on the depth of the lot.
- Houses should not exceed 2 ½ stories.
- When garages are constructed, the front should be recessed from the front of the house by a minimum of 10', or located to the side or rear of the house.
- Place housing close to the road to minimize lot disturbance and plant a vegetative screen or buffer to prevent development from detracting from the viewshed.

## Rural Character



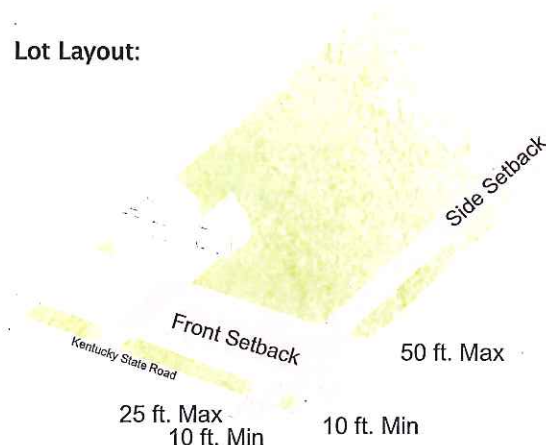
10 Acre Lot Minimum = 10 Houses on 100 Acres

**Intent:** To preserve and enhance the rural qualities of Pendleton County.

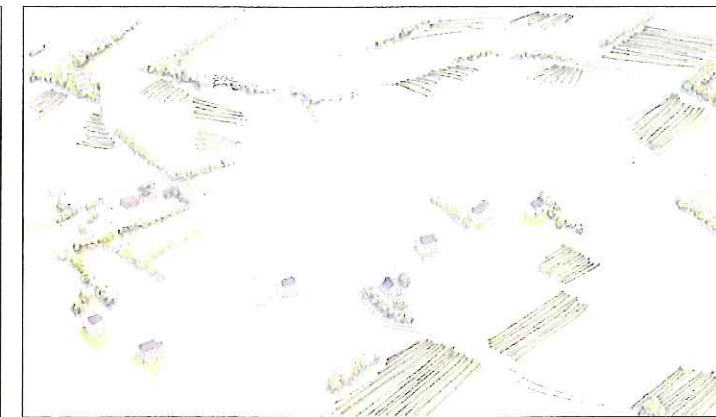
Several ways to achieve this:

- Large lot zoning (minimum lot size of 10–30 Acres)
- Purchase of Development Rights
- Transfer of Development Rights
- Cluster development at current densities
- Viewshed management

Lot Layout:



- The above is a one acre segment of a 10–30 acre lot illustrating front and side setbacks.
- Lots should be a minimum of 150' wide at building setback with no limit on the depth of the lot.
- Houses should not exceed 2 ½ stories.
- When garages are constructed, the front should be recessed from the front of the house by a minimum of 10', or located to the side or rear of the house.
- Place housing close to the road to minimize lot disturbance and plant a vegetative screen or buffer to prevent development from detracting from the viewshed.



30 Acre Lot Minimum = 3 Houses on 100 Acres

Examples of Housing Placement to maintain rural character:



Consider placing new housing below the elevation of the road and/or a vegetative buffer allowing drivers to observe the pastoral landscape of the county.



Consider planting a dense vegetative buffer to screen new housing from roads to help preserve and maintain rural character and viewsheds.

## Rural Residential



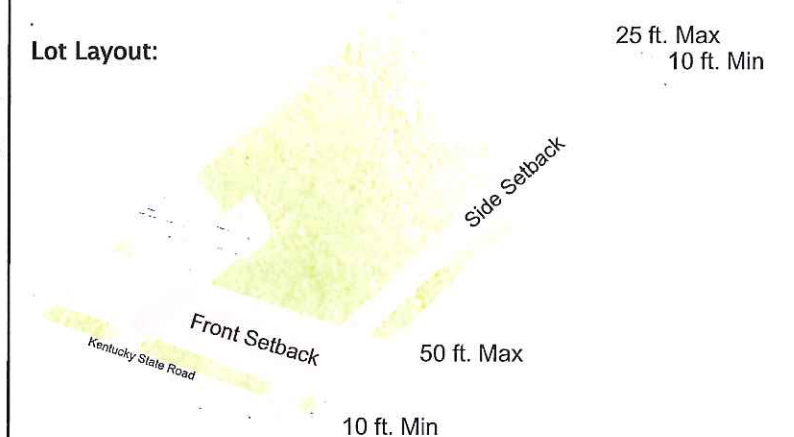
5 Acre Lot Minimum = 20 Houses on 100 Acres

**Intent:** To facilitate lower intensity development in the northern portion of Pendleton County most suitable for such development.

Several ways to achieve this:

- Unless sanitary sewer is available all density should be at 1 unit per 5 acres.
- Where and when sanitary sewer on-lot and municipal water are available smaller lot sizes may be feasible.

Lot Layout:



- The above is a one acre segment of a 5 acre lot illustrating front and side setbacks.
- Lots should be a minimum of 150' wide at building setback with no limit on the depth of the lot.
- Houses should not exceed 2 ½ stories.
- When garages are constructed, the front should be recessed from the front of the house by a minimum of 10', or located to the side or rear of the house.
- On-lot sewer must be available for any development.
- Place housing close to the road to minimize lot disturbance and plant a vegetative screen or buffer to prevent development from detracting from the viewshed.



# Development Trends: Rural Villages, Northern Clusters and Current Trend

## Hamlets

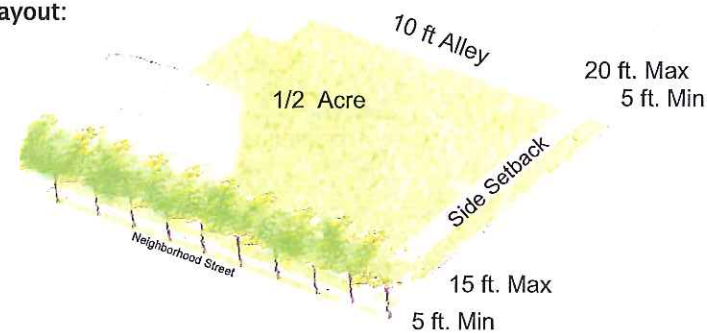


**Intent:** To preserve and enhance the rural qualities of Pendleton County while providing for dense areas of development in small patches.

**Several ways to achieve this:**

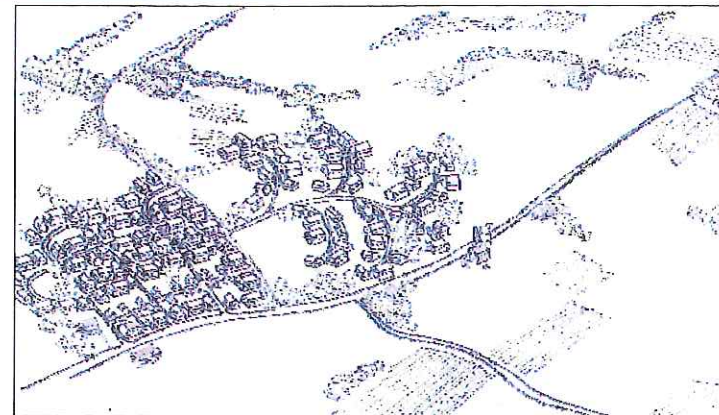
- Purchase of Development Rights
- Transfer of Development Rights
- Viewshed management

**Lot Layout:**



- The above is a 1/2 acre segment of an Hamlet illustrating front and side setbacks.
- Lots should be a minimum of 50'-75' wide at building setback with maximum depth of 150'.
- Houses should not exceed 2 1/2 stories.
- When garages are constructed, the front should be recessed from the front of the house by a minimum of 10' or placed to the rear of the house.
- Develop at key intersections to provide ease of access to the region.
- Community sewer/ Alternative sewer type is mandatory for Hamlet development.

## Northern Clusters

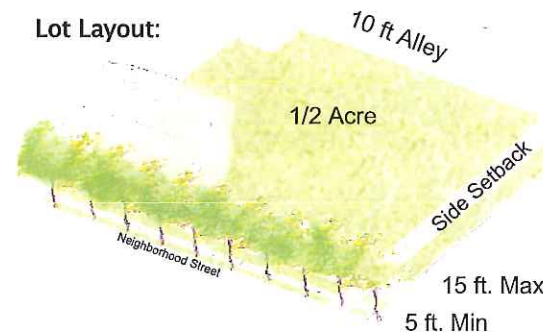


**Intent:** To facilitate efficient economic development in the northeastern portion of Pendleton County.

**Several ways to achieve this:**

- Mixed Use Development
- Cluster Development
- Average lot size of 1/4 Acre

**Lot Layout:**



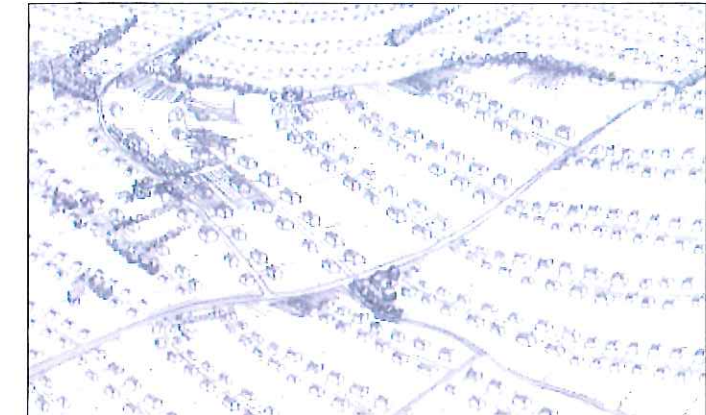
- The above is a 1/2, 1/4, and 1/8 acre segment of a Northern Cluster development illustrating front and side setbacks.
- Lots should be a minimum of 50-75' wide at building setback with a maximum depth of 150'.
- Houses should not exceed 2 1/2 stories.
- When garages are constructed, the front should be recessed from the front of the house by a minimum of 10' or placed to the rear of the house.
- Develop at key intersections to provide ease of access to the region.
- Sanitary sewer is required for Cluster development.



A variety of housing styles and lot sizes adds character to neighborhood streets.

Cluster developments make more efficient use of the land and preserve greenspace as useable networks. Clusters take on several characteristics and can increase building densities to preserve greenspace. It is important to include a variety of housing styles, lot sizes, and spatial connections to provide visual stimulation. Having a variety of destinations and the ability to walk from one place to another safely can stimulate social interaction and may increase the quality of life in Pendleton County.

## Current Trend:



One Acre Blanket Development

**The One Acre Lot:**

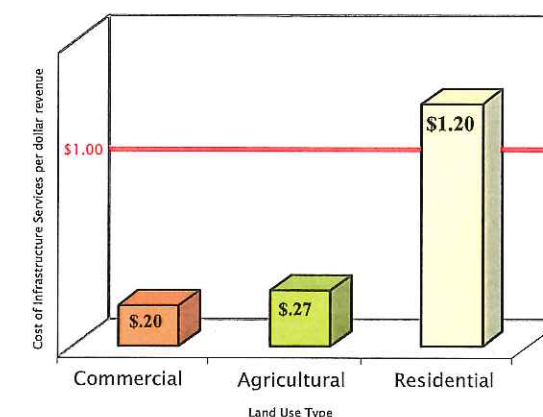
The current development trend throughout the country is for small lot, single-family parcels, a development pattern that can have adverse impacts on the natural environment. As Pendleton County grows following the current development trend, it has the potential to result in a blanket of one acre tracts across the entire county. To preserve the rural and agricultural character of the county, consideration must be given to large lot zoning, hamlets, cluster development, mixed-use development, purchase of development rights and transfer of development rights as recommended development patterns.

Proper planning can help create environmentally sound and economically efficient development areas to accommodate community growth.

**Without Planning:**

- Increased vehicular traffic and congestion
- Fragmentation of agricultural lands
- Fragmentation of wildlife habitats
- Degradation of water and air quality
- Loss of rural character
- Interrupted viewsheds
- Increased Cost of Services
- Decreased quality of life

**Cost of Community Services**



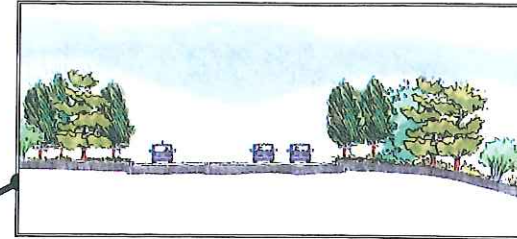
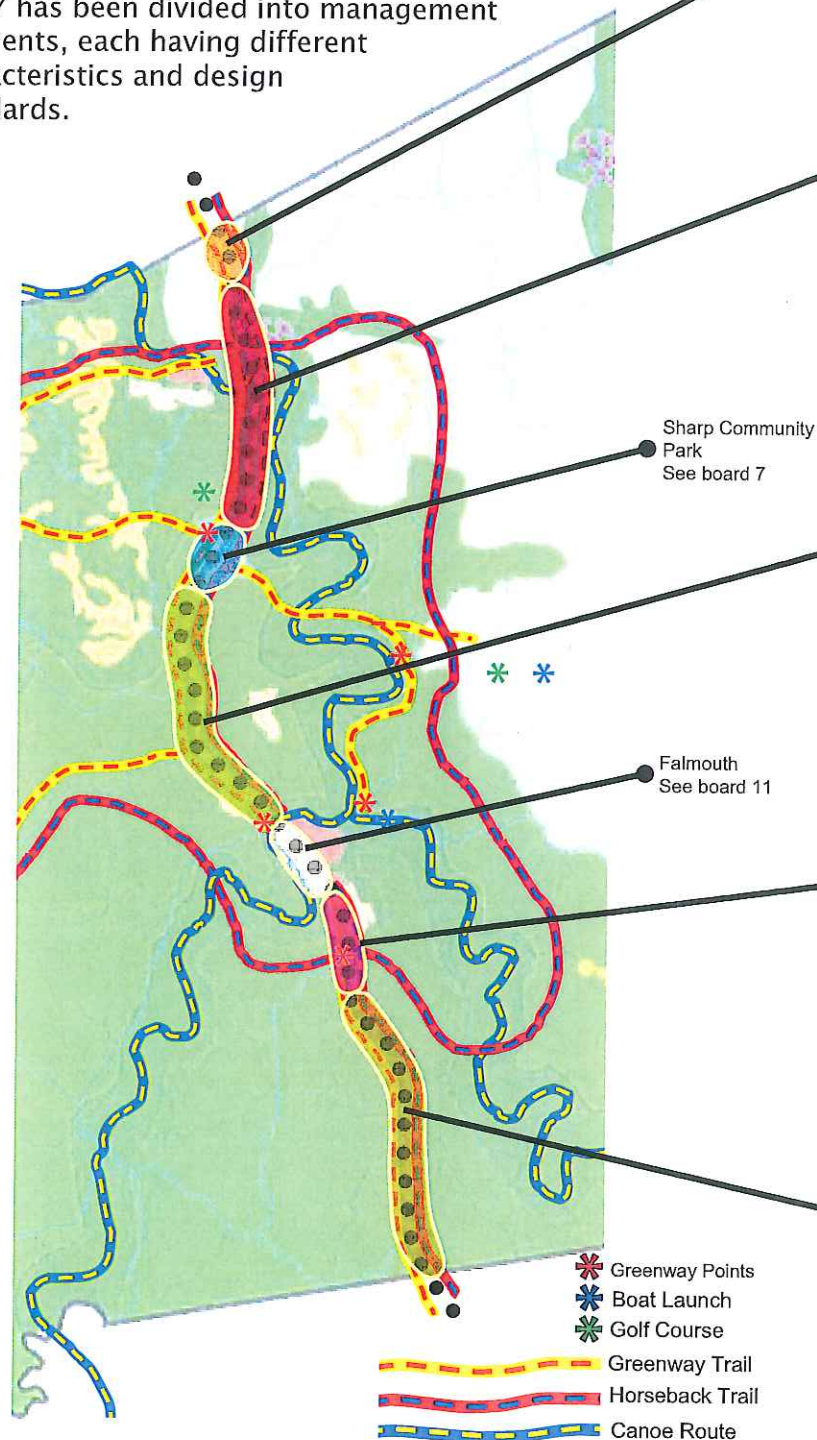
The Cost of Community Services compares how many dollars worth of local government infrastructure services are demanded versus the per dollar revenue collected for different land uses. An amount greater than \$1.00 indicates that for every dollar of revenue collected from a given land use unit, more than one dollar is spent on associated infrastructure services. Residential land uses cost the community 20 cents more per dollar revenue collected than commercial or agricultural land uses, which actually save the community 70-80 cents per dollar collected in revenue.



