

Building a *Vision* for Our Region



Presented to
Monroe Township Supervisors
August 13, 2009

Presented by
Central Pennsylvania Conservancy

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ReVisionPA

The Focus

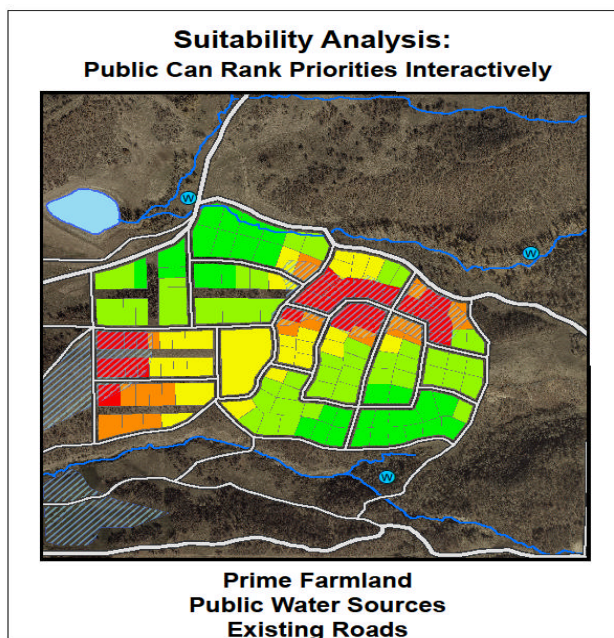
South Central Pennsylvania is a location blessed with an abundance of **natural resource assets**—from fertile farming soils and crystal-clear streams, to dense forests and outstanding open space. These assets provide us with economic, recreational, and lifestyle benefits that are essential to our prosperity. Recognizing and understanding the role of natural resource assets in the future of our region is the goal of the Central PA Conservancy’s new initiative called **ReVisionPA**.

Who we are and what we do

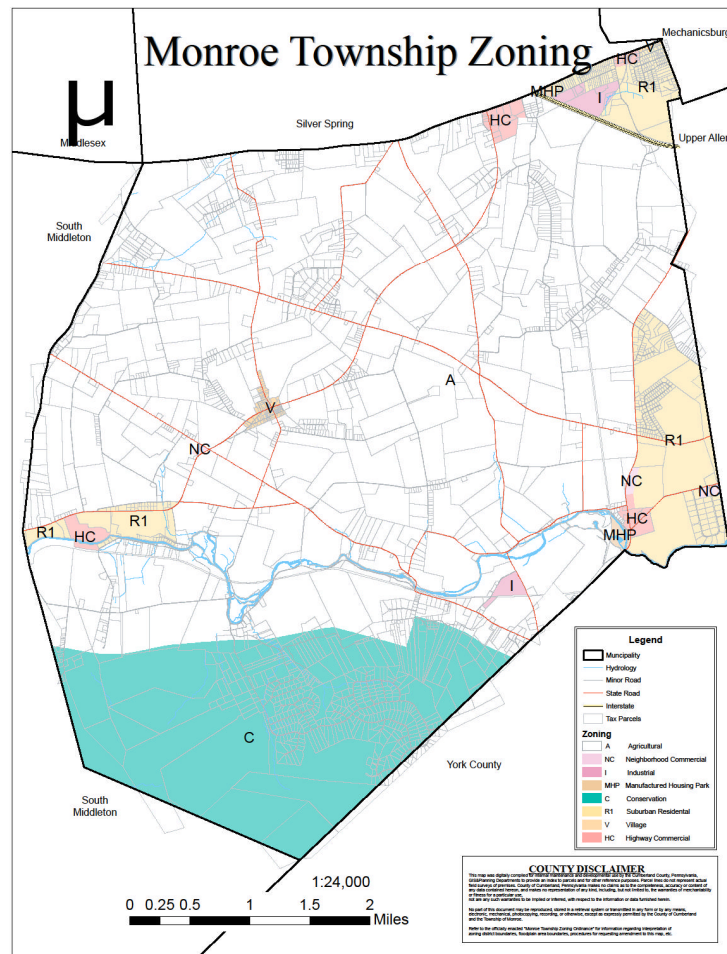
As a 27 year old **land trust**, the mission of the Central PA Conservancy is to preserve significant natural areas for the enjoyment of future generations. In order to achieve this mission, we work closely with municipal officials, community leaders, and residents to understand the needs of the community and to provide education about the importance of our natural resource assets. **ReVisionPA** provides the direct connection between municipal leaders and the residents so that we can work together to shape the future of our communities.

How we do it

In response to the interest that the Monroe Township Supervisors expressed in finding a new way of visioning the future of their community and the impacts of their land use decisions, the Central PA Conservancy created a **visioning presentation** that shows a “community build-out analysis” for the Conservation Zone located within Monroe Township. This type of analysis is a unique tool that allows decision makers to apply current zoning with significant natural resources to see the impacts land use decisions will have on the community.



Sample



Why Monroe Township Conservation Zone?

In 2007, the township completed an update of its **Comprehensive Plan** and many of the Plan's objectives point toward finding a way to balance *economic growth* and the *preservation of the significant natural resources and rural character* that make Monroe Township such a wonderful place to work and live.

