

3245 Lantern Lane  
Columbus, IN 47203

February 21, 2024

Jeff Bergman, Director  
Bartholomew County Planning Department  
Bartholomew County Board of Zoning Appeals  
Columbus Board of Zoning Appeals  
Email: [planning@columbus.in.gov](mailto:planning@columbus.in.gov)

Dear Mr. Bergman:

My name is Millie Corbin-Beverly. I am a Columbus resident, local attorney and lifelong advocate of the agriculture industry. My agricultural roots include serving as an Indiana State FFA Officer and currently serving as an Agriculture/FFA student coach. Eliminating productive farmland for commercial solar development causes me great concern.

I am writing to you and requesting that you deny the Carina Solar Conditional Use Application. Criteria #4 is not met. The application is in direct conflict with the recommendation of The Comprehensive Plan for Bartholomew County and Columbus for the following reasons:

**1. In Section IV Commerce and Industry in the Comprehensive plan, Goal 18 states in pertinent part, “Encourage the location and expansion of businesses and industries that are compatible with their surroundings.”**

Commercial solar facilities are an industrial operation located in a mostly rural setting. They are NOT compatible with the surrounding farmland nor the rural view scape given the 10-12 miles of 8’ tall steel security fencing required along with the Hundreds of Thousands of PV panels. Carina’s application FAILS to meet Goal 18 of the Comprehensive Plan.

**2. In Section IV, Policy 18 B states in pertinent part, “Encourage Industrial and Commercial Land Uses to be consolidated in similar use areas.”**

When comparing fields for PV solar panels and rural farmland fields used for food and fiber, there is nothing similar. Once again, the Comprehensive Plan is violated by the wording of the Carina Conditional Use Application in Criteria IV.

**3. In Section IV, Policy 18 H states in pertinent part, “Encourage Commercial and Industrial Operations to locate on land other than Timberland, Productive Farmland or Land Subject to Flooding.”**

Productive farmland is cultivated for growing crops for human and livestock food and requires putting seed or plants in the soil to grow and be harvested. Production agriculture is the science, art or practice of cultivating the soil for producing crops and raising livestock for food and fiber. Commercial solar facilities FAIL Policy 18 H of the Comprehensive plan.

As I am concerned about the loss of current and future opportunities for Bartholomew County’s agriculture youth, I respectfully request that you DENY the Carina Conditional Use Application.

Sincerely,

*Millie Corbin-Beverly*

Millie Corbin-Beverly



Counsel Members, Land owners, and Those concerned,

2/20/24

Two years ago, my family bought 3 acres along Hwy 31 and built a new home which we have invested over \$500,000.00 in.

It's a beautiful home facing West, in the morning we can sit and watch the sun rise from the East. The view is amazing with rolling hills of farmland as far as one can see. Off in the distance are a couple of scattered homes one or two of which look to be old farmhouses. It's picture perfect!

In the evening it is much the same as we view out our front window farmland enhanced by beautiful sunsets.

Recently I learned of the proposed plans by many of the landowners of this beautiful farmland to lease for the installation of solar panel farms. This proposal would basically allow the installation of these solar panels to surround our new home. If this proposal is passed, this will change our view totally.

We personally are devastated at the thought of watching the sunrise over a solar farm from our back patio, and possibly one in the distant evening sunset!

If this proposal passes, we will most likely decide to sell our home and move rather than be forced to live next to an Industrial solar farm. At which time we would probably take a loss due to the decrease in value of our property caused by the decision.

In closing, I would like to mention that there are several others just North of my property that will be affected just like my family. Also, we are unsure of the long-term health affects, if any. Or the effects on the land itself.

May it be noted that our family is opposed to these solar farms being installed around or near our property!

Regards,

Larry & Brittany Siegelin  
1555 S. US 31  
Columbus, In 47201

*This page was left intentionally blank.*

February 20, 2024

Columbus and Bartholomew County Board of Zoning Appeals

123 Washington St.

Columbus, IN 47201

Dear Board of Zoning Appeals,

Our family recently moved to Columbus from another city that was being overrun by housing developers who had little concern for the existing residents and their wishes. We knew in the next few years we would be outgrowing our home, so we were faced with the dilemma to either pick up and move quickly before a new housing development encroached on our property, or whether to stay and hope that the resale value of our home was not impacted negatively by the changing situation. We watched our small community change from a peaceful rural setting to a bustling suburban area, as housing developments uncontrollably grew in just a few short years.

As we looked for new places to settle and raise our family, Columbus, Indiana was a standout. We were attracted to the strong, small-town community that has over many years proven to adapt with the times and continues to push the edge with economic, social, architectural, agricultural, and many other developments. We quickly realized that towns like Columbus are few and far between.

Prior to moving we thoroughly investigated the city and the county's comprehensive plans to see how growth and development were managed to hopefully avoid a situation like we were previously in. We were very pleased to see the level of thought and care that had been placed in the development of the comprehensive plan and goals, and how insightful the city and county planning departments have been.

We recently purchased a home this past summer just outside of Columbus, but after we closed and moved, we learned of the discouraging news that Bartholomew County was being targeted by commercial solar companies as the location for several large-scale projects. We were disheartened even once more when we learned the proximity of these arrays to our new home. We realized that we would face similar issues as before with a loss of property value and detrimental impacts to the culture of our new community.

Ignoring numerous studies that show the negative impact of solar installations on neighboring property values, the question may be simpler. Would you pay the same price for a house surrounded by beautiful Bartholomew County countryside as you would pay for a house surrounded by solar arrays? The answer is simply no.