# US 27: The Main Street of Pendleton County

## Segment Management Along US 27

The expansion of US 27 will most likely be necessary to meet the needs of increased growth in Pendleton County. Improved access will facilitate economic development, recreational activity, and increased tourism. Two locations along the corridor have been chosen at which to concentrate development, a proposed urban area in the north and a mixed-use area south of Falmouth. As illustrated below, US 27 has been divided into management segments, each having different characteristics and design standards.



### County Entrance

Create a welcoming entrance where US 27 enters the county from the north. Distinct vegetation and design features introduced here will establish an arrival point into the county from Campbell County.



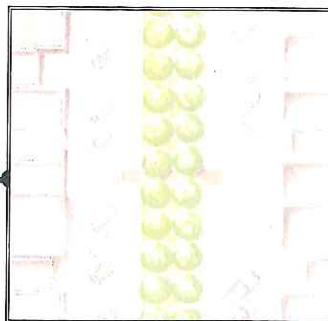
### Urban 5-Lane Segment

- All development to occur outside of the floodplain
- Safe pedestrian crossings
- Ordinance recommended to allow new access points every 600 feet in urban areas
- New development setback of 50 feet
- Center turning lane where necessary



### Rural 5-Lane Segment

- Center turning lane where necessary
- Ordinance recommended to allow new access points every 1,200 feet in rural areas
- New development setback of 200 feet



### Mixed-Use Development

- On street parking and parking in rear
- Defined pedestrian crossings
- Vegetated median
- New development setbacks of 5-15 feet

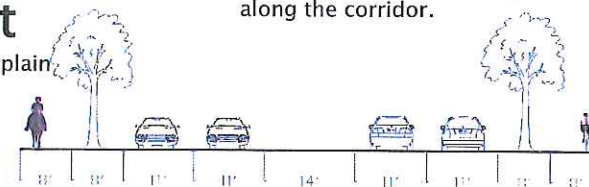
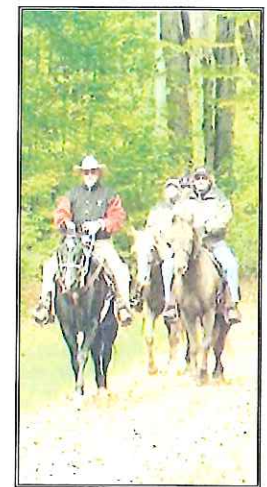


### Rural 3-Lane Segment

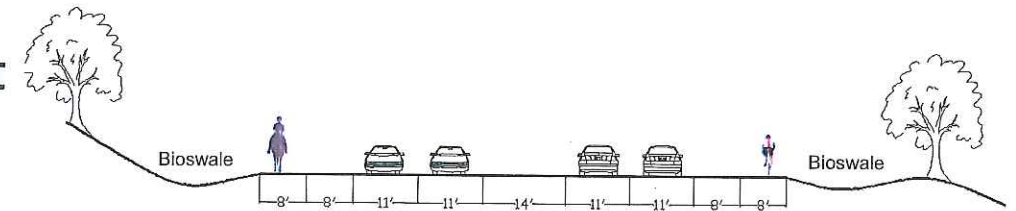
- Passing zones and center turning lane where necessary
- Ordinance recommended to allow new access points every 1,200 feet in rural areas
- New development setback of 200 feet



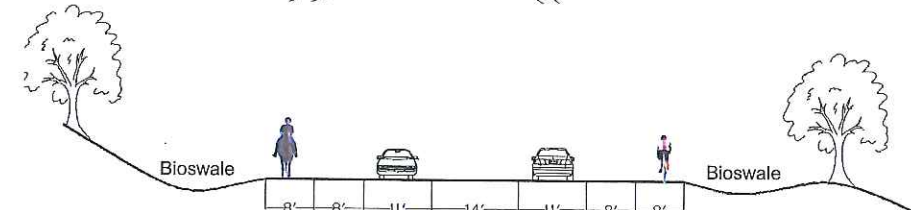
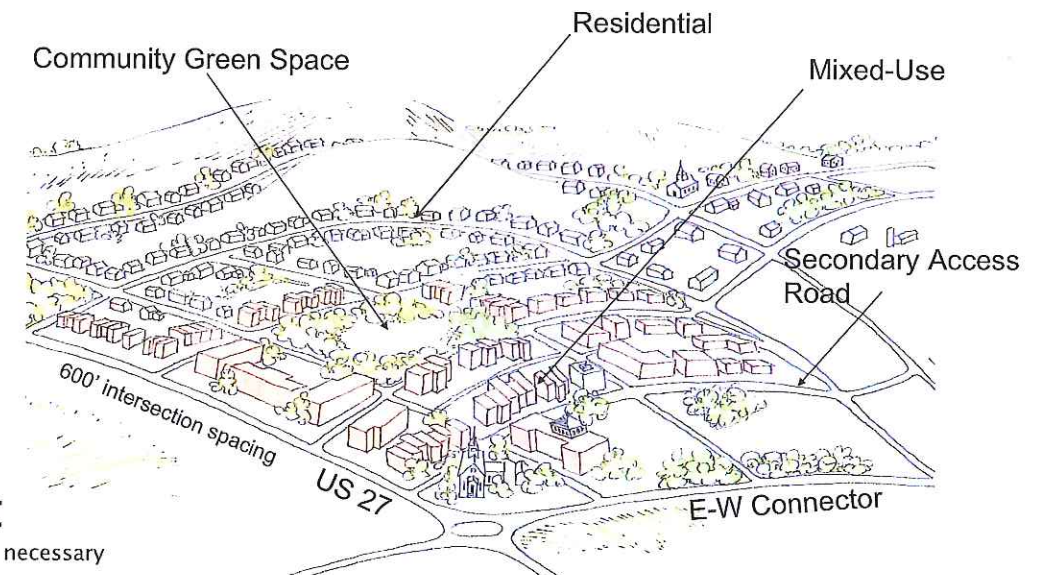
The incorporation of alternative travel modes could be very beneficial along the corridor.



### Urban 5-Lane Section



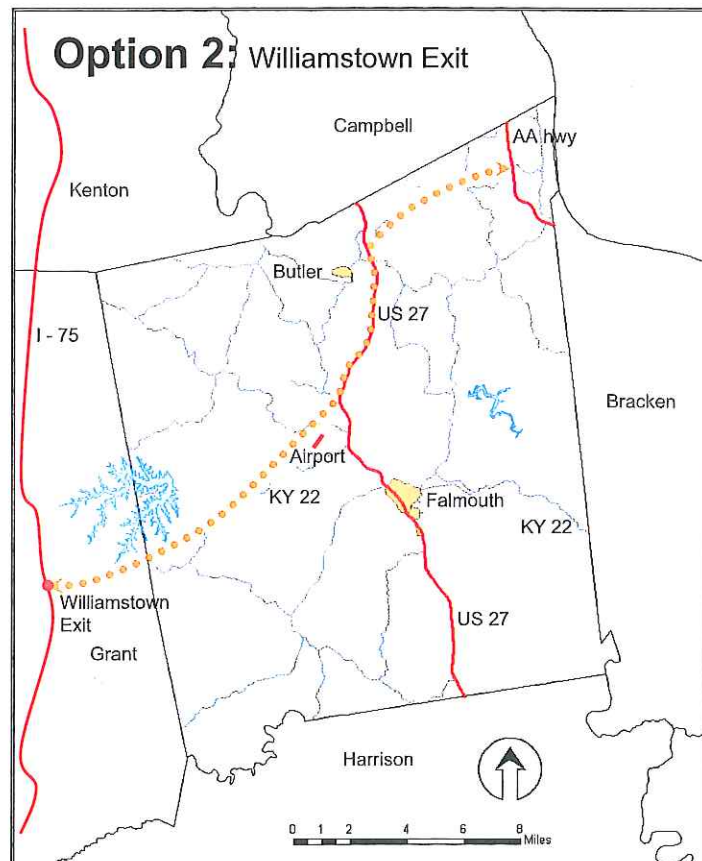
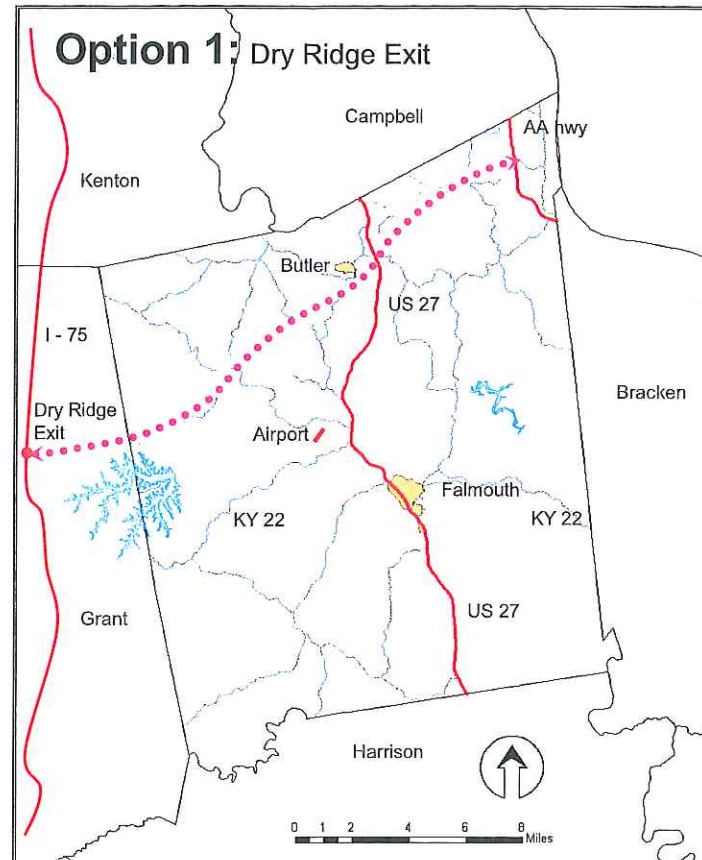
### Rural 5-Lane Section



### Rural 3-Lane Section



# The East West Connection



## Better Access for a Growing Community

As Pendleton County grows, better connectivity within and around the community is becoming more important. People have expressed the need for convenient access to Interstate 75, west of the county, and the AA-highway to the east. This improved access should support commercial and industrial business expansion, residential development, recreation and tourism within the county.

The placement of this roadway will play a key role in the future of Pendleton County, affecting land values, market areas, commuting times, and lake access to name a few impacts. A route which would benefit Grant and Bracken counties as well could generate more political and financial support for the project. In order to find the best route through the county, the following factors were considered:

- Least slope, to minimize construction cost and environmental impact
- Land cover, to avoid forests and existing structures
- Minimal stream crossings
- Minimal wetland crossings
- Views seen from the corridor

## A Connection through the North

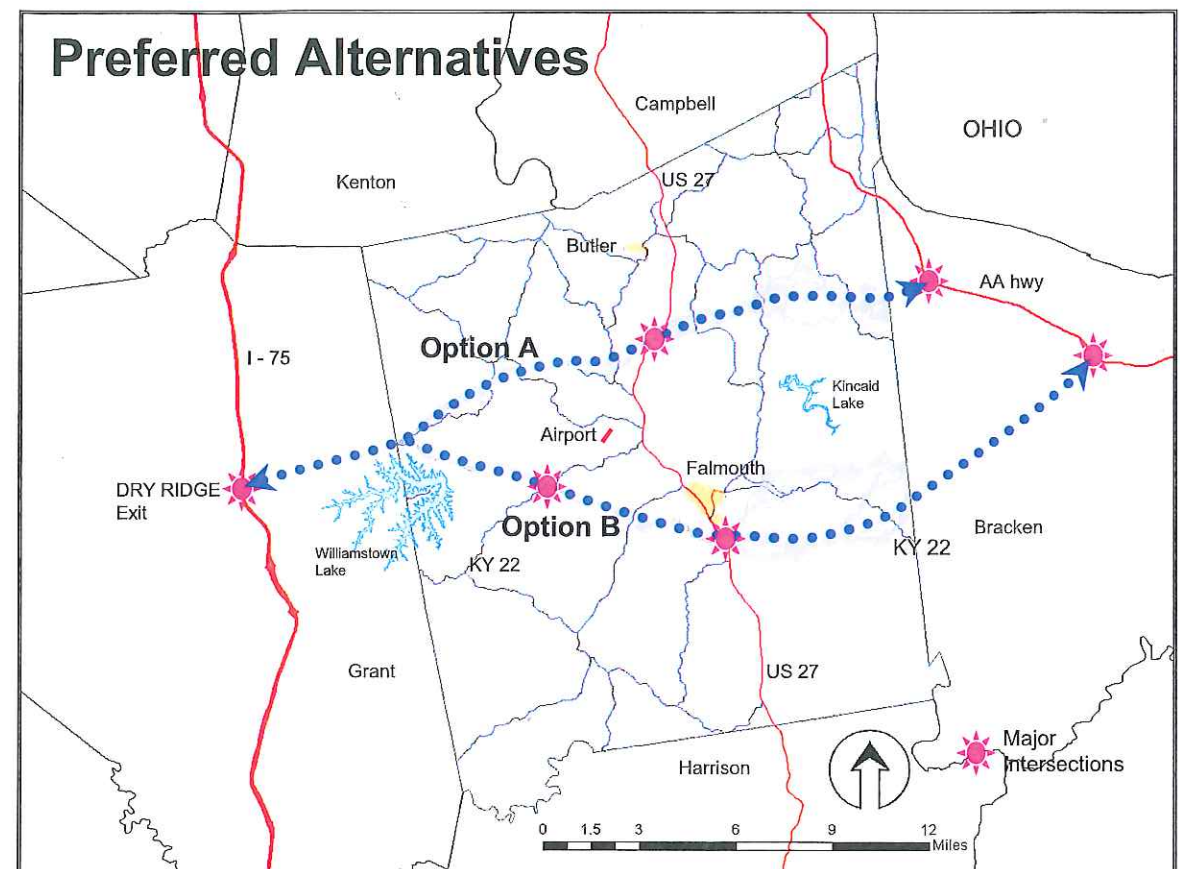
A northern route has been considered, to begin at the AA-hwy, tie into US 27 east of Butler, cross the county line just north of Williamstown Lake and connect with the Dry Ridge exit on Interstate 75.

- Opportunities of this route include:
  - Access to development north of Williamstown Lake
  - A growth boundary for northern development
  - Shortest distance for road construction
- Constraints of this route include:
  - Lack of connection with middle and southern Pendleton County
  - Does little to improve access to Kincaid Lake
  - Lack of connection with Maysville, KY area

## A Connection South of Williamstown Lake

A connection south of Williamstown Lake would begin at the AA-hwy, tie into US 27 east of Butler, join US 27 south to the route-17 interchange, depart 27 heading west to Locust Grove and connect with the Williamstown Exit on Interstate 75.

- Opportunities of this route include:
  - Improved access to the Gene Snyder Airport
  - Utilization of US 27 between Route-17 and Butler
  - More access to portions of middle and southern Pendleton County
- Constraints of this route include:
  - More disturbance to sensitive habitat along southern border of Williamstown Lake expansion
  - Does little to improve access to Kincaid Lake
  - Lack of connection with Maysville, KY area



## Preferred Connections

Public input indicated stakeholders preferred a route providing more centrally located access to northern and southern parts of the county. These alternatives propose to connect with the AA-hwy east of Kincaid Lake in Bracken County, travel through Pendleton County north or south of Kincaid Lake and Falmouth, and cross the Pendleton/Grant County line along the northern border of Williamstown Lake, connecting with the Dry Ridge exit on I-75.