A **community build-out analysis** of the Conservation Zone speaks to the township's concerns across all of the following objectives, which are presented in the Executive Summary of the Monroe Township 2007 Comprehensive Plan Update (p. 7 **Comprehensive Plan – 2007 Update, Monroe Township, Cumberland County, PA. Adopted March 22, 2007**). Those especially relevant to the Conservation Area are the following:

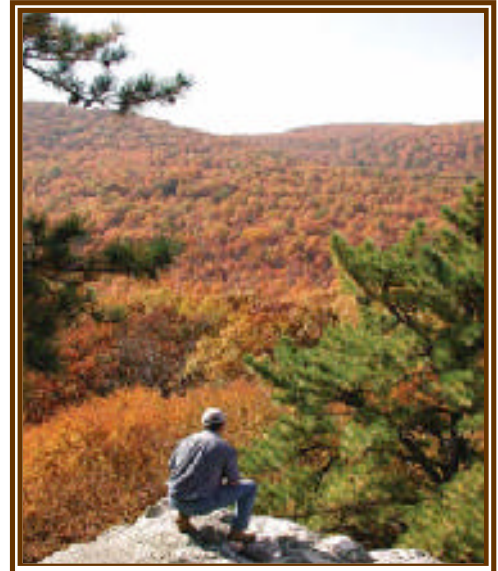
- *Protect, conserve, and preserve natural resources;*
- *Preserve and enhance the character of Monroe Township; and*
- *Provide for controlled growth in appropriate areas.*





The Conservation Zone is a valuable **natural resource asset** to the community within Monroe Township. The purpose of this Zone is “to protect large concentrations of environmentally sensitive features that also have significant value for passive and active recreational pursuits, most specifically, forested areas and steep slopes” (**Official Zoning Ordinance, Monroe Township, Cumberland County, PA. Enacted September 17, 1998 and amended October 23, 2008**).

Scenic vistas and **public land** located on the South Mountain provide the township with many **recreational opportunities** for the community along the Appalachian and White Rocks Trails that travel across the mountain through dense hardwood forests. The White Rocks Natural Area, which surrounds the White Rocks Trail, is a state listed outstanding geologic site that is home to many wildlife species that are located at this ancient quartz rock outcrop (p. 85 **A Natural Areas Inventory of Cumberland County, PA Update – 2005. The Pennsylvania Science Office, The Nature Conservancy**).



The Conservation Zone is also a critical **water recharge area** for the township and surrounding communities – over 80% of the **public water supply** for the Cumberland Valley falls as rain on the South Mountain and refills the underground water supply for Monroe Township residents (**South Mt. is the source of water for 6 public water supplies – USGS Annual Water Data Reports Mapper**).

The land use activities in the Conservation Zone directly affect not only the public water supply, but also the **cold water streams** that flow from the South Mountain, such as the Yellow Breeches Creek, and provide the area with numerous recreational and tourism opportunities.



What is a “community build-out analysis?”

Community build-out analysis is a tool for examining the effectiveness of a community’s zoning and other land use regulations and their direct effects on natural resource assets. The community build-out for the Conservation Zone in Monroe Township can be used to present a scenario of what **the maximum amount of residential development would be, given the current zoning and consideration of the significant natural resource assets** in this Zone.