If we had understood what drastic changes lay ahead to the new area we recently moved, we would have absolutely reconsidered our decision to move where we did. While we understand that each landowner has the right to do with their land what they please, the impact on neighboring properties and community must be considered.

We must also ask ourselves the question, if we allow one commercial solar development in our community, where does it stop? How many other farms will be taken over by commercial solar development? How many other landowners are waiting to see what happens with this decision before they sign up? Can we manage the growth reasonably and responsibly, or will it lead to continued uncontrolled growth? Will it add to the unique character of Columbus and Bartholomew County that will preserve its distinctiveness and attract new residents?

This project proposes very different land uses than what currently characterizes our vibrant agricultural community. It will absolutely impact prospective new residents, like we were, that may be looking to call Columbus and Bartholomew County their new home. Columbus and Bartholomew County have done a tremendous job planning, that without a doubt has led to the community's success and cultivated its rich character. While this is no easy task, we ask that this tradition is continued. We ask that the negative impact on adjacent property owners be considered as well as the need to preserve our wonderful agricultural community from loss of identity and uncontrolled growth.

Thank you for your time and consideration.

Sincerely,

The Eckert Family

11166 E County Road 200 N

Hope, IN 47246

February 20, 2024

Shawn & Amy McKinney  
3420 S 250 E  
Columbus, IN 47201

TO: Bartholomew County Citizens Concerned about Commercial Solar Fields  
Bartholomew County Board of Zoning Appeals  
Bartholomew County Commissioners

I am writing today to express my concern about the planned commercial solar project by Samsung/Carina. We purchased our home from Wiliam Steinker in 2019. Not long after buying our home Mr. Steinker informed us that he had enrolled his farmland in the solar project. Mr. Steinker assured us the portion of the farm that surrounds our home was not included and no solar panels would be located there. Only recently was I made aware that the Carina project map proposes to surround my home with solar panels.

This project will undoubtedly have a severe impact on my property value and marketability. Today the view from any direction from my home is open farm fields. If this project is allowed to proceed, the view from my home will be solar panels in all directions. I will have to drive through the middle of a solar panel installation to reach my property.

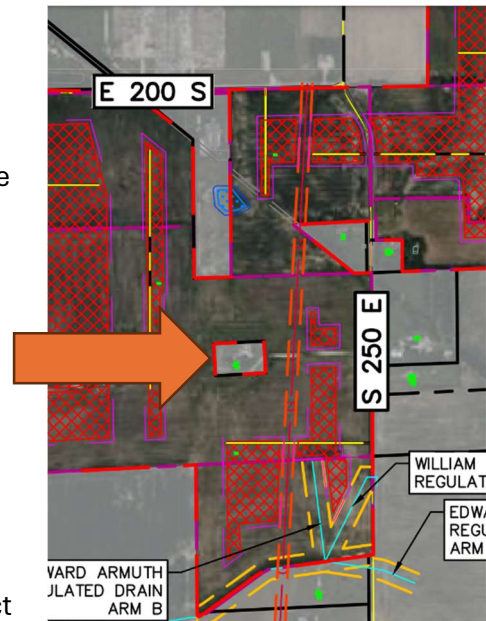
I am also greatly concerned about the long list of possible negative effects including noise, soil erosion, wildlife endangerment, environmental contamination, and the long-term destruction of valuable farmland. I fear my property as well as many others in the path of this project will become worthless.

I ask that the Board of Zoning Appeals and the County Commissioners consider the enormity of the impact on Bartholomew County residents from this project. This project should not be permitted. It is a commercial and industrial enterprise that has no place on land zoned for agricultural production. A huge portion of the county will no longer be considered a desirable place to live or farm. Property values (and property tax revenue) will decline, as people look to live elsewhere.

Sincerely,

*Shawn McKinney*

Shawn & Amy McKinney



*This page was left intentionally blank.*



# RAMSEY FARMS AG ENTERPRISES



*To Whom it may concern in Bartholomew County,*

*As a neighboring county citizen, I thought the following information might be relevant for your upcoming BZA decision on large scale commercial solar.*

*A large scale commercial solar project was approved in Shelby County during the COVID pandemic. Since being approved, the project has still not been constructed, although recently in the beginning stages. I already have seen a couple major issues that were not fully apparent or disclosed in the lease contracts that were signed by some here in our county. I find these to be harmful to the those who signed leases as well as those living in and around the approved project.*

*1. The leased land has been collateralized already by the solar developer. It appears they are using this to help secure funding for constructing the project. One landowner, that I know well, is actually in a legal dispute trying to release there property from the lien or the lease. Additionally they are having issues getting full lease payment as the developer is choosing to "reinterpret" the contract.*

*2. The lack of caution being taken with existing tiles and subsequent drainage for the property leased and for surrounding non participating properties is a major red flag. The companies that are doing the construction are coming from all over the United States. They are not local or even Indiana based. In conversations with them it is obvious that they lack the necessary understanding of Indiana tile and drainage practices. The intended placement of roads, culverts and other site infrastructure is damaging existing tile or make finding tile issues nearly impossible to decipher between existing pre existing and new issues as the years progress. We have known tile/drainage concerns already in Shelby County on much smaller commercial projects. The 1700 acres that were approved for commercial solar is nearly 20-25 times larger in size than most projects we see in the commercial category. It is challenging enough to find and fix tile/drainage issues on these normal commercial projects. Most do not even need a year to complete. The fact that the approved large commercial solar project has a footprint 20-25 times greater but it will more than likely need greater than 1 year to complete. That duration of construction time is going to make finding and fixing issues nearly impossible. I recently raised the idea of an easement within the solar project project. This easement would be where existing tile is located so we have access to troubleshoot and fix issues that develop later. This seemed to me a good way to have a path for future repairs. They rejected that idea. My fear is that when, not if, drainage becomes a problem, that the argument large solar will use is that the problem was preexisting.*