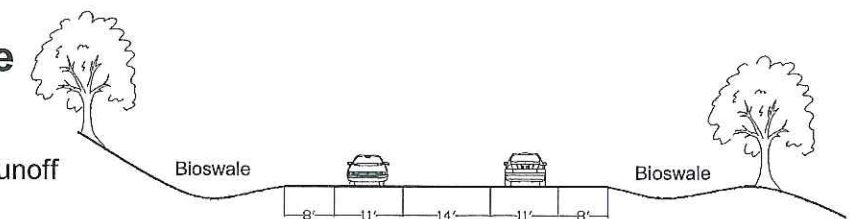
- Improved access more centrally located, optimizing connectivity
- Access improvement to both Kincaid and Williamstown lakes, and the Gene Snyder Airport
- Better facilitates economic growth, recreational activity, and tourism opportunities within the county

## Recommendations for the roadway

- Three lane roadway with central turning lane and safety shoulders
- Recommendation for county ordinance adoption requiring 1,200 foot intersection spacing for all new access points
- 55 mph with reduced speed limit of 35 through residential and commercialized areas

## Recommended 3-Lane

Recommended rural 3-lane roadway with safety shoulders and bioswales for storm water runoff management.

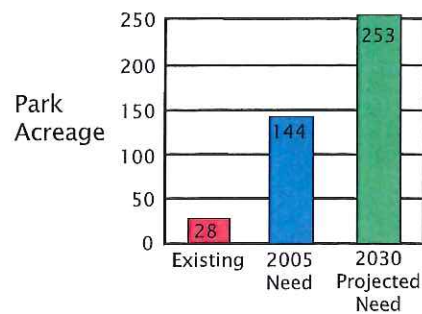




# Recreation Network: Linking Activity and Protecting the Natural Elements of Pendleton County

Recreation is essential to the future of Pendleton County's quality of life and economic development. Having adequate recreational facilities will provide opportunities for Pendleton County's growing youth, adult and senior populations to live active, healthy lifestyles. Expanding recreation will enhance tourism in the county, while preserving environmentally vital areas of land through Greenway corridors. Currently, Pendleton County does not meet the recommended active park acreage (See Chart Below). The proposed Recreation Network suggests ways to achieve the recommended acreage while meeting the goals of Pendleton County.

Active Park Acreage Recommendations



## Greenway:

A Greenway is an area of land used to link cultural and natural features within a community. Greenways also function as buffers to streams, lakes, and other sensitive lands unsuitable for development

## Benefits:

- Link parks, towns, and neighborhoods
- Lessen vehicular traffic and pollution
- Provide overlooks that focus on vernacular landscapes
- Create habitats and travel corridors for wildlife
- Absorb water from urban and agricultural runoff

## Middle Grassy Creek Athletic Park

A new recreational park is proposed for an undeveloped piece of land on the eastern banks of the Middle Grassy Creek. A detailed analysis has deemed this land very suitable for such use. Development in the northern areas of the county will increase demand for athletic facilities. It would be beneficial for the county to obtain this land prior to extensive development in the area.

## Williamstown Lake Expansion

The Greenway will link both the new lake and development in this area with the rest of the county.



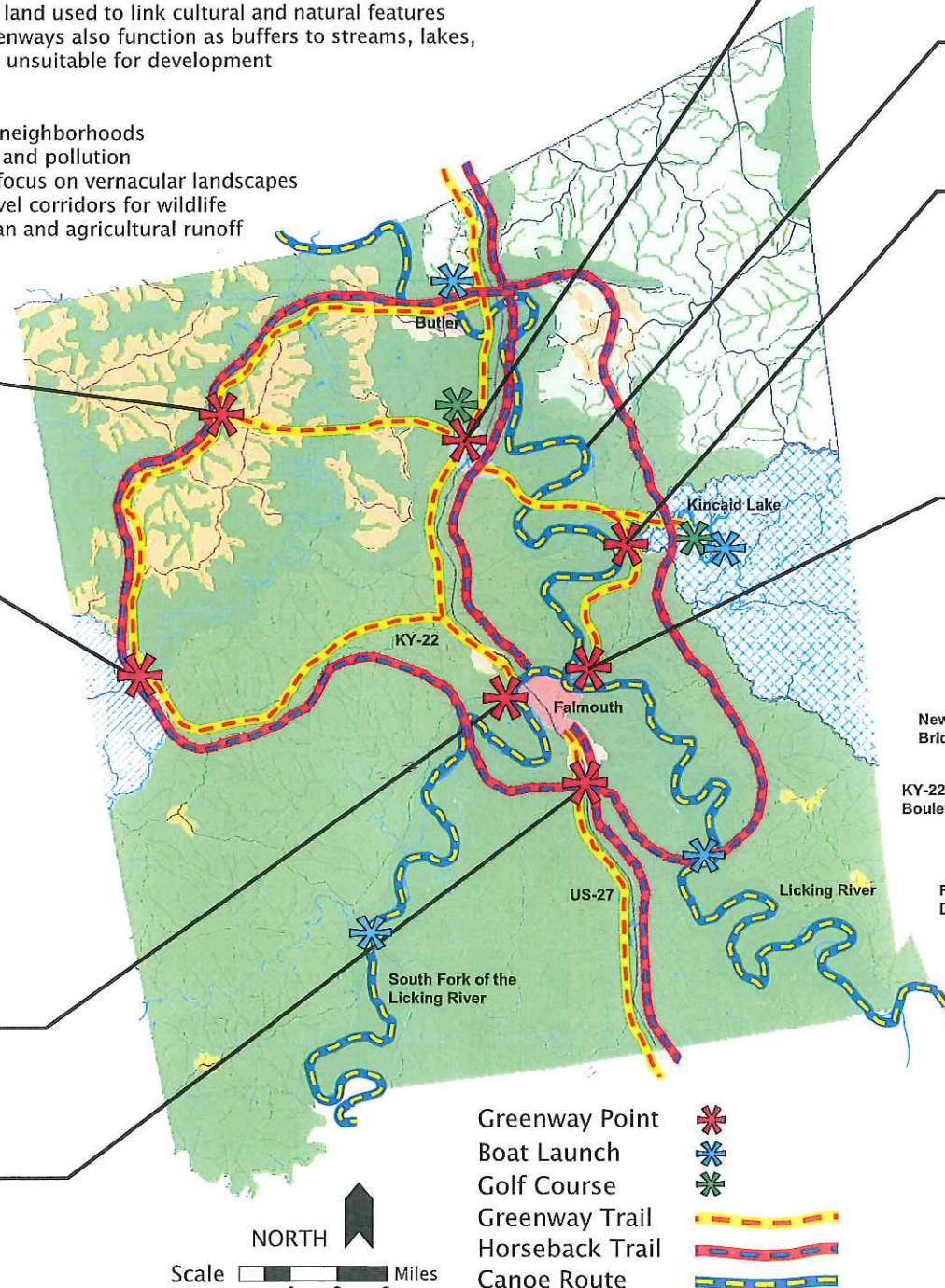
Greenway trails could include equestrian lanes, bike and walking paths.

## Pendleton Athletic Complex Expansion

The new athletic park in Falmouth could be expanded across the South Fork of the Licking River if necessary. It would be beneficial for the county to obtain this land prior to extensive development in the area.

## Pendleton County Rodeo Grounds

A new rodeo park could be incorporated with the Paul Patton Industrial Park. The park could accommodate two arenas; a covered arena for main events, as well as a practice arena. Other amenities could include a grand stand, animal stalls, as well as a tractor pull strip. The park could become the equestrian center for the county and region.



Greenway Point  
Boat Launch  
Golf Course  
Greenway Trail  
Horseback Trail  
Canoe Route

## Sharp Community Park

The land surrounding Sharp Middle School could be the location for a park as well as for public school expansion. This is some of the most suitable land for active recreation development in Pendleton County. This area could become the focal point for a variety of recreational activities that have regional interest and attraction. Recreation possibilities include: disc golf course, high and low rope adventure courses, bird watching sanctuary, ATV trails, skateboard park and possibly a large multi-use indoor recreational facility.



Rope Adventure Courses build trust and teamwork and are designed to be ecologically sensitive to the land

## Canoe Route

The Licking River and the South Fork provide excellent opportunities for recreation and transportation throughout the county. Canoe runs could connect Falmouth and Butler as well as Harrison and Campbell Counties.

## Licking Overlook

This location along the greenway trail would be an excellent place for an overlook offering a view of Pendleton County's scenic landscape. Scenic overlooks marked with educational signage can provide users the opportunities to learn about the county's river ecology.



Overlook of Licking River along Pendleton County's Greenway Trail

## Shoemaker Park

A new park is proposed for the Shoemaker town area, located east of Falmouth. The park could be used for active and passive recreation. A significant factor affecting the development of the park's potential uses is the placement of the new KY-22 bridge across the Licking River into Falmouth.

## Option A



Option A shows the KY-22 bridge connecting into the downtown just north of the existing bridge which would limit the park development to more passive activities.

## Option B



Option B shows the KY-22 bridge connecting south of Falmouth at Licking Street which would allow for the development of more active activities.

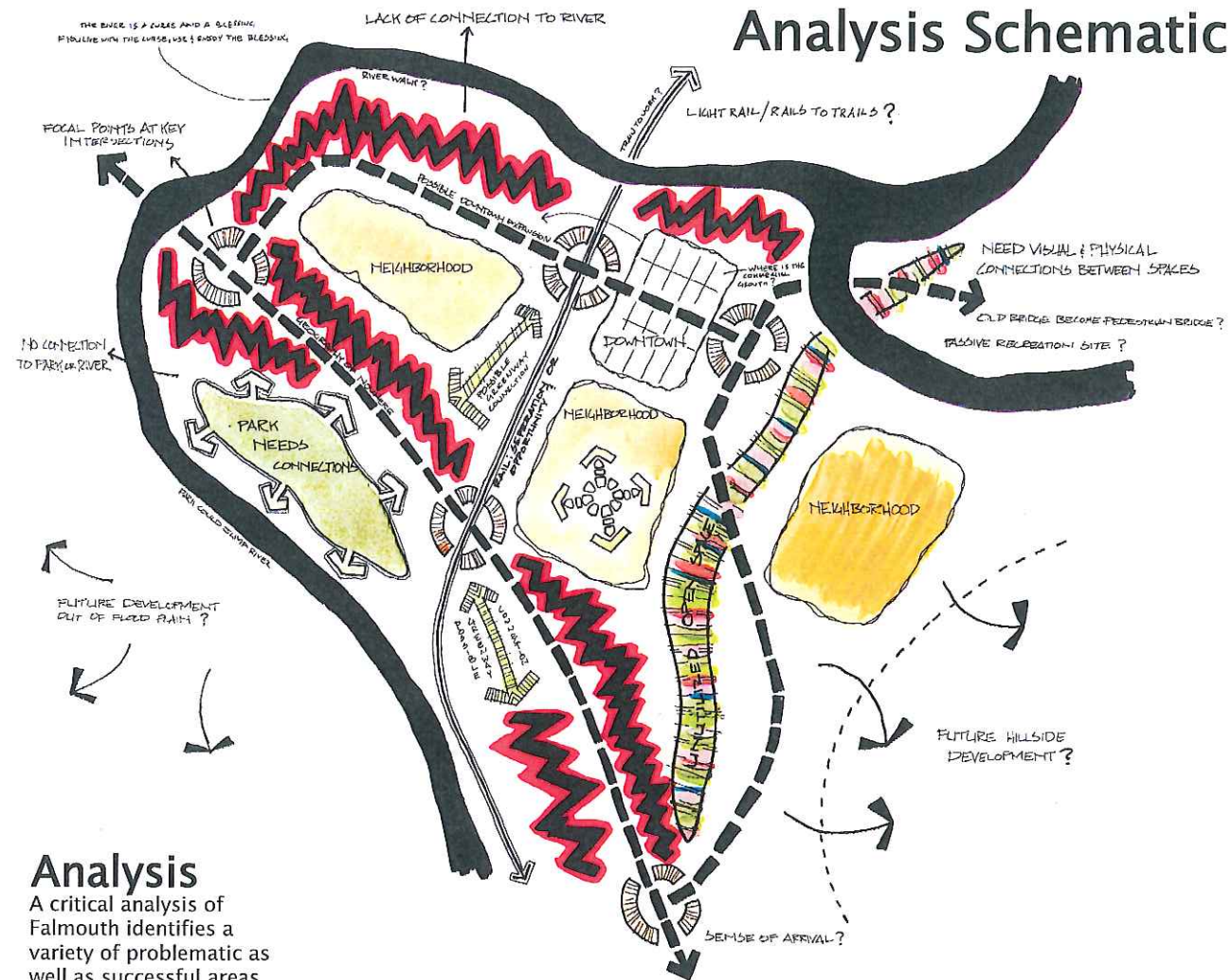


# The City of Falmouth: Strengthening Community for Tomorrow

# Falmouth

It is important to look not only at downtown Falmouth but at the entire city to see where it is working and where problems exist. In order to solve a problem in any part of the city it is crucial to understand why that problem occurs. Falmouth will operate more successfully when all the aspects of the city are designed to function together. It is critical to examine the city in the same manner as the entire county was addressed with a focus, inventory and analysis, assessment, alternatives, a plan, implementation, and monitoring. It is always important to keep the big picture in mind when making any decisions concerning Falmouth.

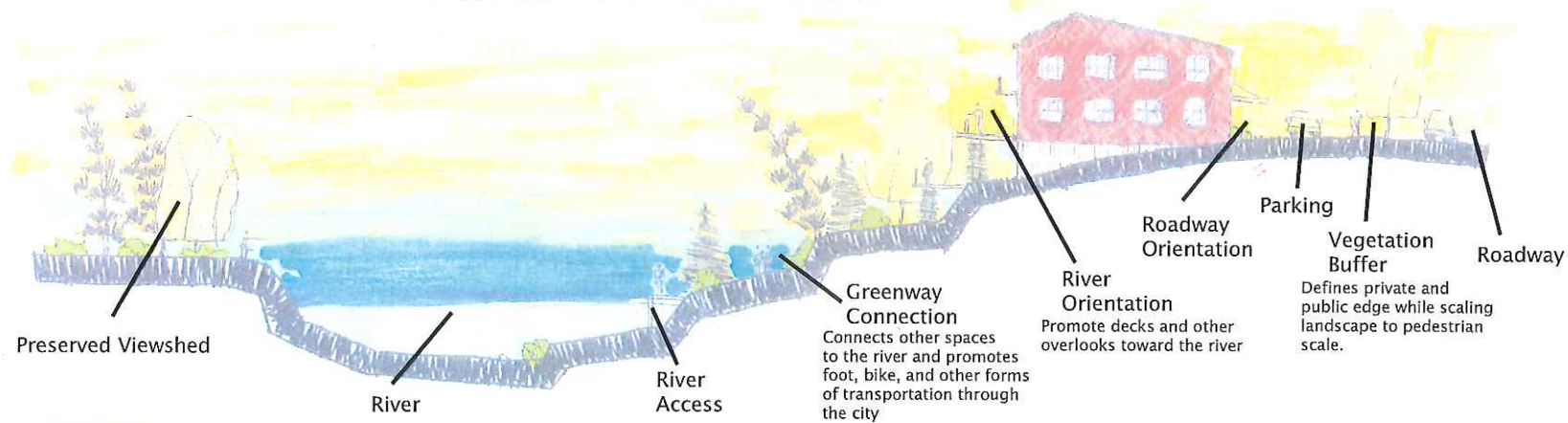
## Analysis Schematic



## Analysis

A critical analysis of Falmouth identifies a variety of problematic as well as successful areas within the city. The analysis indicates zones of opportunity within the existing context and begins to suggest uses in potential zones or along the edges of zones. It can also be used to help characterize problems and understand how they are interrelated throughout the city by cause and effect. While not yielding specific designed solutions, the analysis is a critically important tool for making design decisions.