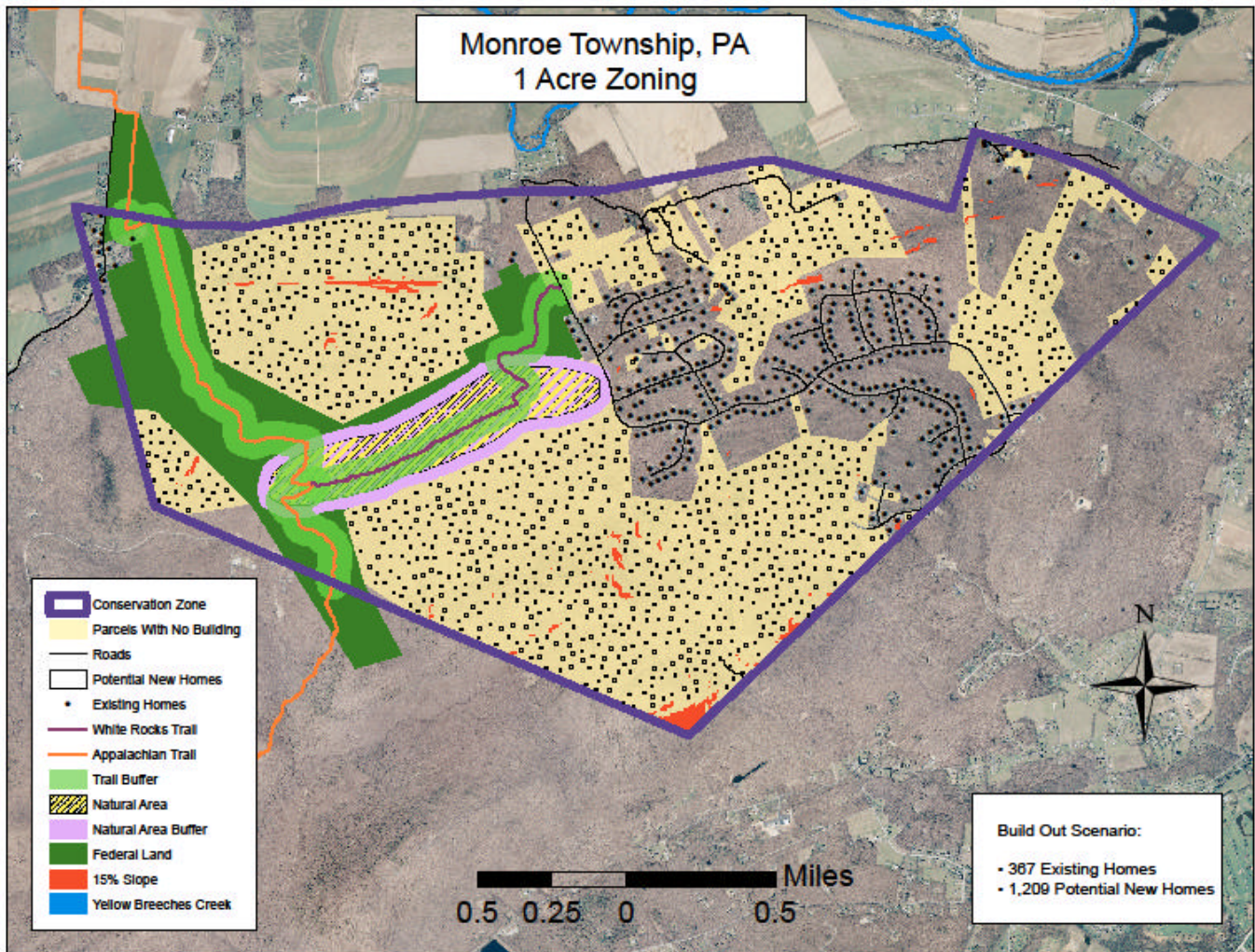
The build-out analysis **provides the community a chance to soundly evaluate the impacts of land use decisions and discuss how to best protect significant natural resources**. Municipalities will be better able to assess whether its zoning regulations, together with other land use regulations, are stringent enough to preserve its rural character and protect its natural resource assets. The analysis can even speak to the fiscal implications of the projected development scenarios. (p.1 **A Community Build-Out Analysis of Monroe Township, Cumberland County, Pennsylvania** Center for Land Use and Geography-Earth Science Department, Shippensburg University)

We have developed 3 different community build-out scenarios for the Conservation Zone in Monroe Township. In order to create these, we looked at the following **criteria**:

- **Density**: 85% density efficiency. This means that 15% of every parcel will be used for sidewalks, right-of-way, utility, and sewer easements. The remaining 85% can be used by the landowner.
- **House Size**: Average of 2,000 square feet house size. The existing homes in the Conservation Zone are between 1,100 and 3,900 square feet in size.
- **Separation**: 150 foot building separation (for 1 and 2 acre zoning) and 300 foot building separation (for 10 acre zoning). This figure is based on the minimum lot width distances for Monroe Conservation Zone (1 and 2 acre zoning) and what is currently used in neighboring township South Middletown Conservation Zone (10 acre).
- **Minimum Lot Size**: 1, 2, and 10 acre minimum lot size zoning. This shows the previous Monroe Conservation Zone (1 acre zoning), the current Conservation Zone minimum (2 acres), and 10 acre zoning as an additional example.
- **Slopes**: The analysis prohibited development on slopes greater than 15%. Based on the goal of the conservation zone to protect steep slopes and in order to minimize storm water runoff and erosion.
- **Natural Areas**: The analysis prohibited development on and within a 200 foot buffer of the White Rocks Natural Area, which is a state listed outstanding geologic site that contains significant wildlife species.
- **Trails**: The analysis prohibited development within a 300 foot buffer of the Appalachian Trail the White Rocks Trail to provide a scenic buffer for recreation.
- **Parcels**: The analysis prohibited development on federal parcels and parcels with existing homes.

Community Build-Out Analysis:

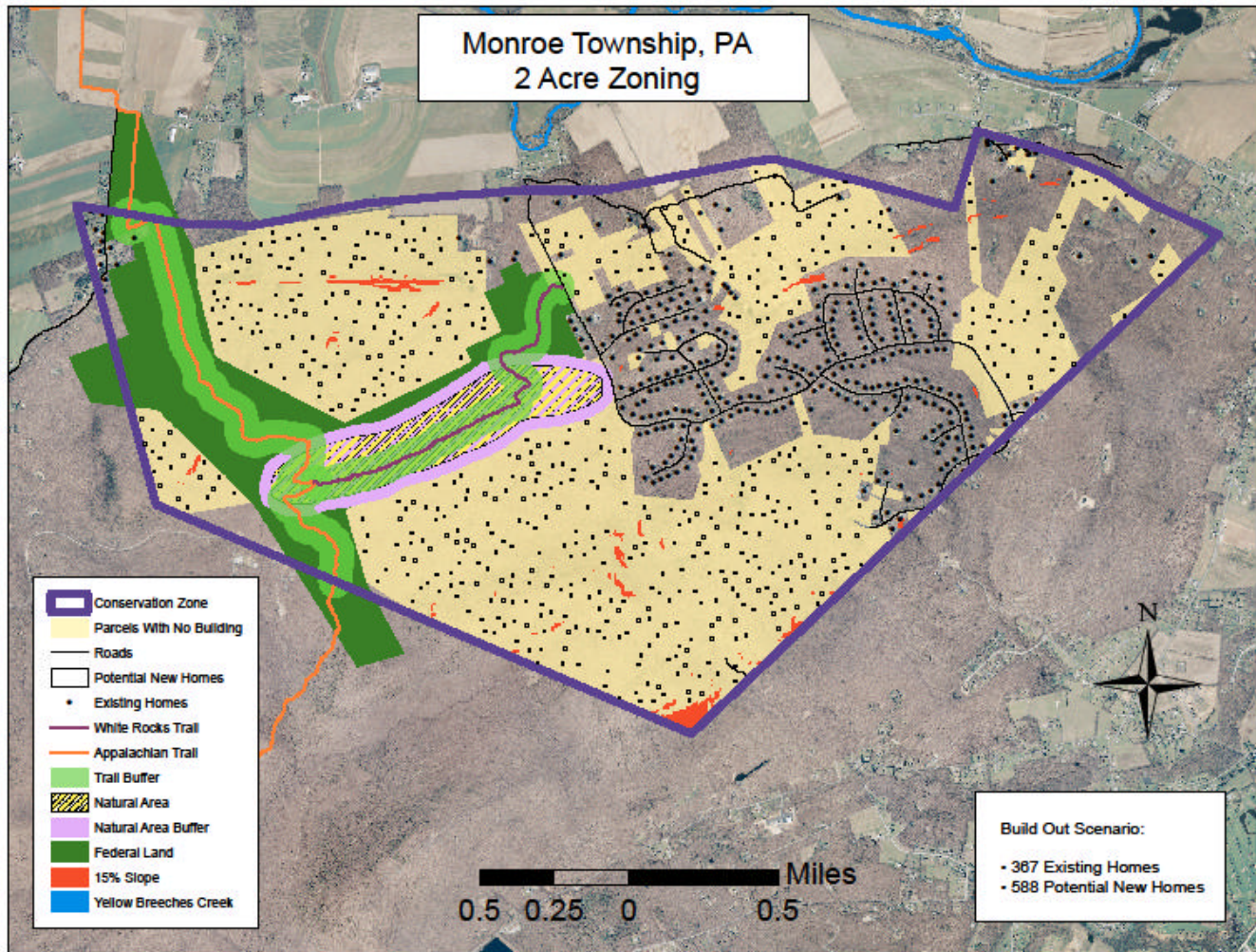
1 Acre Zoning, Monroe Township Conservation Zone



- 1 acre minimum lot size (Previous Zoning restriction in Monroe Township Conservation Zone)
- 367 existing homes in Conservation Zone
- 1,209 potential new homes in Conservation Zone

Community Build-Out Analysis:

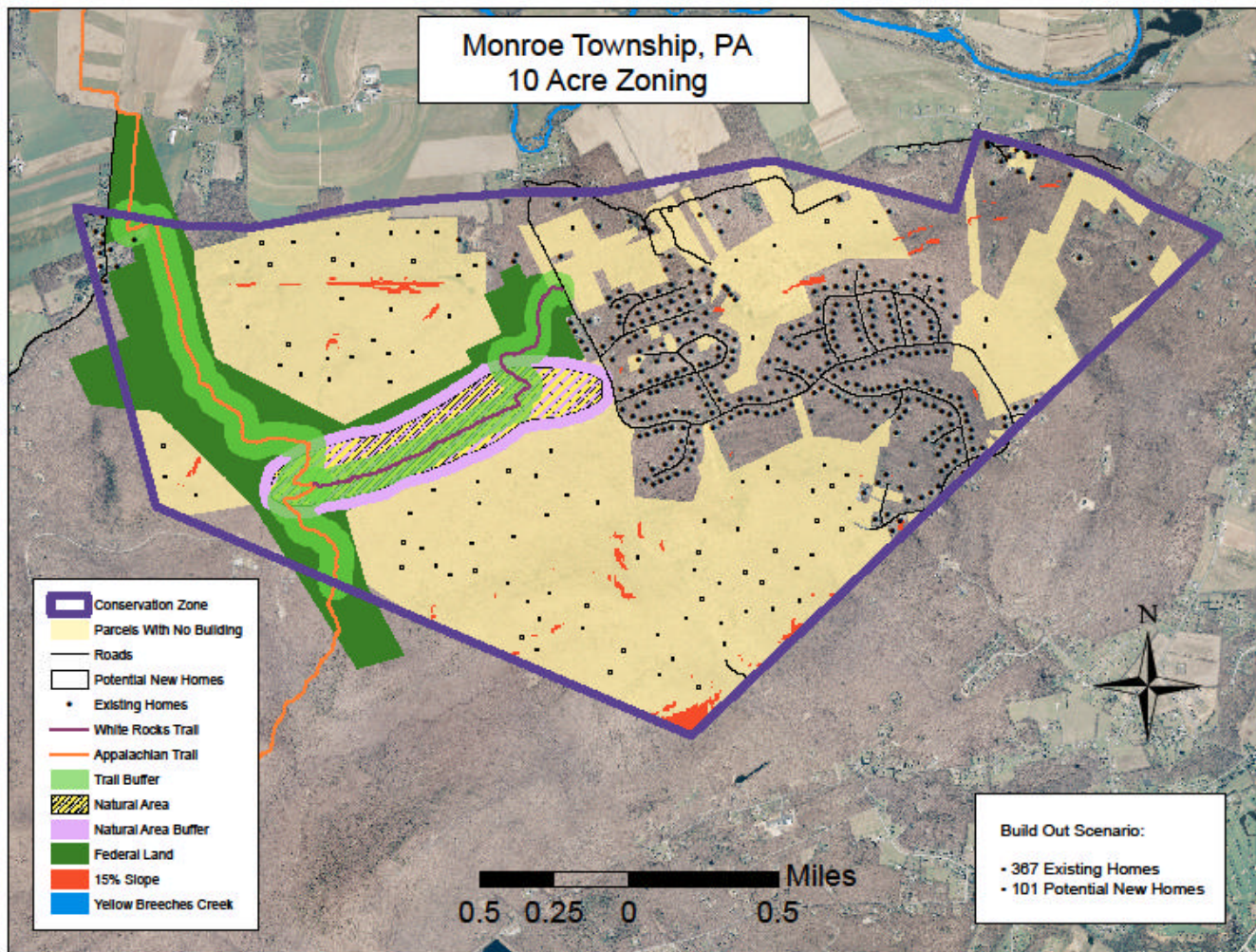
2 Acre Zoning, Monroe Township Conservation Zone