*3. I am very concerned for those with septic systems, as most properties are already too small to allow for an additional new septic system to be installed, but with the solar installation being so close there would be no way for them to buy additional property and install a new system and maintain all setbacks. Those homeowners will be harmed and probably have no course of action outside of filing a lawsuit. If the drainage harms their property, how will they have proper sewage removal? How will they live under those conditions? If these choose to move, who will buy their home? Additionally now with new state code being all*



# **RAMSEY** **FARMS** AG ENTERPRISES



*homes sold through a realtor being required to pass septic inspection to meet state code what happens to these homes?*

*In conclusion, I realize large solar might ask what documented proof do I have that these concerns will happen. I do not have them yet in Shelby County as construction has hardly began. I do communicate with others in my profession around the country and some of them do have documentation and pictures to back up these concerns. I will be happy to supply them if needed.*

**All these thoughts come from the perspective of a contractor that does this for a living and everyday I deal with issues of all shapes and sizes. I will live the rest of my life dealing with the shelby county project as it is across the road from my facility.**

*I do think that my time and wisdom in this profession gives me greater insight and appreciation of what causes drainage problems. Knowing what it takes to repair them to a point of not harming the property rights of others is what is troubling.*

*I would highly encourage your BZA to not considered approving this type of massive commercial land project based on what I am seeing already here in neighboring Shelby County.*

*Respectfully submitted,*

**James Ramsey**  
**Ramsey Farms Ag Enterprises LLC.**  
**6995 E. 500 N.**  
**Shelbyville, IN 46176**  
**317-498-7288**  
**Ramseyexcavating@gmail.com**



Julia Schultz agreed that her public statement given at Zionsville BZA Meeting could be shared with Bartholomew County and City BZA members as an example of someone who lived in a rural area in sunny California and a prime location for solar farms.

Hello BZA Bartholomew County and City members,

Julia Schultz  
4560 Woods Edge Dr  
Zionsville IN

I was one of the persons who spoke at Zionsville public BZA hearing concerning Brickyard Solar LLC project near Zionsville. Project was denied. We are now living in Zionsville Indiana.

I am one of those transplants from California. My husband and I escaped from California to get away from the same type of industrial solar farms, California is a poster child for solar.

California has the largest amount of solar production (29 percent).

The maximum efficiency rate is around 26 percent.

But I know from experience because we've lived it!

I've lived there my entire life. You guys have no idea what a gem this Town is for people like us that come here. I love Zionsville. Its beautiful. The farmland is gorgeous. I don't want this destroyed!

We left a town in California that started out rural. It was avocados and orange groves. It is no longer. So please, do not destroy this town, Zionsville.

Consider California has almost 365 day a year of sun. At least, half of the year is over 80 degrees.

We fell for the solar thing and even placed it on our home as well as the solar farms around us.

They do a Great job of selling it. I am telling you. We fell for it!

Even with the solar on our home it did not cover our energy.

Our electric bills went up because of the solar. Electric company was no longer making the revenues they were making so guess what? Your rate must go up!

Okay so these are the things that are coming up:

Battery backup system that is toxic and those are placed in landfills.

Inverters fail and energy is not converted and ends up in landfills.

Panels degrade over time and change to less efficient and at least some of the parts end up in landfills.

Unless the panels are kept clean, they are not efficient.

Does this mean chemicals running off onto soil and water?

Think about it....

California with all those solar panels and all that sun.

How come there is rolling blackouts all the time?

How come they're begging people with electric cars not to charge their cars?

Smart meters tracking and your peak usage.

California even has wind energy and they are still not meeting it.

California is the most polluted state. So, all the solar and wind is not cleaning the air for California.

If Zionsville allows to destroy the land, to become a solar wasteland and reduce air quality, hey basic science, the plants in farmlands and forests help reduce carbon dioxide.

The benefactor from us living solar on Zionsville land will not mean lower cost.

Energy will be sold off.

Um, let's see. It's also a political thing. Everybody wants to do the best. Feel good choices. I care so much for the planet because I am using solar. Look how good I am. But solar in these fields alone is not going to save the planet.

Um, sorry, I am not anti-solar. There are uses for it. But this is not it. I have seen what happens.

You want additional uses, place it on parking structures, roofing cover, tops of buildings. This is not it. It does not make sense to destroy good land.

One lady at the meeting today stated, "Well all these other places are doing it."

I'm just going to leave with this for those of you who remember it.

There was a place called Jonestown and everybody drank the Kool-aid. That turned out to not be a good idea.

Feb 20<sup>th</sup> 2024

Dear City BZA members and Planning Department,

I appreciate the role you play in our community. You are the final "line of defense" for folks like me who are concerned about the large scale commercial solar project being applied for by Carina.

Since you will have lots of data sent your way, I am going to make this an easy read.

I am finding 17 Policies listed in the City Comprehensive Plan that are highlighted in the attached document. It is my understanding that if only 1 of the 17 are found to be an issue then a denial must be made according to Criteria 4 of Conditional Use.

Now I realize that one may not interpret all 17 to be a problem as I see it. But I also believe that one can not say all 17 are met. If so, then I am going to need help in understanding why this document was ever written.