## Embrace the River



## Recommended Land Use



## Proposed Land Use

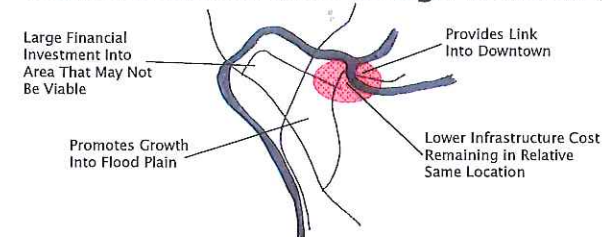
The purpose of the proposed land use plan is to guide future decision making in the city of Falmouth. It is important that goals are defined for the city and that the plan is designed to achieve those goals. When developing a plan it is important to understand how urban spaces interact with one another. A well designed city will encourage and sustain economic development and a better quality of life.

# The River

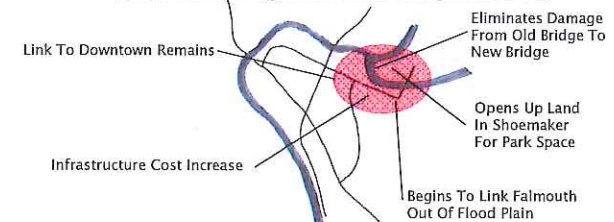
The river may be Falmouth's greatest resource, however, in many places the city has ignored its potential. The city has a significant problem with flooding, a negative inducement for living along the banks of a major watershed area. However, if the city chooses to remain in its current location, then it must embrace the river and make it the central focus. This vital resource could become the driving force for both commercial growth and residential development. The river has the potential to serve as the catalyst for a sustained and increased quality of life for all the citizens of Falmouth, thus achieving the best of both worlds.

## Other Big Ideas

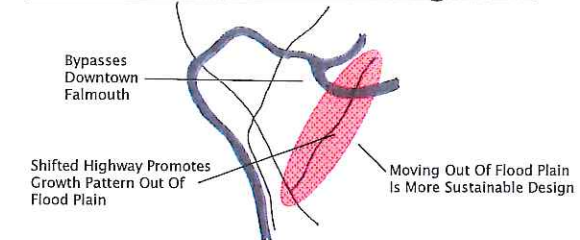
### Current Location of Bridge Remains



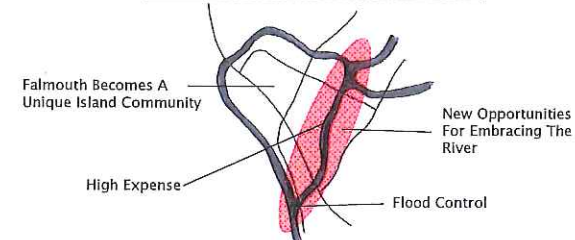
## New Bridge Shifts Up River



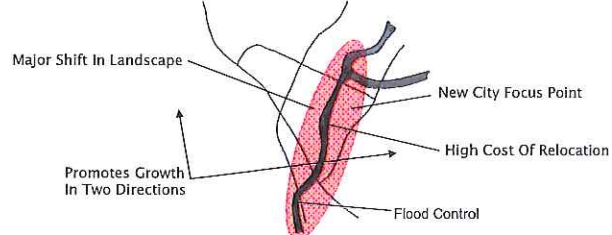
## HW 22 Shifts to New Bridge Site



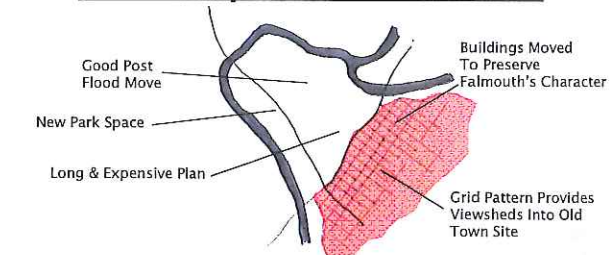
### Additional River Path



### Divert River



### Phase City Out of Flood Plain





# The City of Falmouth: Exploring Options for Downtown

## Courthouse Block Option Study

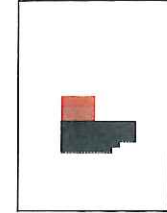
Existing Buildings Proposed Buildings

### Existing



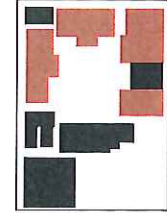
It is crucial to look at the entire site in context when making decisions about the downtown. However, that context exists in a variety of scales ranging from the entire city, to a zone, a specific block, or a specific parcel. This option looks specifically at the block that surrounds the Courthouse. On the left is a diagram of the buildings as they exist today. In the examples below, options are explored of how this block could be altered and what implications could be derived from these changes.

### Park Space



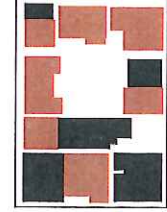
In this scenario the Courthouse is the only building that remains while the space around it becomes a public square. This example is somewhat unique for an urban design because this follows the idea of shifting the location of the city and phasing to another location. In typical urban design, a city would move towards a greater density; however, this may not be a sustainable design solution for Falmouth.

### Corner Open Space



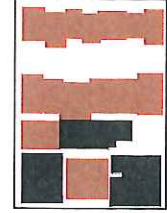
In this scenario emphasis is placed on creating a public open space and a view of the Courthouse. If the corner lot eventually became an open space, it could function as a central square for downtown, providing a place for people to gather and offering a new sense of character.

### Infill



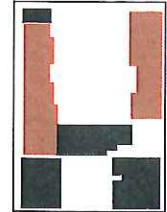
In this example the block could become densely infilled with mixed uses. This is a traditional and successful way to give life to an urban district. These kinds of areas often become the most desired places in which to live and work in a community. This option would impose a drastic change on the character of the downtown but could breathe new life into a somewhat stagnant area.

### Pedestrian Mall



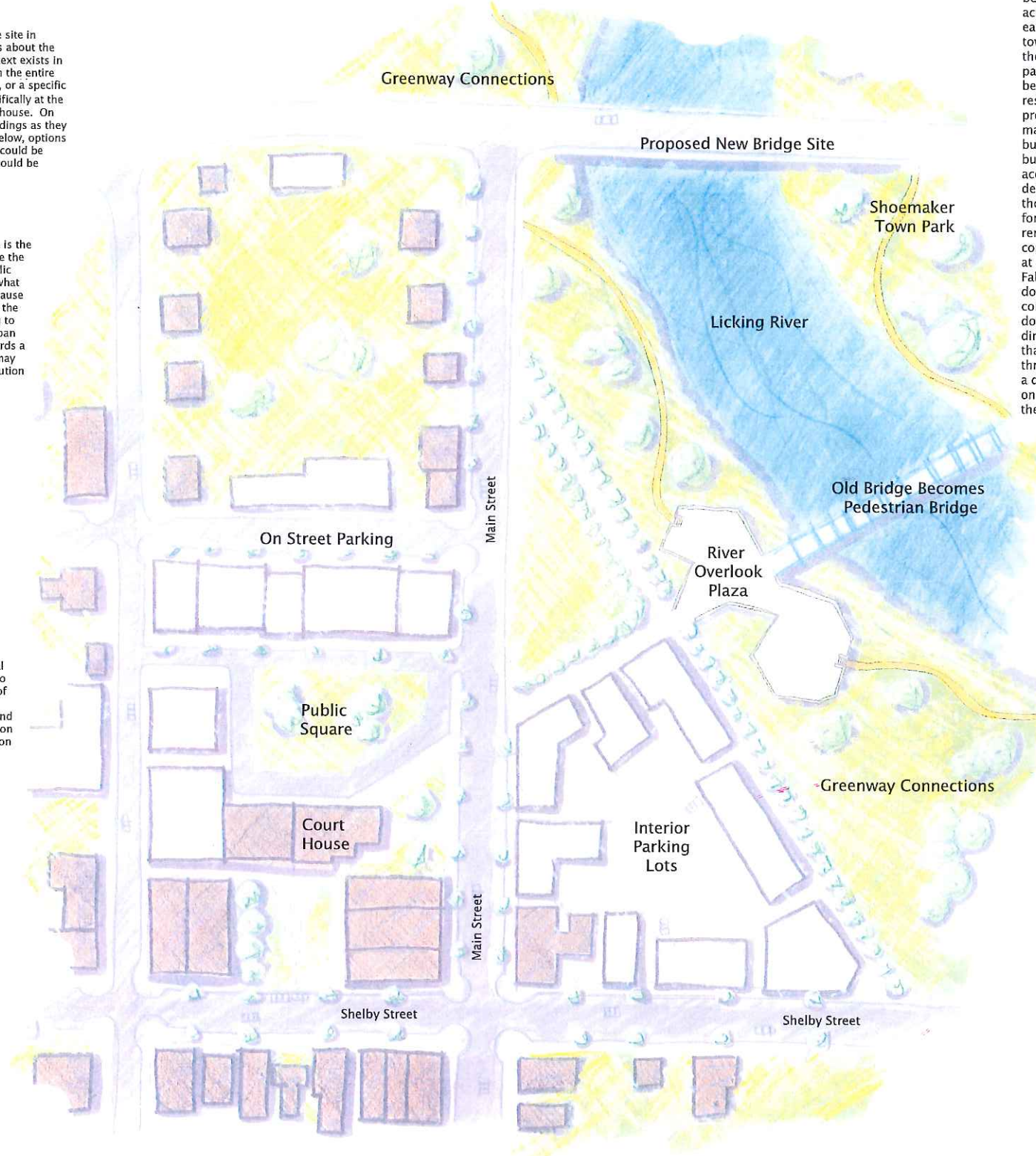
In this scenario the orientation of the buildings begins to move away from the street and starts to become a pedestrian scaled area where foot traffic moves through the block. This could create a unique environment where cafe's, shops, and other opportunities for commercial growth could occur.

### Viewsheds

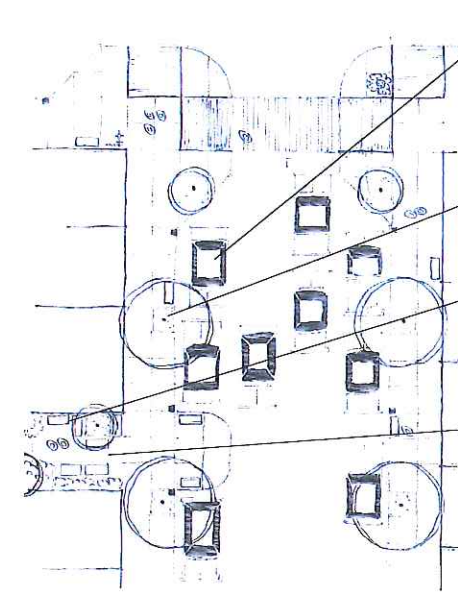


In this example the Courthouse becomes the center piece for the surrounding blocks with viewsheds of the architectural features being created by the other building orientations. This is a way to tie the entire area to one focal point while also creating an icon for downtown.

## Possible Downtown Plan



## Streetscape Elements for Downtown



### On Street Parking

On street parking is one of the most important elements in the urban fabric. It is often the life line that brings consumers and goods into a commercial area as well as providing a unique relationship between traffic and pedestrians.

### Street Trees

Street trees provide scale and texture to an urban area. They are an easy way to greatly improve the quality of an area.

### Functional Benches

Street furnishings should be selected and placed with functionality as the primary guide. They should not be placed at a set interval but with purpose, based on how pedestrians socialize.

### Pedestrian Passages

It is crucial that pedestrians be given opportunities to interact through and around the city. The use of small pocket parks along pedestrian pathways provide a relief to the energy along the streetscape and provide great opportunities to relax in a safe unique space.