- 2 acre minimum lot size (Current Zoning restriction in Monroe Township Conservation Zone)
- 367 existing homes in Monroe Township Conservation Zone
- 588 potential new homes in Monroe Township Conservation Zone

Community Build-Out Analysis:

10 Acre Zoning, Monroe Township Conservation Zone



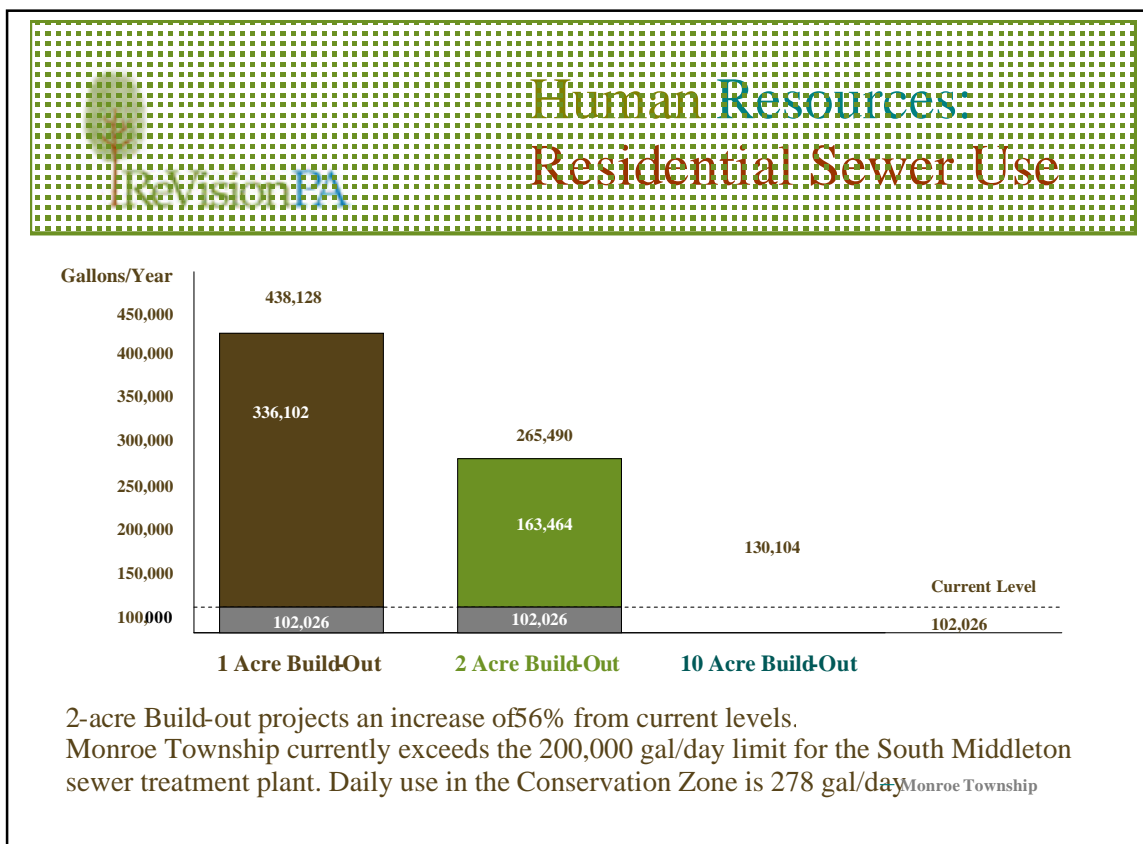
- 10 acre minimum lot size (As compared to current South Middletown Township Conservation Zone minimum lot size)
- 367 existing homes in Monroe Township Conservation Zone
- 101 potential new homes in Monroe Township Conservation Zone

What is the potential impact to our community?