I hope you find most of the 17 to be in agreement but a minimum, please agree that you can find just the 1 that makes Criteria 4 fail.

It is not my intention at this time for me to read this but I ask that you read it during the meeting since it is so short and to the point.

Respectfully submitted

A handwritten signature in black ink, appearing to read "Matt Carothers", with a stylized flourish at the end.

Matt Carothers

4800 East 300 South

Columbus IN 47201



## PART II COMMUNITY GOALS AND POLICIES

### A. Development Patterns

#### GOAL A-1: Maintain the small-city atmosphere as the community grows.

**POLICY A-1-1:** Encourage mixing of housing prices in all geographic areas of the city.

*This policy is intended to provide choice of housing locations; it does not mean that houses of greatly differing price will be mixed in the same neighborhood.*

**POLICY A-1-2:** Promote property maintenance which contributes to a safe, sustainable, environmentally sound community.

*Good maintenance is contagious, and it improves neighborhoods. Conversely, one poorly maintained property detracts from the quality of a neighborhood and encourages more deterioration.*

**POLICY A-1-3:** Discourage strip commercial development; instead encourage development of planned commercial areas within a comprehensive plan for access.

*Strip development means a row of businesses, each on an individual lot and each having one or more driveways. This type of development leads to traffic congestion and confusion, and is less convenient and attractive than planned commercial centers with shared driveways and parking.*

#### GOAL A-2: Preserve & enhance the character of the community.

**POLICY A-2-1:** Strive to eliminate blighted areas.

*Blighted areas are unattractive, unhealthy, and unsafe. They detract from the quality of the community, and they should be eliminated and prevented.*

**POLICY A-2-2:** Require proper construction methods and materials.

*Proper construction methods and materials create buildings of lasting quality. This policy also promotes health and safety.*

**POLICY A-2-3:** Ensure that development takes place in a manner which allows for preservation of farmland, open space, and significant natural features whenever possible and desirable.

*This policy is intended to encourage creative subdivision design which protects natural features, proper buffering, and orderly development. It is not an anti-growth policy, nor does it mean that all farmland will be retained.*

**POLICY A-2-4:** Discourage subdivision development from interfering with the ongoing agricultural operations in the community.

*When land is subdivided, the desires of new home owners should be subordinate to the needs of farmers already operating in the area. See Policy A-2-7.*

**POLICY A-2-5:** Ensure that the city considers the impacts on agriculture when new development is proposed or infrastructure extended.

*New roads and utilities can disrupt farming activities and increase development pressures in rural areas. Factories can cause air pollution and noise that adversely affect plants and livestock. Agricultural land should be viewed as land in active economic use, not as inexpensive vacant land.*

**POLICY A-2-6:** The City Council should consider annexation proposals on a case-by-case basis within the laws of the State of Indiana and the city's adopted annexation policies.

*Annexation increases taxes and increases the pressure for development. Because of requirements of Indiana law, it is sometimes necessary for the city to annex farmland in order to provide for orderly growth, but the city's annexation policies should discourage annexation of farmland except when necessary.*



**POLICY A-2-7:** Require appropriate buffer areas to be maintained between farm and nonfarm uses.

*Subdivisions and farms may not be good neighbors: homeowners complain about dust, odors, noise, herbicides and pesticides, while farmers complain of crop destruction caused by children, pets, and off-road vehicles. Providing temporary buffers between farms and subdivisions can reduce conflicts.*

**POLICY A-2-8:** Protect the skyline that characterizes the downtown. The spires and towers should be the dominant feature of the area.

**POLICY A-2-9:** Preserve and enhance the character of neighborhoods.

*Older neighborhoods have distinctive characteristics which should be retained. These vary from one neighborhood to another, but they include such things as smaller lots, lesser setbacks, service alleys, and a distinctive architectural style.*

**POLICY A-2-10:** Keep residential neighborhoods at a "human" scale, preventing high-rise or massive buildings.

*The character of a neighborhood can be destroyed by introducing a building that doesn't fit, such as a five-story apartment building in a neighborhood of one-story, single-family houses.*

**POLICY A-2-11:** Encourage all new development to be in scale (height, area, mass, setback, etc.) with its surroundings, determined on a neighborhood-by-neighborhood basis.

*New development should be designed in a manner that is sensitive to the surroundings.*

**POLICY A-2-12:** Encourage maintenance of buildings and grounds.

*Proper maintenance improves and stabilizes property values, while deteriorating buildings, peeling paint, sagging porches, accumulation of trash, and unkempt yards do the opposite.*

**POLICY A-2-13:** Encourage growth to take place at a rate that enables the city to maintain the high quality of public services.

*Growth that is too rapid would outpace the city's ability to provide services such as police, fire, and trash pick-up, and it would strain facilities such as schools and parks.*

**POLICY A-2-14:** Encourage street design which complements neighborhoods, (i.e., narrower pavement in residential areas, traffic calming measures, alleys).

*Streets should move traffic safely and efficiently, but at the same time, they should be designed to further neighborhood goals. Traffic should move slowly through residential areas, and street widths and configuration should be in character with the neighborhoods in which they are located.*

**POLICY A-2-15:** Encourage sidewalks in all areas of the community, requiring them or a pedestrian system in new developments. Sidewalks should be designed with a landscape strip between the sidewalk and the street or curb. Landscape strips are preferred, and all sidewalks should meet accessibility standards.