## Scenarios for Downtown



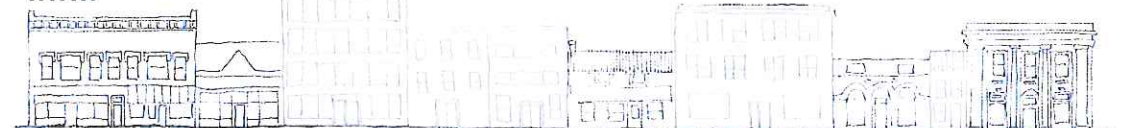
### Pedestrian Passages



### Street Trees



### Infill



### Park Space

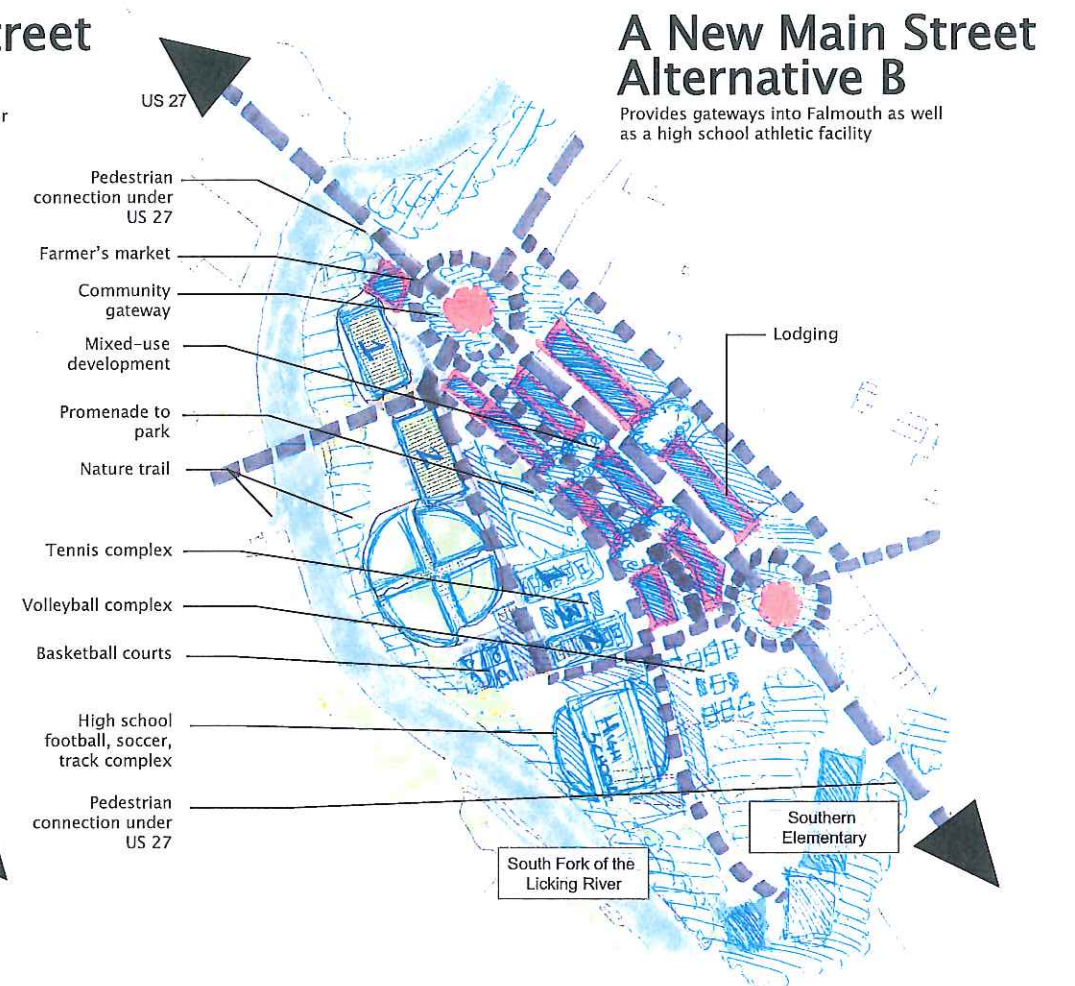
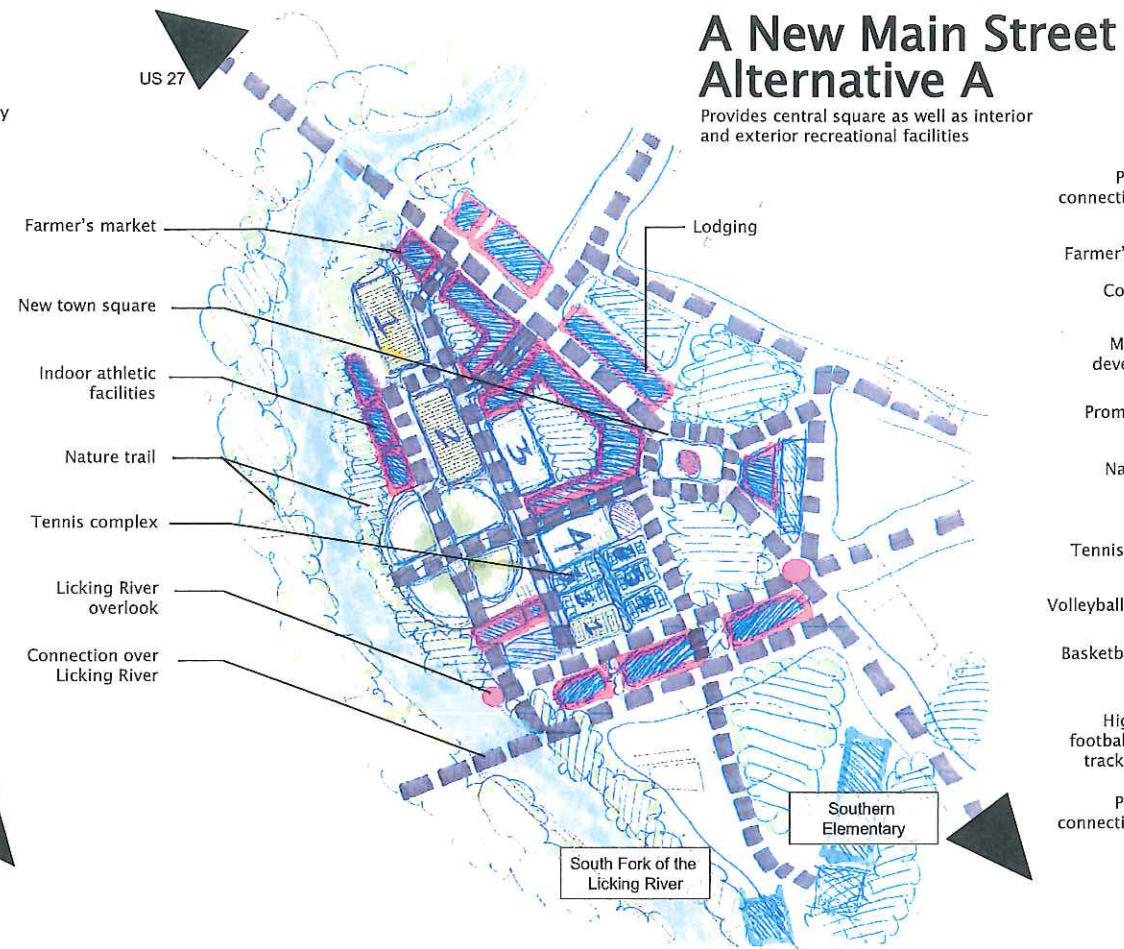
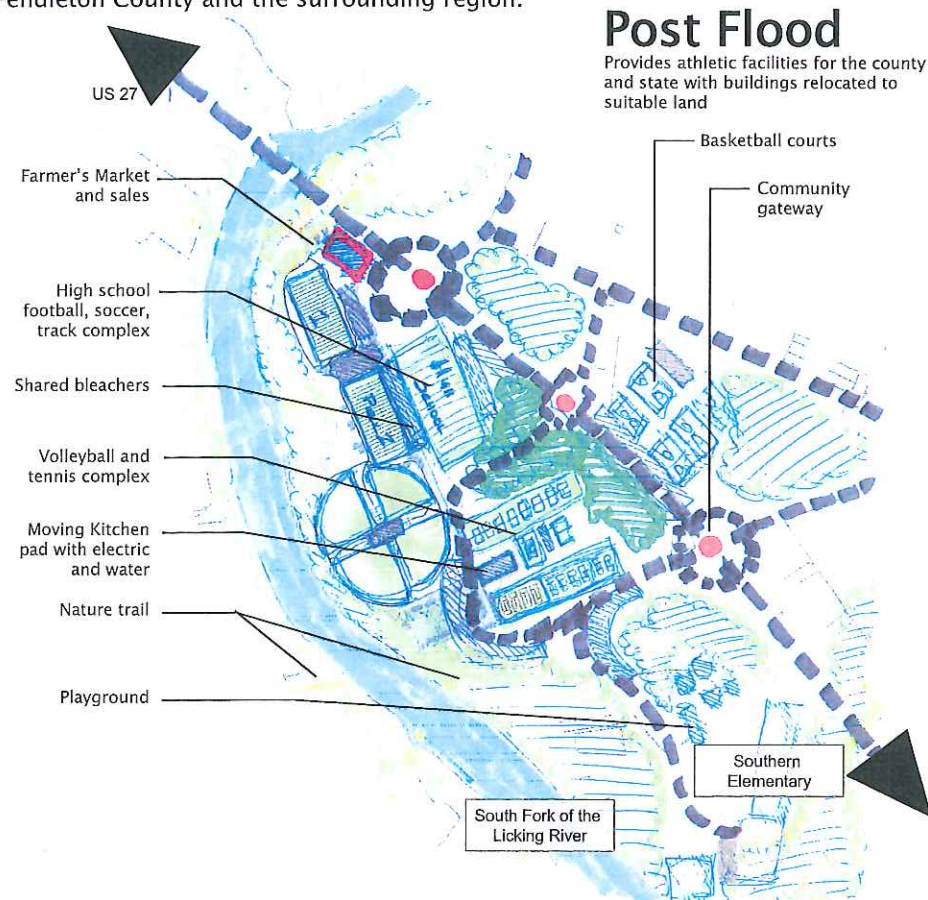




# West Falmouth: Economic Development through Recreation

## Creating Uniformity

West Falmouth has many unique features and attractions that can aid in developing economic opportunities for the city and county. Existing features such as the athletic park, fairgrounds, US 27 development and the South Fork of the Licking River are disconnected from one another and the city of Falmouth resulting in inactivity and economic decline. With proper planning West Falmouth could become one of the most vital areas of Pendleton County and the surrounding region.



## Post Major Flood

Following the next major flood, Falmouth could develop into a regional park acting as a connection within the greenway system and an area for passive and active recreation.

### Advantages

- Minimizes future flood damage to people and businesses
- Provides passive and active recreation for the local and regional level
- Mobile kitchen insures the needed uses of concessions for each activity and eliminates permanent buildings that could be damaged by flooding

### Disadvantages

- Cost of relocating businesses, utilities

## A New Main Street for Falmouth

Integrating development of buildings, parks, and existing residential areas.

### Advantages

- Provides a new center point in Pendleton County
- Provides more economic value to landowners, businesses, and the community
- Roads create an urban feel and help connect the city
- Recreational activities are located inside and outside providing year round use
- Opportunities for civic spaces through a town square

- Gateways into Falmouth are provided through round-about intersections
- Creation of a pedestrian friendly, handsome streetscape
- Parking is located behind buildings, out of sight
- Integrates the athletic park into overall fabric of the city

### Disadvantages

- Cost of building indoor recreational facilities
- More buildings in floodplain

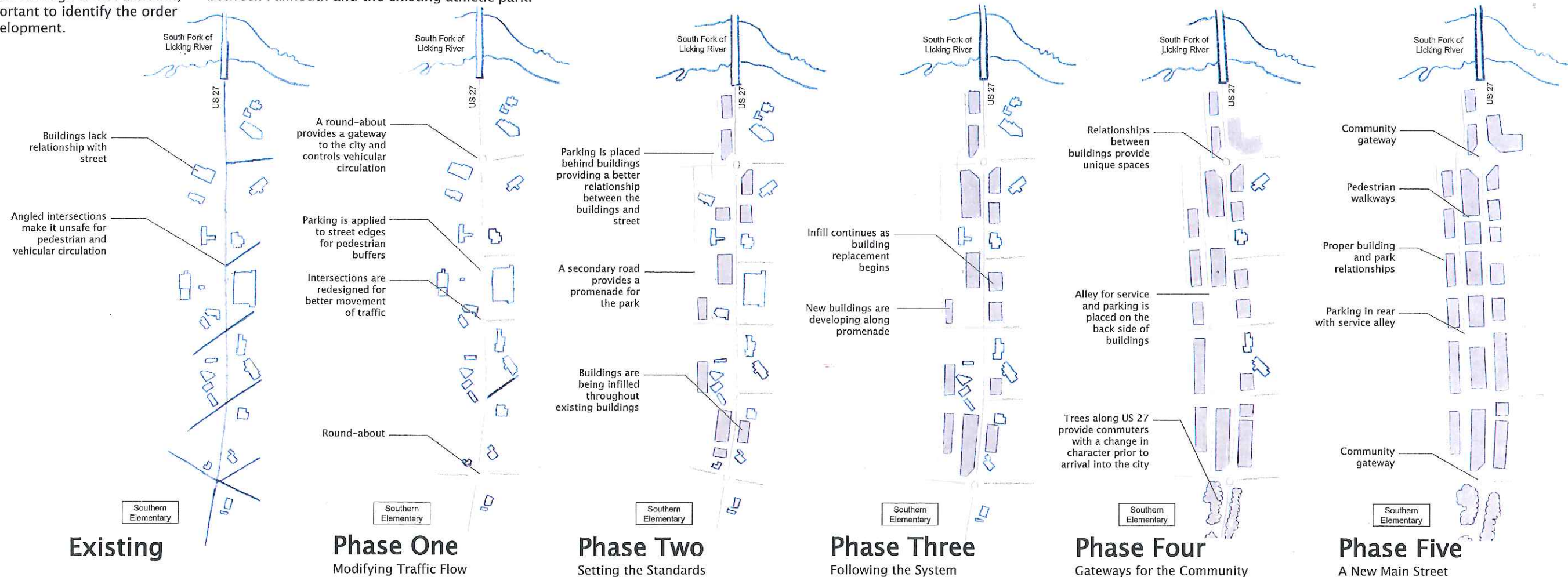


# Community Gateway: Bringing People Together

## Phasing Process

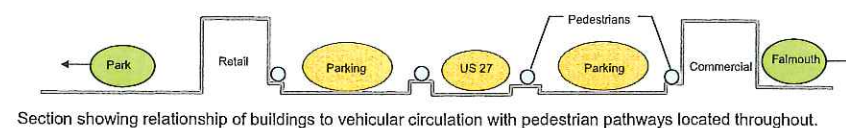
After developing a master plan, program, and characteristics for the park space through West Falmouth, it is important to identify the order of redevelopment.

The phasing process is shown below by first infilling and then relocating buildings along US 27 between Falmouth and the existing athletic park.



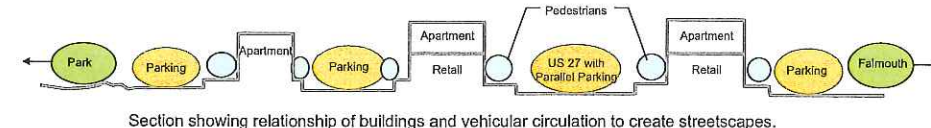
## Present

- Aboveground power lines are unsightly and block the view of the natural ridge ahead.
- Improper signage causes confusion
- Commercial buildings provided an unappealing characteristic for commuters.
- Aboveground trash cans and tanks are unsightly
- Existing vehicular circulation is unaware of pedestrian circulation
- The absence of crosswalks on US 27 makes it hard for pedestrians to cross safely



## Alternative

- Buildings close to the street bring life and movement to the area
- Hillsides are now a focal point
- Signs are organized with banners placed on street lights and buildings
- Larger sidewalks, street trees and on street parking provide buffers for pedestrian safety
- Crosswalks provide pedestrians with safe circulation
- Paving changes warn vehicular traffic of upcoming crosswalks





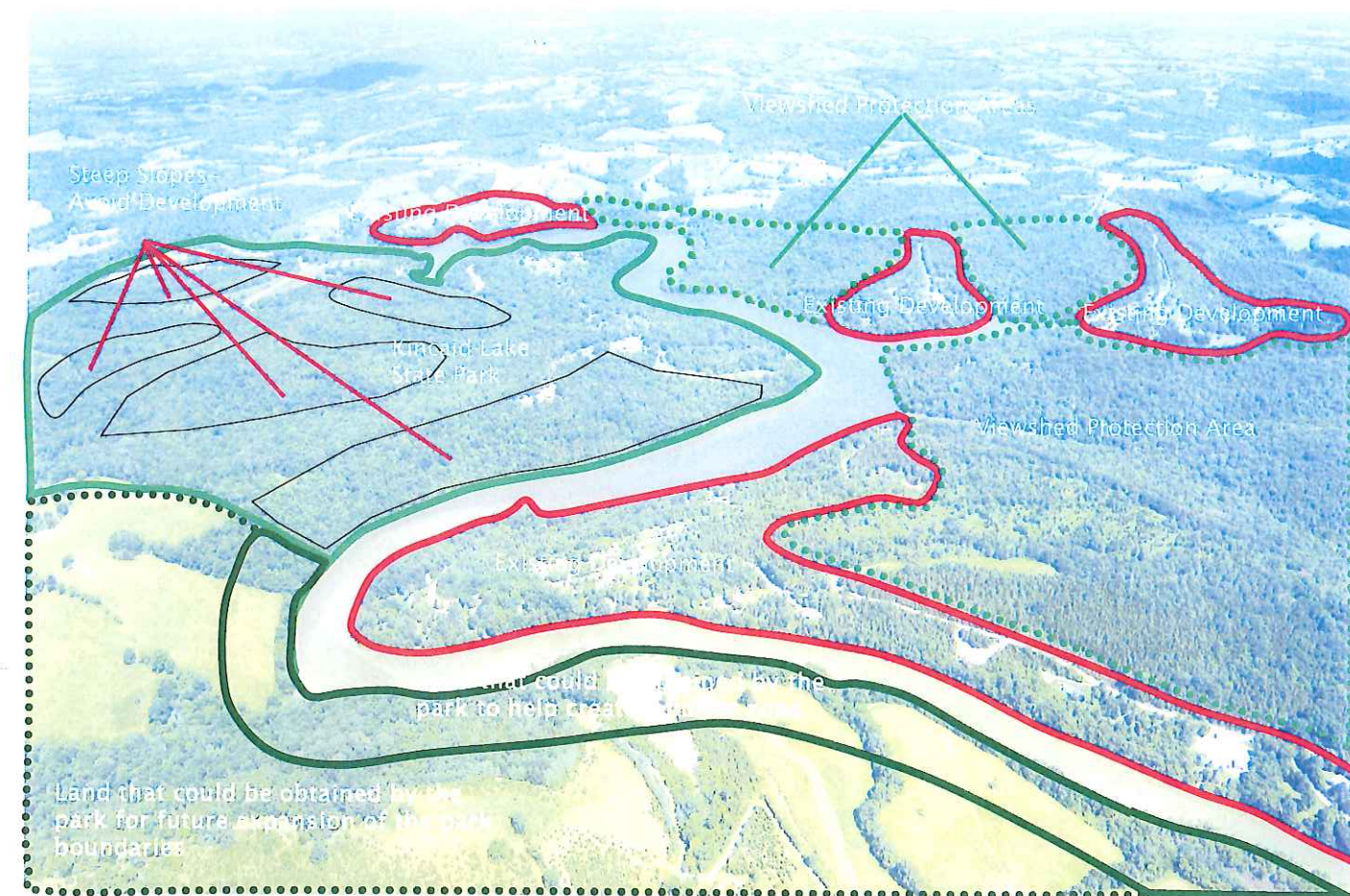
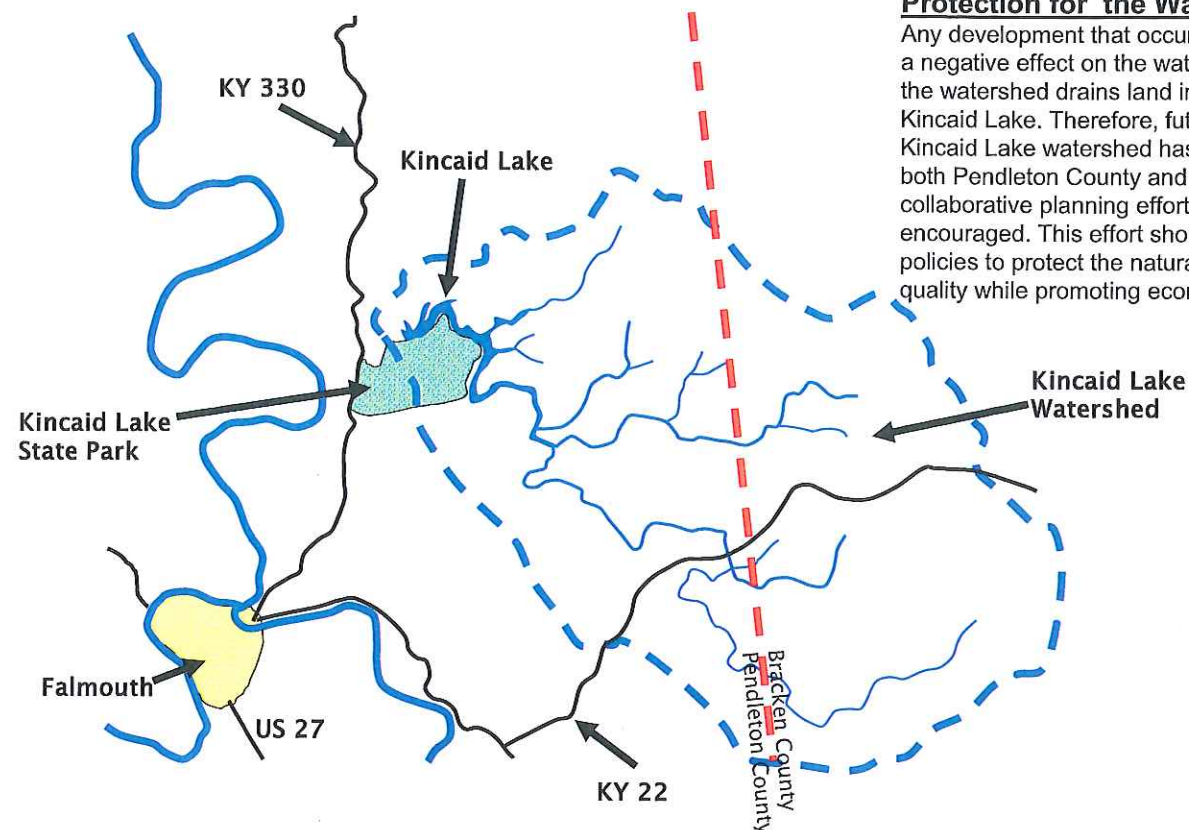
# Kincaid Lake State Park and Resort: A Recreational Retreat for Families