When municipal officials make decisions about new residential growth in their township, they must consider not only where the new development will take place, but **the impact on the natural resource assets, public services, and quality of life of their community**. Community build-out analysis allows municipal officials and residents to compare the impacts of different scenarios and choose a path that is best for their township.

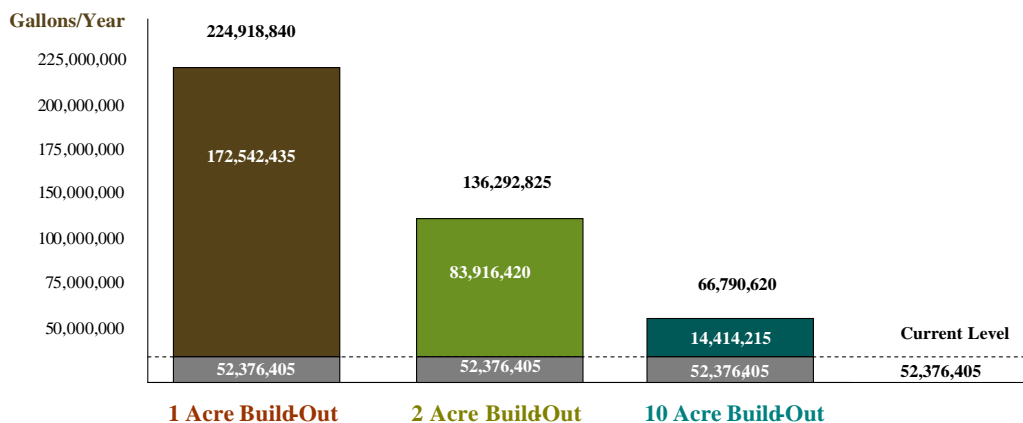
Impact to Community: Public Services

Public services are one of the first things that come to mind when residents consider the cost of new residential development. Monroe Township does not have its own sewer treatment facility so it must rely on surrounding municipalities for these public services. The Conservation Zone is serviced by the South Middletown sewer treatment facility. Of the 200,000 gallons per day allowance that Monroe Township has for its southern district with South Middleton Township, which includes the Conservation Zone, Monroe Township is **already at or above this limit**. As the chart below shows, additional residential development will require a dramatic increase in sewer hook-up permits (EDUs) and the willingness and ability for the South Middletown treatment facility to accommodate this increase in demand. This will increase the rates that residents in the Conservation Zone pay for their sewer services as a result of the improvements that will need to be made to the sewer treatment facility to accommodate the new homes.



Impact to Community: Public Water

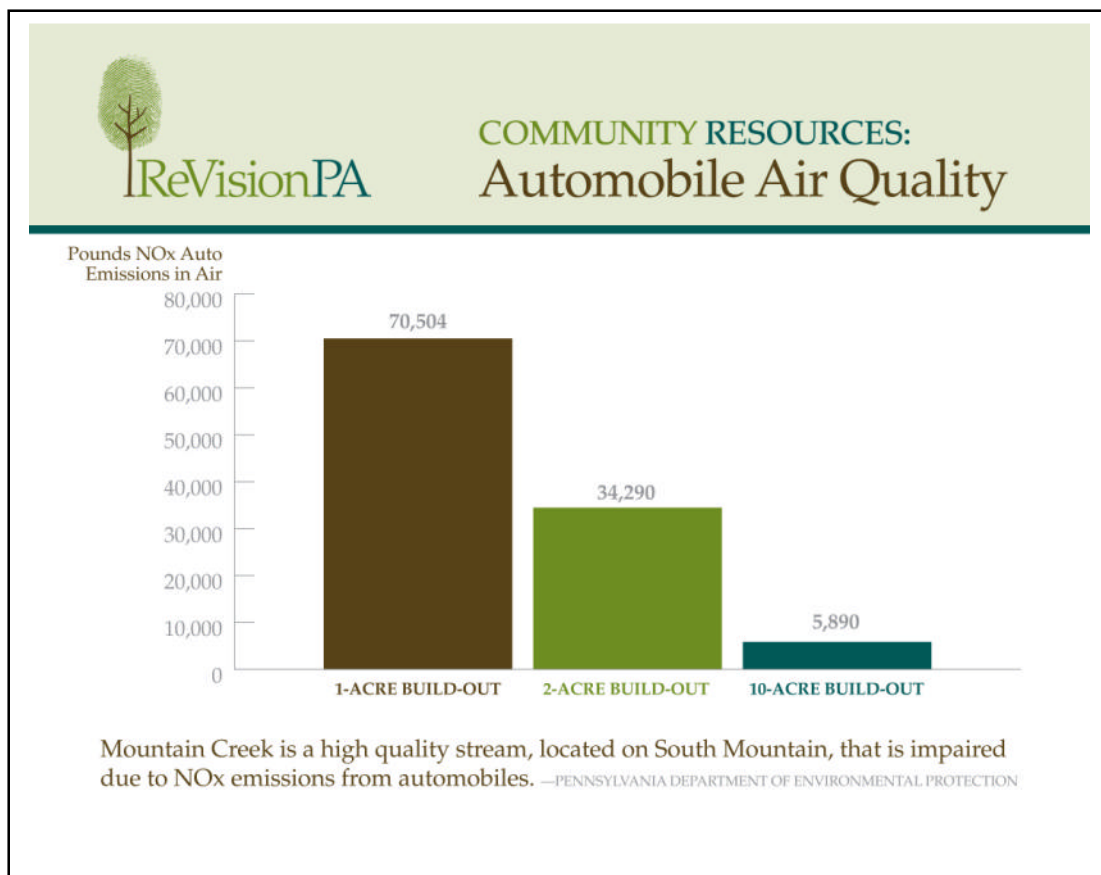
Ensuring a safe **public water supply** is a concern for every township. Monroe Township is unique in that the South Mountain acts a sponge, soaking up rain water that falls on the mountain, filtering it, and storing it underground for the public to use. Over 80% of the public water supply for the Cumberland Valley originates on South Mountain (**South Mt. is the source of water for 6 public water supplies – USGS Annual Water Data Reports Mapper**). Each time a home or a road is built, the ability for the rain water to soak into the ground decreases, threatening the supply of fresh drinking water for the township. The existing wells that are owned by Aqua PA, which provide service for residents in the Conservation Zone, will be withdrawing a significant additional amount of water to provide for the new homes. In addition to drinking water, the rain that falls on in the Conservation Zone supplies the cold water streams like the Yellow Breeches, providing recreational opportunities and economic benefits of tourism for the township. With each new home using an average of **391 gallons of water a day** ("Estimated Use of Water in the United States in 2000," USGS Circular 1268, United States Geological Survey.) the chart below shows the dramatic increase in demand for water which will have significant impacts on the **public water supply, quality of the water, and the recreational streams** in the township.