*Use of sidewalks and trails has increased dramatically in recent years. These sidewalks and paths should be installed as land is subdivided and developed, eventually leading to a continuous pedestrian system throughout the city. Sidewalks separated from the curb by a landscape strip not only are more attractive, they are safer, because pedestrians are separated from vehicular traffic.*

**POLICY A-2-16:** Promote simple, objective design standards (not an architectural review committee) for commercial, industrial, and institutional development.

*Because the appearance of the community is important, the city needs to promote design standards that will lead to attractive development. These standards might include such things as variations in roof lines or building facades, requirements for windows, or standards for the placement of buildings on their lots.*

**POLICY A-2-17:** Encourage all utilities to be placed underground, rather than overhead.

*Overhead utility lines detract from the appearance of the community and limit the types of trees that can be planted in some locations. They also are dangerous when they sag or break during storms.*



*Underground lines also have a lower frequency of repair, although they do have a shorter life span than overhead lines.*

**POLICY A-2-18:** Maintain and enhance neighborhood-scale business areas, with special attention to the unique character of each area.

*Neighborhoods can be enhanced by convenient shopping areas, provided that these are of a type, size and design consistent with their surroundings.*

**POLICY A-2-19:** Allow neighborhood business areas to use on-street parking in areas where such parking is in character with the neighborhood and where street widths and traffic patterns are conducive to on-street parking.

*Adequate parking is important, but a “one-size-fits-all” approach to parking requirements fails to recognize the differences between neighborhoods and the impact of parking lots. In some neighborhoods, on-street parking may be preferable to a parking lot, particularly if yard or landscaped areas must be removed to accommodate parking. In some neighborhoods, a significant portion of the customers may walk, rather than drive. The city’s regulations should be sufficiently flexible to allow for differing neighborhood characteristics.*

**GOAL A-3: Provide individual accessibility to all community services & facilities, including:**

- educational facilities
- recreational facilities
- civic activities
- health care facilities and services
- cultural events and facilities
- transportation facilities.

**POLICY A-3-1:** Establish accessibility standards for all new development.

*New development should be designed so that buildings, parking areas, and other facilities are accessible to all to the maximum extent practical and in compliance with state and federal accessibility laws.*

**POLICY A-3-2:** Ensure that all public rights-of-way are designed with proper access for persons with physical challenges.

*Public streets and sidewalks should be designed so that persons using wheelchairs or walkers, persons who are hearing or vision impaired, or those with other physical challenges have full access.*

**GOAL A-4: Promote wise and efficient use of limited resources and nonrenewable resources, including but not limited to capital and land.**

**POLICY A-4-1:** Preserve & revitalize older neighborhoods, including buildings, grounds, and infrastructure.

*The city should hold property owners accountable for the maintenance and upkeep of their properties in accordance with law.*

**POLICY A-4-2:** Encourage infill development, and/or use of vacant parcels for projects such as parks or other amenities which complement the neighborhoods in which they are located.

*Vacant parcels represent lost opportunities, and they can become neighborhood nuisances. These parcels should be used, either for development, or for other neighborhood assets such as parks or community gardens. It is less expensive to develop these parcels than to create new subdivisions.*

**POLICY A-4-3:** Prevent urban sprawl.

*Sprawling development patterns waste land and cost tax dollars. Development should be compact and orderly.*

**POLICY A-4-4:** Encourage residential clustering and other development types that conserve open space and natural resources and reduce infrastructure costs.

*Regulations should encourage development which saves trees, wetlands, flood plains, natural topography, and other natural features and development which includes open space. The city’s ordinances need to provide flexibility and incentives for developers to use creative subdivision layouts.*



**POLICY A-4-5:** Prevent development in areas where such development would jeopardize health or safety.

*Land subject to flooding, with inadequate sewage disposal or water supply, with inadequate access, or land with known environmental problems should not be developed.*

**POLICY A-4-6:** Encourage wise use of infrastructure dollars.

*There are limited public resources for construction or improvement of streets, sewer systems, water systems, drainage systems, and other similar facilities. These expenditures are affected by the pattern of development, and costs should be considered in conjunction with development proposals.*

**POLICY A-4-7:** Require new development to take place in an orderly fashion to facilitate efficient provision of services at reasonable cost.

*Public services, such as police and fire protection, school busing, trash pick-up, road maintenance, and snow removal all cost more when development is scattered rather than compact.*

**POLICY A-4-8:** Encourage planting of trees throughout the community; require trees in new developments, and require street trees in new residential subdivisions.

*Trees are valuable to the community, as aesthetic resources and as environmental enhancements. They also protect and improve property values. There should be flexibility regarding the placement of street trees to ensure that the trees do not interfere with utilities or sidewalks and have maximum chance of survival.*

**POLICY A-4-9:** Ensure that trees are appropriate to their locations so that they do not cause such problems as interfering with utility lines or drainage, damaging sidewalks and pavement, or creating traffic hazards.

*Street trees must be selected carefully, in relation to their location. Street trees should not interfere with underground or overhead utilities, impede sight distance for drivers, or damage pavement. There are varieties of trees that meet all these criteria.*

## **B. Environment**

### **GOAL B-1: Maintain excellent water, air & land quality and protect the natural environment.**

**POLICY B-1-1:** Protect floodway areas from development to prevent runoff which could pollute streams and rivers. (See Goal B-4)

*Soil disturbing activity in floodway areas destroys the natural vegetation and causes siltation of our waterways. In addition, stormwater runoff from parking areas, streets, and lawns contains pollutants which will decrease the water quality.*

**POLICY B-1-2:** Protect wellhead and other water supply areas from development which could contaminate ground or surface water supplies.