## Kincaid Lake State Park

A new lodge at Kincaid Lake State Park has been proposed to increase the economic value of the park for the region. A recent economic impact study by Thomas Zinn of the University of Cincinnati estimates that the 12 million dollar lodge would increase annual gross sales for the region by more than 17 million dollars. The facility is intended to serve as a recreational retreat for families visiting the park as well as provide facilities for regional conferences.

## Collaborative Development and Protection for the Watershed

Any development that occurs on the land could have a negative effect on the water quality of the lake since the watershed drains land in both counties into Kincaid Lake. Therefore, future development in the Kincaid Lake watershed has important implications for both Pendleton County and Bracken County. A collaborative planning effort between the counties is encouraged. This effort should develop a plan and policies to protect the natural features and water quality while promoting economic vitality.



Blue Licks Conference Center



Barren River State Park

## Examples of Kentucky State Parks and Resorts

There are several types of lodges that can be designed to fulfill the programmatic goals of a park. Some Kentucky State Parks have lodging facilities that are designed for family oriented recreational activities, while others are focused more on attracting conferences and small meetings. A facility that blends elements of both types can also be created.



Lake Barkley State Park and Resort



GreenBow Lake State Park



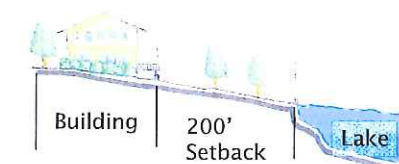
Kentucky Dam Village

## Program Recommendations

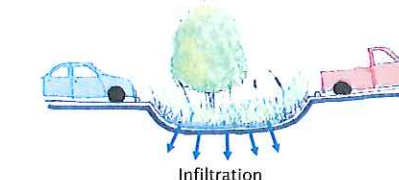
- 50 room lodge, multi-building or one building oriented for families and conference events.
- Conference rooms and banquet halls should be separate from guest rooms and activities.
- Running, jogging, and fitness trails should be installed to promote visitors health and well being.
- Parking: a minimum of 1.5 spaces per guest room (75 spaces) and 1 space per two people of banquet/conference hall capacity (135 spaces).

## Site Recommendations

- Additional development around lake should be done in an environmentally sensitive way, that does not increase lake siltation.
- All development should happen with best management practice to insure the future water quality of Kincaid Lake.
- Wastewater from the lodge should showcase alternative wastewater treatment options. This is an opportunity to demonstrate a variety of on-lot sewer disposal methods.
- Storm-water treatment should be done on site utilizing low-impact development.



- All future development should be setback from the lake's edge 200' to reduce lake sedimentation.



- All new parking lots should be equipped with bio-swales or pervious paving to help minimize water run-off.



# Kincaid Lake State Park and Resort: A Recreational Retreat for Families



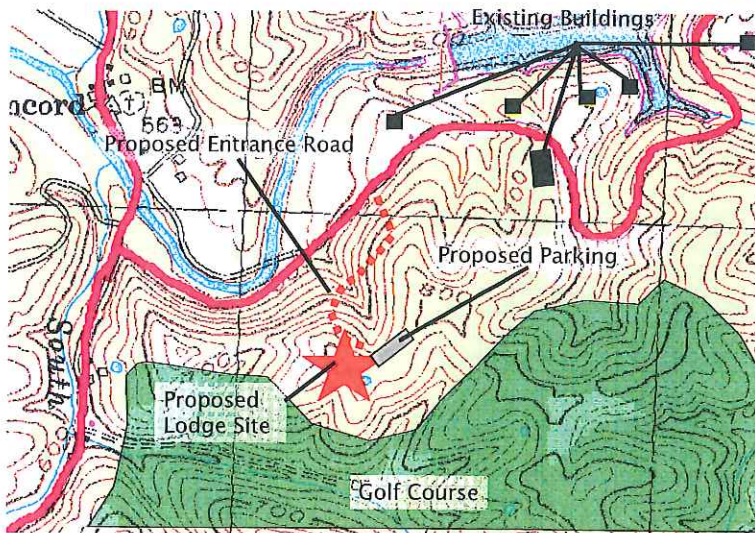
## Site A Golf Course Focused Lodge

A lodge located on the golf course offers a view of the surrounding landscape as well as the two recently constructed fairways.



## Site B Lake Front Focused Lodge

A lodge located close to Kincaid Lake provides the opportunity for guests to view one of Pendleton County's recreational assets.



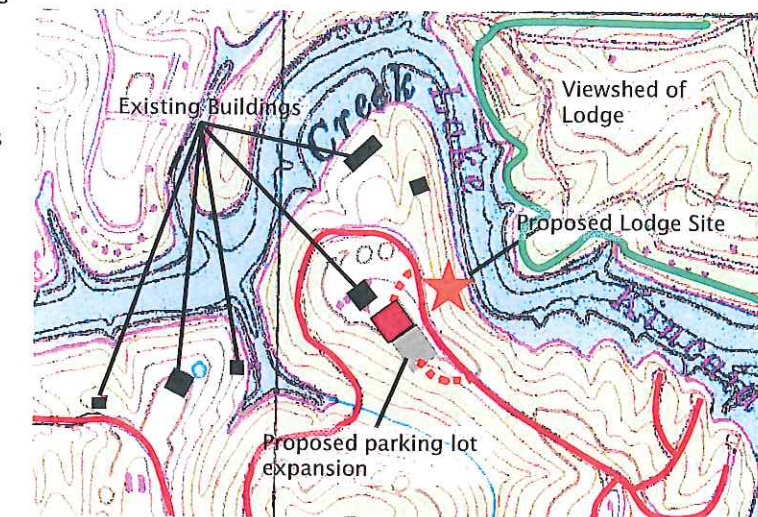
### Opportunities:

- A three building complex will allow for two buildings to house the 50 guest rooms, with the third building dedicated to the conference and banquet facilities as well as the lodge front desk and offices.
- Locating the lodge on top of the ridge, offers guests a variety of spectacular views of the Pendleton County landscape.
- The lodge gives guests the chance to view a golf course up close which they may not have the opportunity to do otherwise.

- An elevated site reduces the cost of sewer system construction.

### Constraints:

- Steep slopes call for a site sensitive approach to construction of the lodge and the treatment of runoff from impervious surfaces.
- There are no views of Kincaid Lake from this location.
- The access road will need to be constructed on the side of the ridge in order to make the entrance safe for vehicular traffic.
- The location of the lodge is not near park activities such as the pool, the fitness center, or the proshop.



### Opportunities:

- A complex designed with one building helps with ease of management and operations.
- The lodge is designed to accommodate the conference and banquet halls under one roof making implementation of program more controllable.
- This location utilizes existing park infrastructure by its close proximity to the existing store and pool area.
- This option provides a more pedestrian friendly environment with trails to activities located around the site.

### Constraints:

- Development occurring across the lake could lessen the viewshed quality over time.
- Consideration for the edge of lake and the stability of the banks should be taken to help insure the optimal quality of the site.
- The topography of the site does not allow for the construction of a parking lot adjacent to the lodge. The parking lot would need to be placed on top of the ridge behind the lodge.
- The steep terrain will increase the cost of construction for holding large group activities near the lodge.



View of Golf Course from Proposed Lodge Site



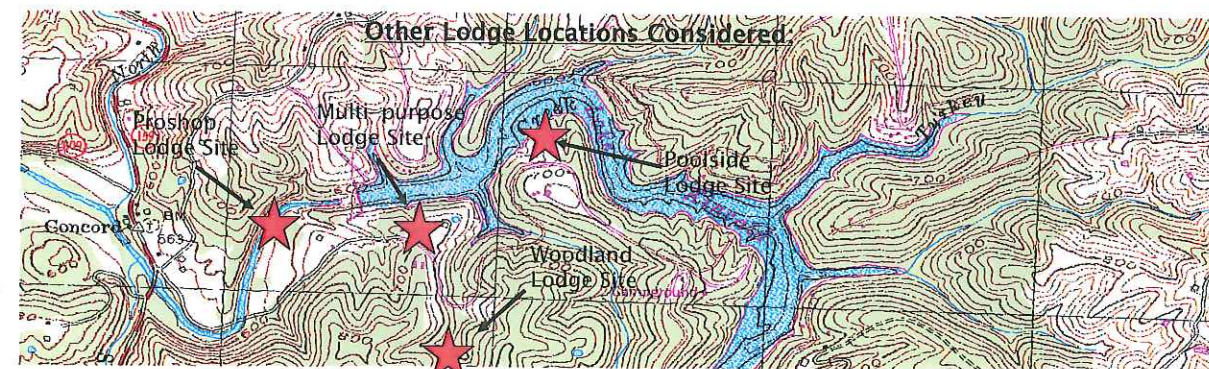
View of Lake from Proposed Lodge Site

### Proshop Option:

- Existing infrastructure on site from proshop.
- First sight when entering the park.
- Good views of the lake.
- Placement may cause traffic congestion.

### Multi-purpose Building Option:

- Elevated view to observe the countryside and lake.
- Existing infrastructure on site from multi-purpose building.
- Close proximity to activities in the park.



### Pool Option:

- Good view of lake
- Close to existing recreation center
- Infrastructure for sewage, water, and other utilities exists on site.

### Woodland Option:

- Separates daytime from overnight visitors.
- Allows guests the opportunity to view the woodland as well as the lake.
- Elevated sites help enhance viewsheds of the surrounding countryside.



# Williamstown Lake Community: Providing Economic Growth *and* Quality of Life

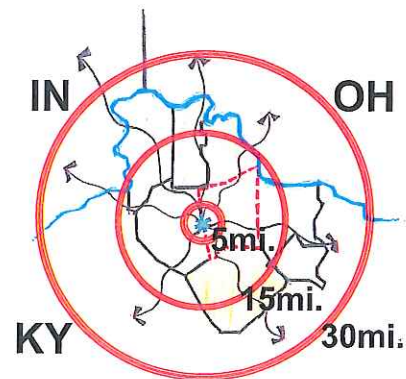
"Rural areas across North America, especially those near metropolitan areas, are experiencing intense population and development pressure in the form of low-density residential subdivisions. Unchecked residential growth fragments the rural landscape, reduces visual quality and utilizes the land in an inefficient manner, both economically and ecologically. Furthermore, it often destroys the very rural character that drew new residents to the countryside in the first place. This increase in residential development has created a movement among rural residents to preserve the "rural character" of their town. (Ryan, 2002)."

## Williamstown Lake Potential

Pendleton County, Grant County, and Williamstown Lake have the opportunity to join this movement and take control of what the future holds for Williamstown Lake. The choice can be made to either protect the economic and ecological resources of Williamstown Lake and the surrounding area, or let the economic and ecological resources be lost to increasing pressures of growth and conventional forms of development. The objective of the Williamstown Lake expansion should be to protect the vital resources of the area; whether environmental, cultural, or social; and to establish a system that maintains this protection while still allowing the desired economic benefits and growth.



## Regional Attraction



After the expansion, the new Williamstown Lake has the potential to attract visitors from Kentucky as well as Indiana and Ohio.

## Recommended Land Use Plan

The plan below attempts to consider the development priorities of the Williamstown Lake expansion. The Economic Impact Study done by Zinn in 2005 recommends 787 dwelling units to be built over a twenty year period (Zinn, 2005). Light blue represents the existing 300 acre Williamstown Lake, and the darker blue represents the 1,300 acre lake after the expansion. The orange areas represent where future growth could occur, and are based on viewsheds, water quality, streams, slope, protection zones, hydrology, existing roads, existing land cover, and providing economic growth with ecological focus.

### Vegetation Buffer: Stream Corridors: Riparian Zones:

A 200' vegetative buffer is shown in green surrounding Williamstown Lake and the streams. A buffer along the lake edge will help to provide and maintain water quality, prevent erosion, and protect the views from the lake. All streams and tributaries in the watershed must be protected if the Williamstown Lake expansion is to be ecologically *and* economically successful in the future.

Interstate 75

Route 467

### Watershed Boundary:

Pendleton and Grant Counties *must* work together to establish a cohesive plan for the watershed as a whole, not as separate counties. All development in the watershed will have an impact on the water quality of the lake, and needs to be considered in order to establish a plan of action for the future that responds to the environment as well as providing economic growth. The future of ecological design could possibly phase out county lines and use watershed boundaries instead.

KY 22

### Williamstown Lake After Expansion:

It is important to look at Williamstown Lake as a whole and not as old versus new. With the expansion, Williamstown Lake will increase in size from 300 acres to 1300 acres, creating a wide variety of benefits for a wide variety of users. Consideration should be given to establishing a program that utilizes the entire lake, and not just one side or the other.

## Protecting the Views to and from the Lake



A new access road may be needed if a marina is developed. Careful design of that entry road will help to preserve rural and visual quality, and create a sense of arrival into the lake area. These sketches are meant to give a feel of what that access road may look like, and suggest views that visitors would see while traveling to and from the lake.

### Possible Recommended Areas for Future Growth:

The areas in orange represent where future growth could occur. Following existing roads when considering development helps to prevent unnecessary growth in places that are better suited for protection. Specific land uses such as mixed-use, residential, retail, and open space can be implemented to provide economic development and a healthy quality of life.