2-acre Build-out projects an increase of 60% from current levels.
This is based on an average of 391 gal/day.— UNITED STATES GEOLOGICAL SURVEY

Impact to Community: Quality of Life

Every municipal official considers how their decisions will affect the **quality of life** in their township. Whether it's the scenic view on their drive home from work, the places they go to recreate on the weekend or just clean air to breathe and safe water to drink – the decisions that they make about land use affects the rural character that everyone in Monroe Township cherishes. Monroe Township is a special place – a beautiful rural setting in close proximity to the interstate and metropolitan centers for work. Because of this proximity, the air quality problems that affect Carlisle and Harrisburg also affect the citizens in Monroe Township. The American Lung Association has ranked the Carlisle – Harrisburg Metropolitan Area as 24th worst in the nation for air pollution (<http://www.stateoftheair.org/2009/city-rankings/polluted-cities-particle-pollution-short.html>). Air is a **shared resource**, and it does not have boundaries. Emissions from cars and trucks cause “Ozone Days” where it is dangerous for children, the elderly and often healthy adults to be outside in the summer. NOx (Nitrous oxide) is a pollutant that comes from cars and trucks, directly leading to Ozone Days and acid rain. This pollutant affects human health through ozone days as well as the health of our forests and streams due to acid rain. With each new home that is built, there is a substantial increase in air pollution from the cars of the people that live there, as seen in the chart below. Acid rain, a direct result of NOx pollution from cars, has impaired High Quality local streams located on South Mountain. Many of the streams on South Mountain that feed into the Yellow Breeches are impaired from acid rain, including Mountain Creek – a Cold Water Fishery that flows through many municipalities and is a local favorite for trout fishing.



Conclusion

The Community Build-Out Analysis presentation is an introduction into a new way of visioning land use in Monroe Township. While this presentation focused specifically on the Conservation Zone because of its significant natural resource assets and recent shift in zoning for minimum lot sizes, similar analyses can be done to look at the township's farmland, floodplains, and other natural resources.

Summary of Findings

1. Given the 3 scenarios for maximum residential build-out in the Monroe Township Conservation Zone and the criteria that were used for each (see p.5 of this document), the following can be concluded:

- a) An additional **1,209 homes** could be built in the *1 acre zoning* example;
 - b) An additional **588 homes** could be built in the *2 acre zoning* example; and
 - c) An additional **101 homes** could be built in the *10 acre zoning* example.
- These potential new homes are **in addition to the existing 367 residential homes** that are currently in the Conservation Zone.

2. The potential impacts to the natural resource assets and public service needs for each of the 3 scenarios looking only at sewer, water and air pollution are as follows:

1 acre zoning

- Additional Sewer Demand: 336,102 gallons/day
(Based on average of 278 gallons of sewer discharge/home/day)
- Additional Water Use: 172,542,435 gallons/year
(Based on average of 391 gallons/water/home/day)
- Additional Air Pollution: 70,504 lbs/NOx/year

2 acre zoning

- Additional Sewer Demand: 163,464 gallons/day
(Based on average of 278 gallons of sewer discharge/home/day)
- Additional Water Use: 83,916,420 gallons/year
(Based on average of 391 gallons/water/home/day)
- Additional Air Pollution: 34,290 lbs/NOx/year