*The city's water supply comes from well fields which need to be protected from contamination. Development in these areas should be restricted to activities which will not harm the water supply.*

**POLICY B-1-3:** Discourage new development utilizing private wells and septic systems or other privately owned and operated sewage treatment systems.

*Septic system failures are common throughout the community. In general the useful life of a septic system is 15 years, much shorter than the life of a building. Failing systems pollute ground and surface waters and present health hazards.*

**POLICY B-1-4:** Prevent soil erosion, both from urban development and from agriculture.

*Topsoil is a valuable nonrenewable resource which should be preserved. In addition, improper or unwise development and farming practices result in the siltation of our waterways.*



**POLICY B-1-5:** Protect and enhance water quality in all aspects of growth and development.

*High-quality water is valued for a variety of reasons, including aesthetic, health, and economic ones.*

**POLICY B-1-6:** Meet or exceed state and federal air quality standards.

*Air quality is important for health and economic reasons. Air pollution has many documented health impacts, and it can damage property. The federal air quality standards are minimum; the community may want to require a higher standard to protect the quality of life.*

**POLICY B-1-7:** Meet or exceed state and federal water quality standards.

*Water quality is important for health and aesthetic reasons. Poor water quality is dangerous to health, and it limits recreational opportunities such as swimming and fishing. Federal water quality standards are minimum; the community may want to require a higher standard to protect the quality of life.*

**POLICY B-1-8:** Develop a curbside recycling program to reduce waste and prolong the life of the landfill.

*The community needs to dispose of waste in an environmentally safe manner. Availability of approved waste disposal facilities is critical to the community's economic health. Because of the difficulty and expense involved in siting waste disposal facilities, the community should develop a curbside recycling program to reduce the amount of waste going to the landfill.*

**POLICY B-1-9:** Encourage new development to be designed in a manner which preserves natural topography and other natural features, including but not limited to trees, woodlands, wetlands, streams, ponds, drainage ways.

*Natural features and topography are a community resource which should not be destroyed due to inflexible subdivision regulation. New development should take place in a manner which preserves these features to the maximum extent possible.*

**GOAL B-2: Enhance open space to create sustainable recreational environment and wildlife environments and wildlife habitats.**

**POLICY B-2-1:** Develop a wildlife habitat protection plan. This plan would include specific goals for wildlife protection, identification of important species, priorities for species protection, identification of the ecological elements necessary to sustain habitats for desirable wildlife, and a plan for creating learning areas in natural habitats.

*Wildlife can enrich community life and improve our environment; it also can be a nuisance. The city needs to decide what level of wildlife protection is desired, which species should be protected, and what needs to be done to provide habitats for desirable wildlife. Natural habitats offer learning opportunities, especially for children. The city should encourage the educational function of these areas.*

**POLICY B-2-2:** Protect & enhance the growth of the city and private park system.

*Parklands are an important element of a quality community. The park system should continue to grow as the population increases. Parks should be properly maintained, and the city should provide a variety of recreational opportunities for all age groups.*

**GOAL B-3: Develop a comprehensive network of natural areas to enhance and protect our fragile environment.**

**POLICY B-3-1:** Protect river and stream banks in the parks department stewardship from soil erosion and stabilize the banks through protective plantings.

*The city should set an example of environmental stewardship by preventing soil erosion along the river and stream banks under parks department control. Clean, free-flowing rivers and streams are a community asset. Measures should be in place to prevent erosion in these areas and to provide a suitable habitat for wildlife.*

**POLICY B-3-2:** Encourage private owners to protect the banks in their ownership from erosion and to stabilize them through plantings.



*The city should provide information and technical advice to private property owners who control stream and river banks, and encourage them to take action to prevent soil erosion.*

**POLICY B-3-3:** Planting plans should be sensitive to surrounding land owners.

*In selecting plants to stabilize stream banks, the city and private property owners should consider the effect of those landscape materials on neighboring property. The plants should not encourage the proliferation of pests, such as mosquitoes.*

**POLICY B-3-4:** Encourage green space preservation, particularly trees, in all new development.

*People value open space, and it offers many benefits, including environmental, economic, aesthetic, and psychological. Trees are particularly valuable in that they provide shade, reduce air pollution, and increase the value of property. As the city develops, open space areas should be preserved.*

**GOAL B-4: Promote health, safety, and protect property through wise development practices, and avoid litigation resulting from unwise development.**

**POLICY B-4-1:** Encourage creative subdivision design which avoids placement of houses in the floodway fringe.

*While federal and state rules for flood plain management allow construction of houses in the floodway fringe, this type of development is not ideal. These houses must be elevated to two feet above the 100-year flood level, and there can be no basements. Owners of houses located in flood hazard areas must purchase federal flood insurance, which can be expensive. The city should encourage subdivision layouts which do not have house locations in the floodway fringe.*

**POLICY B-4-2:** Where appropriate, require an analysis of general soil conditions for new development, and when the analysis indicates possible problems, require a detailed analysis to ensure that soil conditions are suitable for planned construction and that foundations, basements, and streets are properly engineered.

*Soil conditions have significant effects on buildings. When designers and builders fail to account for soil properties, buildings can sag, foundations can crack, and basements can flood, among other problems. A geotechnical investigation of a potential development site will identify potential problems and enable developers to engineer their buildings to avoid problems.*

**POLICY B-4-3:** Where appropriate, require that developers obtain an environmental assessment before development plans are submitted for approval to help determine the suitability of the parcel for the proposed development.