### Possible Marina and Boat Drop Access:

The four circles represent where existing roads cross the creek. After the expansion, these could be potential sites for access to the water. This may prevent future access points in undesirable areas.





# Williamstown Lake Community: Possible Development Options Fairview Ridge

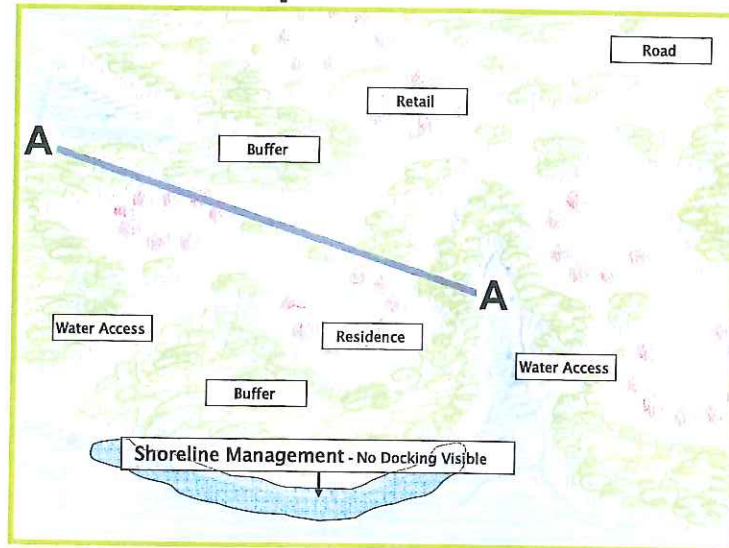
## Williamstown Lake Goals

- Protect the water quality of the lake
- Provide economic growth
- Maintain rural character
- Provide shoreline management with multiple options
- Maintain visual quality
- Establish a Joint Management Unit with Grant County
- Provide a healthy and sustainable quality of life

## Williamstown Lake Design Guidelines

- Minimize intensive development within the lake watershed
- Establish a vegetation buffer and protection zones
- Allow residential areas in appropriate areas
- Establish a marina and water access in appropriate locations
- Preserve existing trees and vegetation cover
- Establish a set of architectural guidelines and standards
- Strive to provide and maintain a sense of community

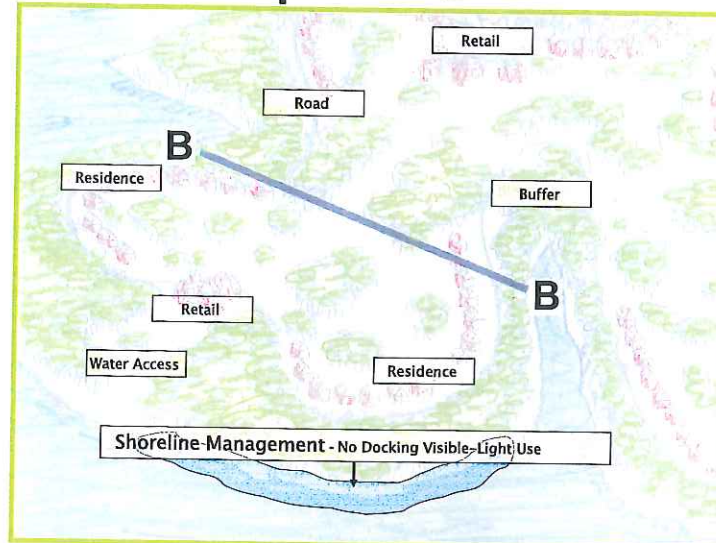
### Cluster Option A



#### Benefits

- Provides large amount of open space
- Incorporates vegetation buffer
- Protects visual quality
- Offers neighborhood atmosphere
- Housing can be incorporated on slope
- Architecturally appealing
- Centralized development easy to sewer

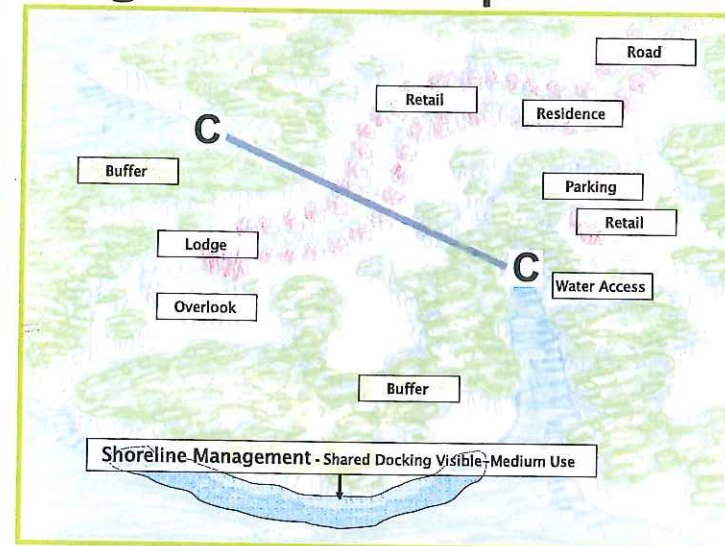
### Cluster Option B



#### Benefits

- Provides large amount of open space
- Housing tucked away on ridges and hillsides
- Protects visual quality
- Separate clusters with centralized areas
- Housing can be incorporated on slope
- Loop roadway provides visual interest
- Centralized development easy to sewer

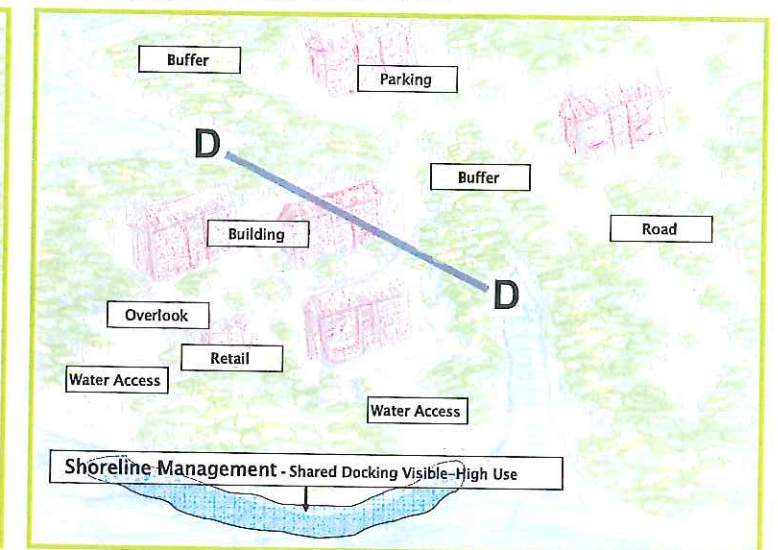
### Ridgeline Development



#### Benefits

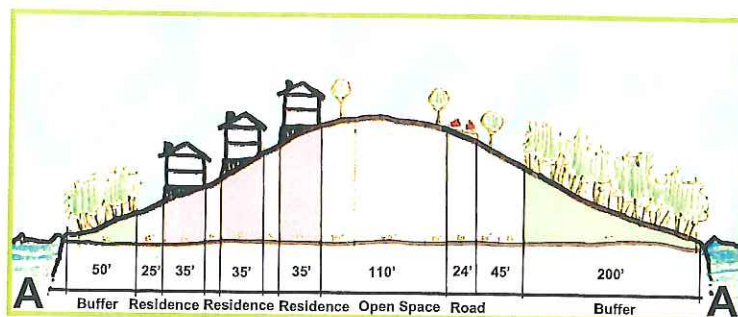
- Provides large amount of open space
- Incorporates vegetation buffer
- Protects visual quality
- Smart growth standards with dense atmosphere
- Community overlook and lodge facility
- Smaller lot sizes, larger protection zones
- Centralized development easy to sewer

### Condominiums

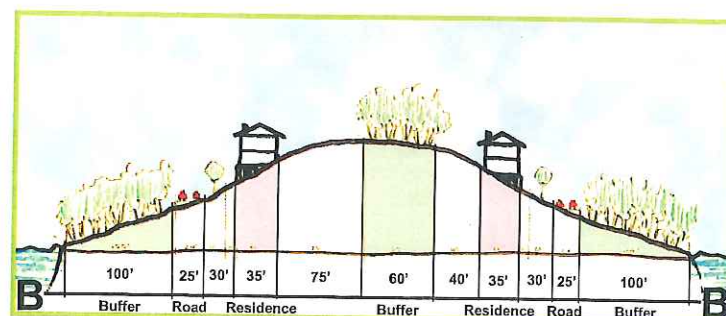


#### Benefits

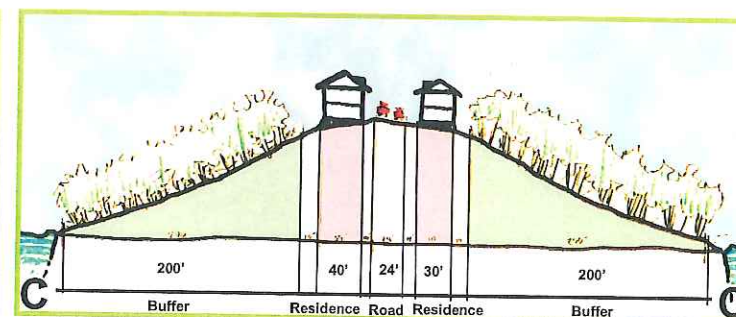
- Provides large amount of open space
- Incorporates vegetation buffer
- Dense living with urban retreat feeling
- Diverse user group of young and old residents
- Can be residency, rental, or vacation units
- Business opportunities
- Economic benefits from large number of users



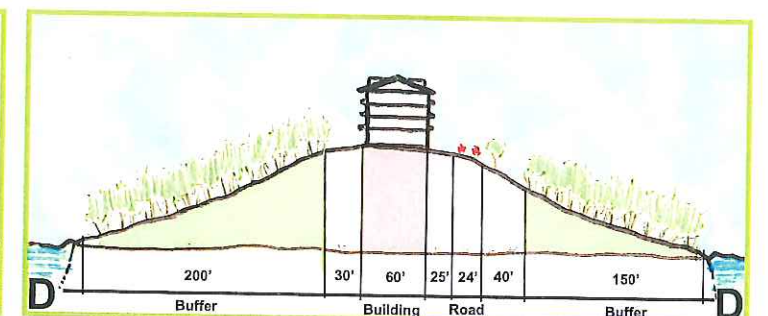
Section: Cluster Option A



Section: Cluster Option B



Section: Ridgeline Development



Section: Condominiums

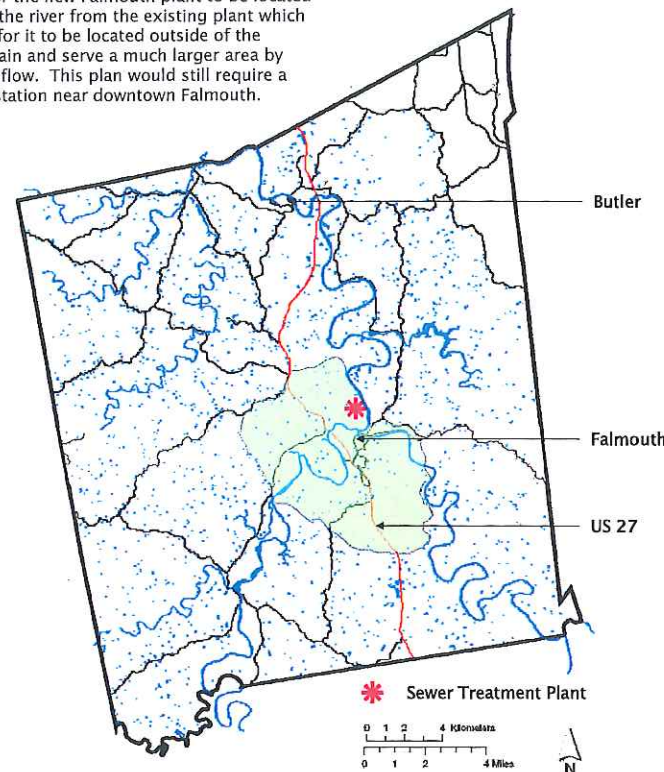


# Sewage Treatment Plant Options: Preserving Quality of Life

## Falmouth

### Existing Proposal:

Calls for the new Falmouth plant to be located across the river from the existing plant which allows for it to be located outside of the floodplain and serve a much larger area by gravity flow. This plan would still require a pump station near downtown Falmouth.



### Why Municipal Sewers?

- Preserves water quality for animals and people
- Protect ground water for drinking
- Allows for denser development
- Controls location of new development
- Increases property value
- Maintains quality of life
- Less expensive to home owners overall

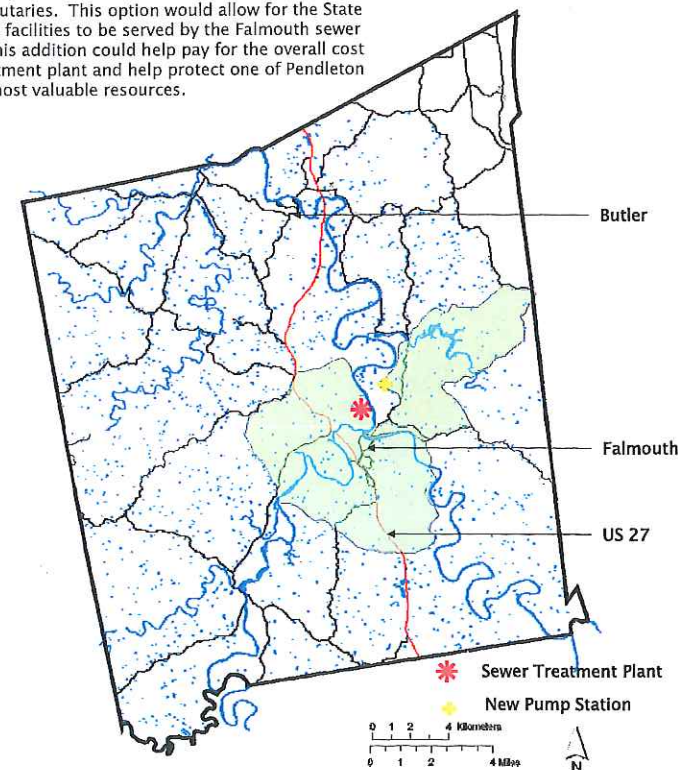
### How Are Sewer Plant Locations Selected?

There are two main approaches to placing sewage treatment plants. One is the placement of treatment plants in locations that are easily acquired and cost efficient. When land is easily acquired, the total cost of the project tends to be lower, and the planning process less complicated. These facilities are often located to support existing development and increase the service area of the original treatment facility. A disadvantage to this option is that easily accessible and cost effective sites may not always serve areas best suited to development.

A different approach involves planning sewage infrastructure growth to support the places where development is most likely to occur in the county. A main advantage in this process is that the land seen at a much larger context, helping to find and locate connections within Pendleton County that may not have otherwise been noticed. This process also guarantees that the new sewer system will fit and support new development, and will allow decision makers within the community to guide where new development occurs. Some of the disadvantages to this approach are that the planning process is usually more time intensive, a location is often much more difficult to identify at a small scale due to the fact that most of the planning has been done at a large scale, and more work or infrastructure may be needed to join new sewage treatment plants to existing infrastructure.