10 acre zoning

- Additional Sewer Demand: 104,528 gallons/day
(Based on average of 278 gallons of sewer discharge/home/day)
- Additional Water Use: 14,414,215 gallons/year
(Based on average of 391 gallons/water/home/day)
- Additional Air Pollution: 5,890 lbs/NOx/year

3. A visual assessment of the community build-outs (pages 6, 7, and 8 of Executive Summary Report) demonstrate that many of the township's planning objectives may be compromised by the hypothetical pattern shown. Of specific concern are the following objectives:

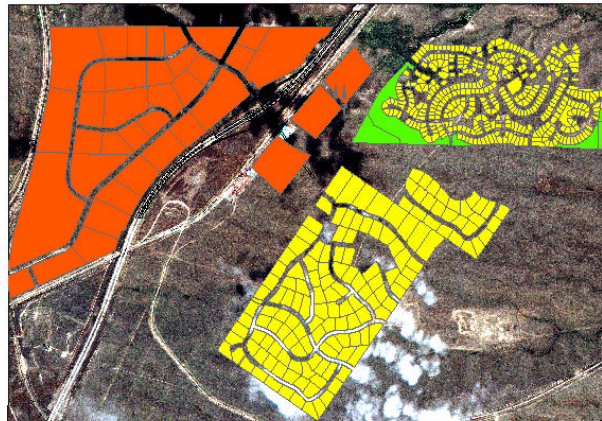
- Protect, conserve, and preserve natural resources;
- Preserve and enhance the character of Monroe Township; and
- Provide for controlled growth in appropriate areas;

Components of ReVisionPA

- **Suitability Analysis:** We can work with you to visualize the priorities of your Comprehensive Plan and rank them based on current patterns of development, affects on significant natural resources, and your plans for the future of your community.
- **On-the-fly (change assumptions):** With the Suitability Analysis, we can provide you with a way to involve your community in the ranking process. Hand held voting remotes can collect information on the importance of various priorities, such as prime farmland, high quality streams, and economic development – and show changes to the scenarios as you watch!
- **Proposed Developments:** We can help you analyze proposed developments and demonstrate what the effects these will have on your natural resources, quality of life, and cost to the township. In this way, we can help you control growth in appropriate areas while achieving your Comprehensive Plan goals.
- **Visual Build Out:** As seen in the Conservation Zone presentation, we can visually represent what future development will look like, using maps, 3D images, and a Google Earth “fly through” where viewers can simulate what the new developments would look like from a car, walking, or flying over in a plane.

Controlled Growth in Appropriate Areas

Monroe Township Comprehensive Plan Objective



Analyze existing development
Balance New Growth with Preservation of
Significant Natural Resources

Next Steps

Visioning Services

Monroe Township has identified their unique natural resources as:

- Prime farmland
- Yellow Breeches Creek
- Sinkhole prone areas
- Wetlands
- South Mountain and “White Rocks”

With over 85% of Monroe Township used for agricultural purposes, the next logical step would be to vision the future impact of land use decisions on Monroe's agricultural land. Much of the land in Monroe Township consists of good quality farm soils. As stated in Monroe's Comprehensive Plan, "Any change in regulations to guide development to desired locations must consider the potential impact on the farm community. Special care must be exercised when considering zoning changes to insure that farming activities will not be impaired by new residents unfamiliar with farming operations."

This is consistent with the following Objectives:

- A. Preserve agricultural areas for agricultural
- B. Protect, conserve and preserve natural resources
- C. Preserve and enhance the character of Monroe Township
- D. Provide for the housing needs of present and future residents
- E. Provide for controlled growth in appropriate areas

ReVisionPA is an approach which is proactive in addressing land use and development issues and trends. By utilizing the Township Comprehensive Plan, Subdivision and Land Development Ordinance, and Zoning Ordinances with a special emphasis on the natural resource assets, **ReVisionPA** enables township officials to have a clear vision of what the impacts of their land use decisions will likely be. There is an abundance of information available through the **ReVisionPA** tool for Monroe Township.

*The legacy of land use decisions
remain the responsibility of the Township to make.*



Connecting the Community

Understanding land use decisions can be very difficult, technical and intimidating for a resident. This makes the process of "plugging in" and helping to be a part of shaping the future of their community very difficult. This difficulty can lead to single-issue participants rather than stakeholder partners. A component of *ReVisionPA* includes workshops designed to help with this challenge. CPC would like to work with Monroe Township to conduct public workshops for residents to help them understand the challenges, needs and potential of the Comprehensive Plan by using our visioning process.

- **Visioning Workshops**

- technical information explained graphically
- identify future leaders
- provides proactive opportunities for involvement



- **Visioning Programs**

- Outdoor education
- Focus on understanding natural resource assets
- Hands-on experience, field trips
- Provides understanding through personal experience



Future Engagement

The Conservation Zone Visioning is just one small example of how CPC can help Monroe Township translate their comprehensive plan into a graphic representation that considers future impacts. We are also available for proposed development impacts, visioning workshops and visioning programs. CPC would like the opportunity to provide Monroe Township with our *ReVisionPA* services. Visioning services range between \$6,000 - \$12,000. The workshops and programs are generally underwritten by sponsors and partnering organizations.



ReVisionPA

Thank you for your interest in
the future *vision* of our *region*.