*An environmental assessment includes a records search and a field visit to the site. The records search would show previous owners and would indicate uses which might have involved hazards such as underground tanks or buried trash. The site visit would reveal any surface evidence of such hazards.*

## **C. Parks & Recreation**

**GOAL C-1: Maintain and enhance the park system to benefit the community, provide a sense of neighborhood, and promote public health.**

**POLICY C-1-1:** Preserve existing city parks, including Donner, Greenbelt, Clifty, Mill Race, and others that provide recreational opportunities beyond those offered by neighborhood parks.

*These parks provide recreational activities used by the entire community, such as swimming, entertainment, golf, and tennis. These parks should be protected and maintained so that they will continue to serve future generations.*

**POLICY C-1-2:** Encourage development of neighborhood parks.

*In addition to large parks to serve the general population, the city needs smaller, neighborhood parks convenient to residential areas. These parks should be developed as the city grows.*

**POLICY C-1-3:** Require adequate green space in new developments. When reservation of green space is impractical because of the size of the development or other factors related to the land, provide other methods for the developer to meet this goal. These mechanisms could include payments in lieu of park land dedication or enhancement of and/or connection to existing parks.

*Each new subdivision, no matter how small, contributes to the need for more park and open space land. Open space areas should be reserved as the city grows, with each new development making a proportionate contribution to the park and open space program.*

**POLICY C-1-4:** Prepare an overall plan for future park needs, providing for appropriate park space in all geographic areas of the city.

*In past years the larger parks such as Greenbelt, Donner, and Mill Race have served the community well. As the population grows, it will be necessary to provide additional park space. The city should have a plan for overall park and recreation needs.*

**POLICY C-1-5:** Set aside city resources for new parks which will be needed to accommodate population growth.

*While developers may be asked to provide the resources for new neighborhood parks, city resources may be needed to provide additional larger parks conveniently located for a growing population.*

**POLICY C-1-6:** Where appropriate, upgrade neighborhood parks to fulfill the need for expanded recreational opportunities for a growing population.

*As an alternative to acquiring and developing new large parks, there may be opportunities to expand and upgrade neighborhood parks to fulfill this need.*

**POLICY C-1-7:** Ensure that parks are located in areas which can be conveniently accessed by those for whom they are intended.

*Parks need to be convenient and accessible to their users. Neighborhood parks should be within reasonable walking or bicycling distance. Most of our existing larger parks are in the downtown area. As the city grows, additional large parks may need to be acquired and developed in other geographic areas.*

**POLICY C-1-8:** Continue to link green spaces and parks with People Trails.

*The People Trail system has been popular with local residents, particularly as a link among various park and open space areas. This trail system should be continued and expanded as the city grows.*

**POLICY C-1-9:** Designate parks areas as passive, active, or restricted. Passive and active uses would include human use of the areas. Restricted use would protect wildlife corridors, natural habitats, wetlands, and unique vegetation. The parks system should include both passive and active recreation at convenient locations throughout the community.

*Community residents have a variety of recreational and open space needs. All of these should be accommodated through the park system. Some park areas should be designated for tennis, softball, and playgrounds. Others should be set aside for more passive uses, such as picnicking or walking, and some should have restricted access to protect valuable natural resources. There should be a variety of park and open space lands in all geographic areas of the city.*

**POLICY C-1-10:** Consider developing a bikeway system on existing streets and in new subdivisions. Bicycling is popular both as recreation and as transportation. The city should develop a system of bikeways to serve the community.

**GOAL C-2: Provide for the community's park and recreation needs in a cost-effective manner.**

**POLICY C-2-1:** In order to ensure maximum benefit from recreational resources, require the Columbus Parks and Recreation Department to take the lead in collaborating with other agencies and organizations such as the Bartholomew Consolidated School Corporation, the Foundation for Youth, Senior Center Services, the County Parks Department, and the Wellness Program.



*There are several recreational providers in our community. The residents will be best served if these providers cooperate and collaborate on programming and facilities. A cooperative approach will avoid duplication of facilities and provide a greater variety of recreational opportunities. The parks department should be a leader in establishing this cooperation.*

**POLICY C-2-2:** Encourage existing and new public recreational facilities to function as multigenerational community centers, and provide programming to meet the needs of special populations.

*The community should offer recreational opportunities for all age groups and abilities. In addition, there should be opportunities for intergenerational activities which bring older people and children together for the benefit of both groups. Recreational programs also should be available for special populations, such as the physically or mentally challenged.*

**POLICY C-2-3:** Provide sufficient resources to properly maintain new parks and new park facilities. After park and recreation areas are acquired and developed, they must be properly maintained for maximum benefit from these important resources.

## **D. Housing**

### **GOAL D-1: Develop new housing where adequate public services can be provided economically.**

**POLICY D-1-1:** Promote orderly housing expansion in locations where the city's infrastructure and services have the capacity to accommodate the growth.

*New neighborhoods should have adequate infrastructure and services. Road networks should be safe, there should be adequate sewage disposal and a safe drinking water supply, there should be adequate police and fire protection and trash pick-up. The city should guide new development to areas where these services will be available at reasonable cost.*

**POLICY D-1-2:** Use road and utility expansion to control direction growth.

*Development tends to follow infrastructure such as streets and utilities. The city should use its investments in this infrastructure to direct growth in accordance with an overall plan.*

**POLICY D-1-3:** Encourage development adjacent to already developed areas.

*Compact development contiguous to already developed areas is the most economical and convenient urban form, and the city should encourage that type of development.*

**POLICY D-1-4:** Encourage city/county cooperation in development issues.

*The city and county do not exist in isolation; what one does affects the other. The citizens of the community will be best served if the city and county can cooperate and develop complementary development policies.*

### **GOAL D-2: Encourage development of a sufficient supply of diverse housing types, sizes, and price ranges in the community.**

**POLICY D-2-1:** Encourage housing which is affordable to those whose incomes are below the median, particularly those significantly below the median.