### Study Option 1:

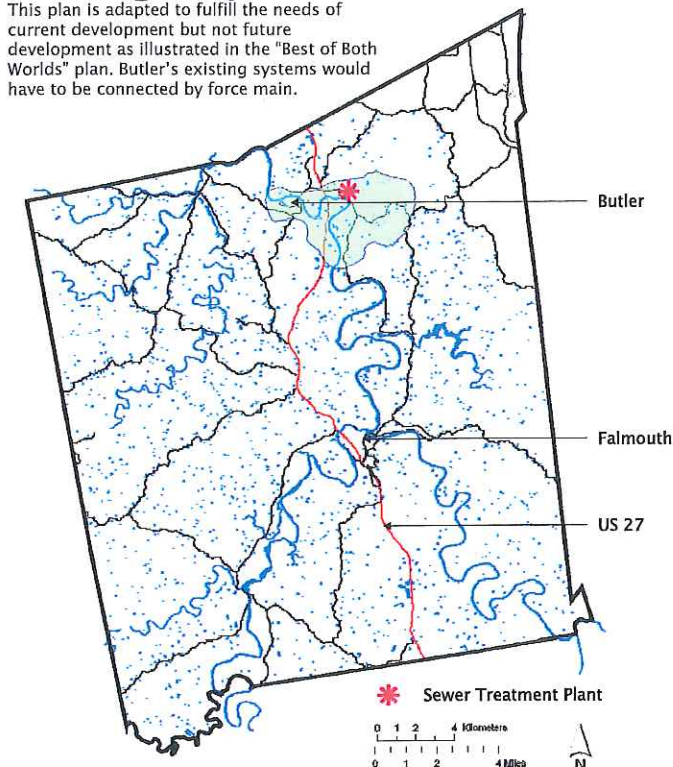
Adds a pump station in the end watershed of Kincaid Lake and its tributaries. This option would allow for the State Park Lodge facilities to be served by the Falmouth sewer district. This addition could help pay for the overall cost of the treatment plant and help protect one of Pendleton County's most valuable resources.



## Butler

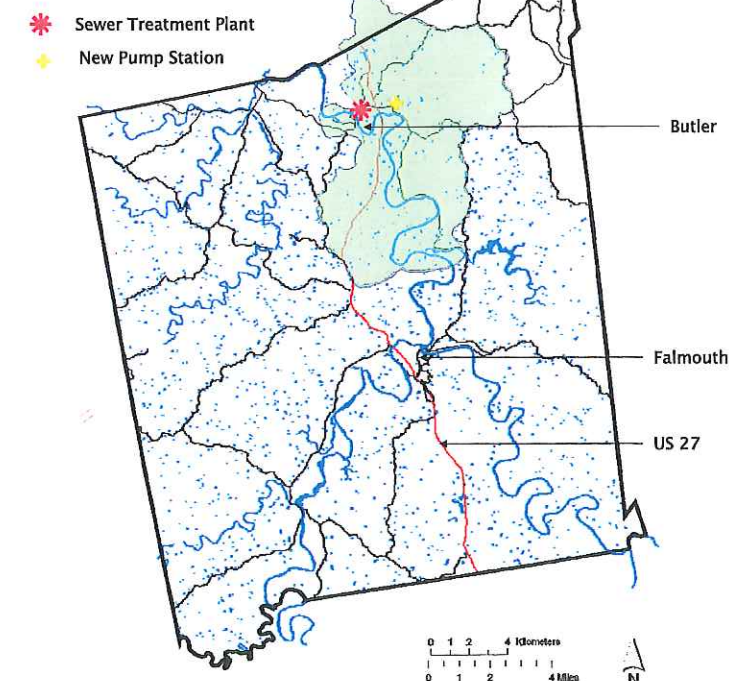
### Existing Proposal:

This plan is adapted to fulfill the needs of current development but not future development as illustrated in the "Best of Both Worlds" plan. Butler's existing systems would have to be connected by force main.



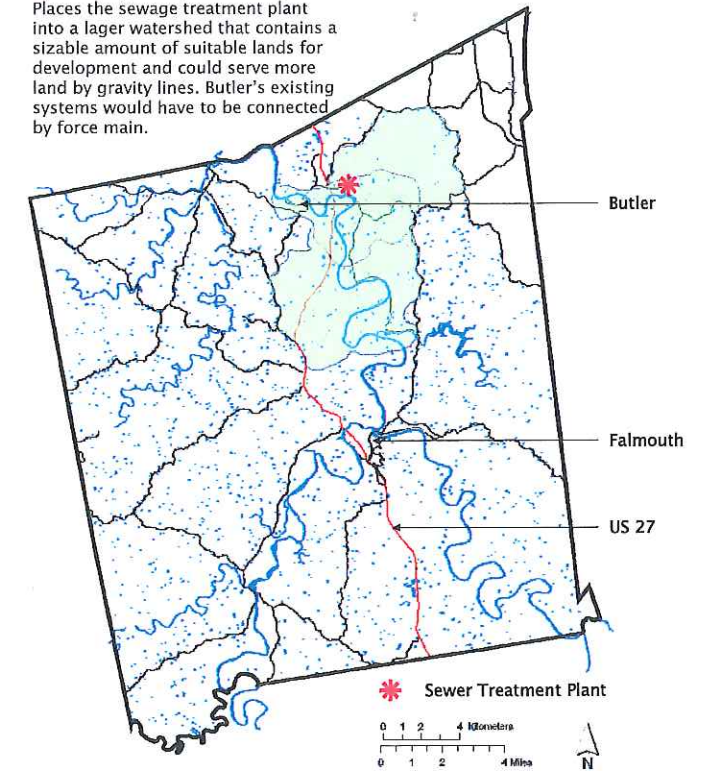
### Study Option 2:

Adds a pump station in the location of the existing proposal's treatment plant and moves the plant to a neighboring watershed allowing for a larger area to be served by a gravity system. Butler's existing systems would have to be connected by force main.



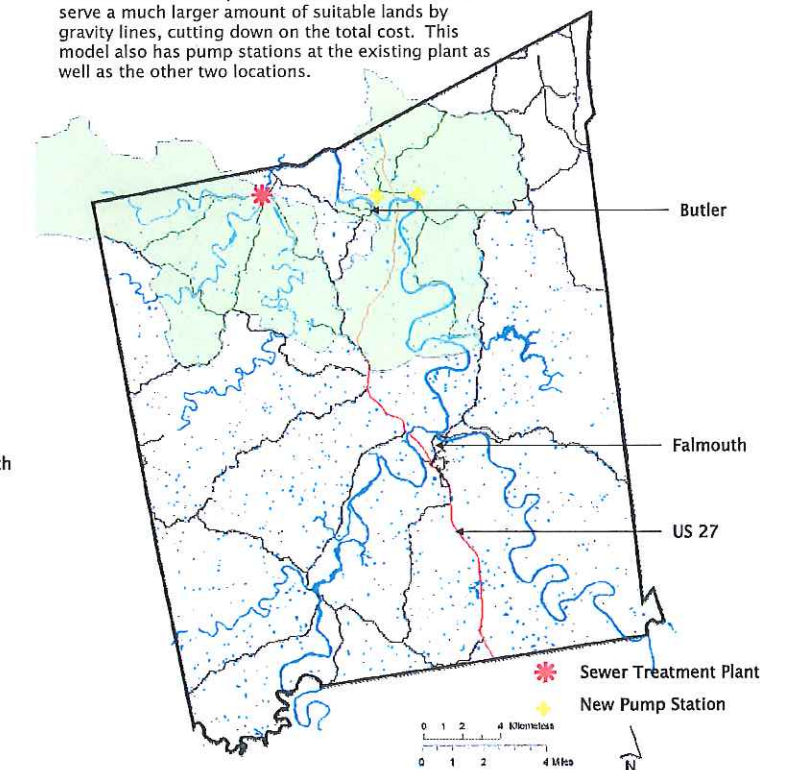
### Study Option 1:

Places the sewage treatment plant into a larger watershed that contains a sizable amount of suitable lands for development and could serve more land by gravity lines. Butler's existing systems would have to be connected by force main.



### Study Option 3:

Calls for the new sewage treatment plant to be located on the Grassy Creek which would allow it to serve a much larger amount of suitable lands by gravity lines, cutting down on the total cost. This model also has pump stations at the existing plant as well as the other two locations.





# Alternative Sewer Options: A Look into the Future of Wastewater Management

## The Importance of Looking at Alternative Wastewater Opportunities:

Pendleton County can look to alternative means of wastewater treatment in certain areas when conventional ones are not feasible. There is a wide variety of alternative ways to treat wastewater that have less impact on the environment and can actually be less expensive to maintain and operate in the long term.

The following are examples of sewer alternatives that are available on the market today with diagrammatic sketches that explain how each one works, along with accompanying text to explain the advantages of each particular method. All data presented is available from the National Small Flows Clearinghouse website and can be accessed at <http://www.nsfcc.wvu.edu> for additional information.

## Septage Management

- "Septage is the liquid and solid material that is pumped from a septic tank, cesspool, or other treatment facility after it has accumulated over a period of time.

- Treatment and disposal of domestic septage is governed by the U.S. Code of Federal Regulations Part 503.

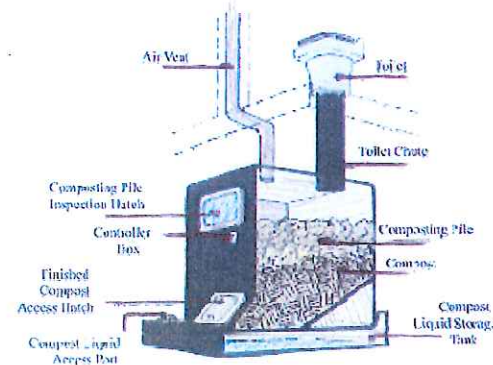
- However, municipalities also establish local regulations for septage handling, treatment, and disposal in addition to the state and federal regulations.

- Facilities for septage treatment and disposal can be privately or publicly owned.

- Larger municipalities are capable of managing the whole process from handling and treatment to disposal.

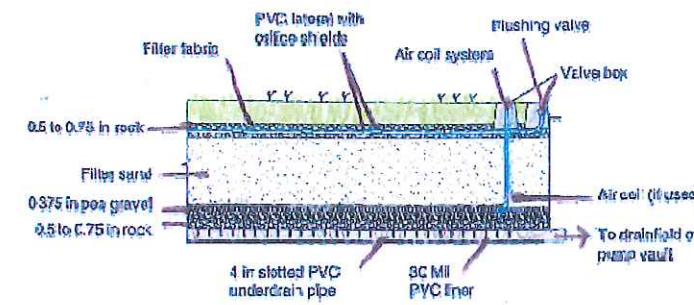
- Other municipalities opt to use privately owned facilities that alleviate some of the responsibilities of operating a facility" (Solomon, Casey, Mackne, Lake, 1998).

## Composting Toilet Systems



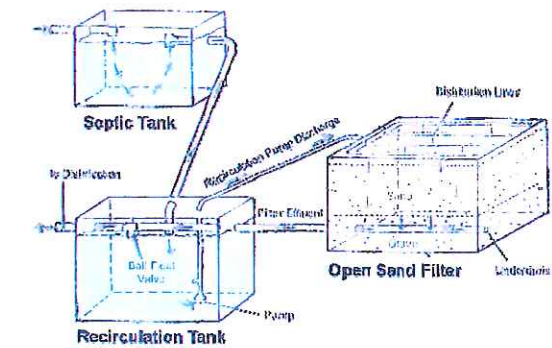
- "Composting toilet systems do not require water for flushing, and thus reduce domestic water consumption.
- These systems reduce the quantity and strength of wastewater to be disposed of onsite.
- They are especially suited for new construction at remote sites where conventional onsite systems are not feasible.
- Composting toilet systems have low power consumption
- Self-contained systems eliminate the need for transportation of wastes for treatment/disposal.
- Can accept kitchen wastes, thus reducing household garbage.
- Composting toilet systems divert effluent containing nutrients and pathogens" (Solomon, Casey, Mackne, Lake, 1998).

## Intermittent Sand Filters



- "Intermittent Sand Filters (ISF's) have low energy requirements.
- ISF's produce a high quality effluent that can be used for drip irrigation or can be surface discharged after disinfection.
- Drainfields can be small and shallow.
- ISF's are easily accessible for monitoring and do not require skilled personnel to operate.
- No chemicals are required
- If sand is not feasible, other suitable media could be substituted that may be found locally.
- Construction costs for ISF's are moderately low, and the labor is mostly manual.
- ISF's can be installed to blend into the surrounding landscape.
- The soil cover prevents odors" (Solomon, Casey, Mackne, Lake, 1998).

## Recirculating Sand Filters



- "Recirculating Sand Filters (RSF's) provide a very good effluent quality with over 95% removal of organic material and total suspended solids.
- RSF's are effective in applications with high levels of organic content.
- Easily accessible for monitoring and do not require a lot of skill to maintain.
- A significant reduction in the nitrogen level is achieved.
- No chemicals are required
- Less land area is required (1/5 of the land area of a single-pass sand filter) for RSF's than for single-pass sand filters" (Solomon, Casey, Mackne, Lake, 1998).

## Water Efficiency

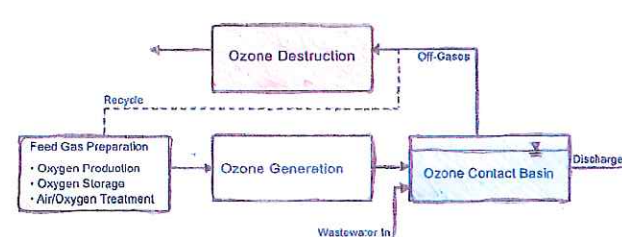
- "With the growing shortage of fresh water supplies in many parts of the U.S., particularly in cases of drought, it has become essential to find ways to conserve water and use it efficiently. Wasteful habits can deplete water reserves quicker than it is possible to replenish them.

- Water conservation also has an effect on how much wastewater is produced, thereby having a direct impact on the performance and life of the wastewater system.

- Thus, a reduction in the amount of wastewater due to water conservation practices can be extremely beneficial to an onsite or community wastewater system.

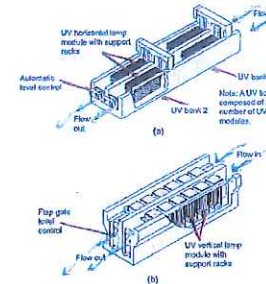
- Some engineering practices available for residential users include: low flush toilets, toilet dams and displacement devices, low-flow showerheads, faucet aerators, and pressure reduction (among others)" (Solomon, Casey, Mackne, Lake, 1998).

## Ozone Disinfection



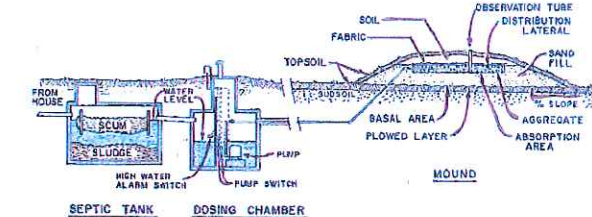
- "Ozone is more effective than chlorine in destroying viruses and bacteria.
- The wastewater needs to be in contact with ozone for just a short time (approximately 10 to 30 minutes).
- Ozone decomposes rapidly, and therefore, it leaves no harmful residual that would need to be removed from the wastewater after treatment.
- There is no regrowth of microorganisms after ozonation, unlike ultraviolet and chlorine disinfection.
- Ozone is generated onsite, and thus, there are fewer safety problems associated with shipping and handling" (Solomon, Casey, Mackne, Lake, 1998).

## Ultraviolet Disinfection



- "Ultraviolet (UV) Disinfection is effective at inactivating most viruses, spores, and cysts.
- UV disinfection is a physical process rather than a chemical disinfectant; thus eliminating the need to generate, handle, transport, or store toxic/hazardous or corrosive chemicals.
- There are no toxic residuals that could be harmful to humans or aquatic life.
- UV is user-friendly for operators.
- UV disinfection equipment requires less space than other methods" (Solomon, Casey, Mackne, Lake, 1998).

## Mound Systems



- "The mound system enables use of land that would otherwise be unsuitable for in-ground or at-grade onsite systems.
- The natural soil utilized in a mound system is usually the top layer, which is typically the most permeable.
- Mound systems do not have a direct discharge to a ditch, stream, or other body of water.
- If care is taken, construction damage can be minimized since there is little excavation required in the mound area.
- Mounds can be utilized in most climates" (Solomon, Casey, Mackne, Lake, 1998).

Source: National Small Flows Clearinghouse <http://www.nsfcc.wvu.edu>