*A thriving community needs socio-economic diversity which in turn requires a range of housing prices. The city should encourage the development of housing in a variety of price ranges so that all citizens will have decent, safe, and sanitary housing at prices they can afford.*

**POLICY D-2-2:** Allow for various housing types.

*A diverse population needs diverse housing. The city should encourage a variety of housing types, including single-family detached houses, townhouses, and apartments.*

**POLICY D-2-3:** Explore options for providing incentives for housing rehabilitation.

*Existing housing is a resource which should be preserved. When older houses begin to deteriorate, they detract from their neighborhoods. The city should develop incentives to encourage rehabilitation of deteriorating housing. Keeping these houses in good condition also reduces the need for new development to meet housing needs.*

**POLICY D-2-4:** Explore options for providing incentives for development of affordable housing which is consistent with these policies and conforms to an overall plan for community growth.

*The private market produces a housing supply sufficient for those in middle- and upper-income categories, but land and development costs make it difficult for private entrepreneurs to produce houses that can be purchased by those in the lower income brackets. These incentives might include tax abatements and low-interest loans. The incentives would not include lower standards for houses or neighborhoods.*

**POLICY D-2-5:** Encourage neighborhoods which contain a diverse socioeconomic mix.

*Socioeconomic diversity is beneficial to the community. The city should encourage developments which contain a variety of housing types and prices. The diversity of neighborhoods affects the diversity in public schools, particularly elementary schools. Traditional development, such as in the downtown area, contains a socioeconomic mix. Among newer developments, Tipton Lakes is consistent with this policy in that it contains a mix of housing types (apartments, single-family houses, duplexes, townhouses) in different price ranges.*

**POLICY D-2-6:** Encourage development of a sufficient supply of housing in all price ranges so that all citizens of the community can enjoy decent, safe, and sanitary housing in desirable neighborhood settings.

*A diversity of housing prices and types accommodates a diverse population and differing preferences.*

### **GOAL D-3: Provide high-quality residential neighborhood environments.**

**POLICY D-3-1:** Encourage projects which improve and revitalize neighborhoods.

*Strong neighborhoods are the building blocks of strong communities. Projects which enhance neighborhood cohesiveness strengthen the community. Examples include neighborhood watch programs, neighborhood associations, clean-up projects, block parties, and recreation programs.*

**POLICY D-3-2:** Encourage renovation or removal of deteriorated housing.

*Housing which has deteriorated detracts from neighborhood quality, discourages investment, and is a nuisance, attracting vermin and vandalism. Such housing should be rehabilitated or removed.*

**POLICY D-3-3:** Require proper construction standards for new and rehabilitated housing.

*Houses which are properly constructed will need less maintenance and will retain their value better than those which do not comply with accepted construction practices. The city should ensure that standards are adopted and enforced.*

## **E. Commercial Development**

### **GOAL E-1: Maintain and enhance the attractiveness and vitality of the city's neighborhood business areas.**

**Downtown Columbus:** (Washington & Franklin Streets, between 2<sup>nd</sup> and 8<sup>th</sup> Streets) This area is characterized by tree-lined streets, cleanliness, attractive buildings, well-maintained sidewalks, buildings of a consistent scale, low-key signs, pedestrian orientation, attractive window displays, buildings close to the street, parking in community lots or behind buildings.

**POLICY E-1-1:** Maintain the downtown as the heart of the city, retaining its function as the government, institutional, and financial center of the community.



*The downtown is important to the community; healthy communities have strong downtowns. Traditional downtown functions include government, institutional uses (such as churches and schools) and finance, and those should be retained in downtown Columbus.*

**POLICY E-1-2:** Encourage retail, entertainment, restaurant, and similar uses which add to the vitality of the downtown, with emphasis on after-hours and weekend activities.

*There is no greater asset to a downtown than people. Successful downtowns are "destination" places: places people seek out for activities and shopping, rather than places people pass by or visit en route to some other destination. The city should encourage a land use mix which will attract people to the downtown.*

**POLICY E-1-3:** Encourage development of additional parking that is consistent with the character of downtown.

*People will not go downtown if there is no place to park, and the city needs to encourage sufficient downtown parking. This parking, however, should complement the character of downtown. For example, removing buildings and replacing them with surface parking lots damages the fabric of downtown and creates blank spaces which do not attract pedestrian activity.*

**POLICY E-1-4:** Encourage signs and landscaping which enhance the attractiveness of downtown and which contribute to the economic vitality of downtown businesses.

*Appropriate signs and landscaping contribute to the attractiveness and character of downtown. For example, trees add to the beauty of downtown, but they should not hide buildings or create hazards for pedestrians. Similarly, signs which complement the downtown architecture should be encouraged, along with signs which are pedestrian-oriented.*

**POLICY E-1-5:** Ensure that the public signs (i.e., traffic control signs, "no parking" signs, etc.) are designed to minimize clutter and maximize readability.

*Visitors to downtown should have clear and concise information about traffic and parking regulations, and the city should strive to make public informational and regulatory signs as readable and understandable as possible.*

**POLICY E-1-6:** Encourage residential uses on the upper floors of downtown buildings.

*Many successful downtowns have encouraged mixed land uses. Downtown residents patronize the businesses provide 24-hour occupancy in the area.*

**POLICY E-1-7:** Prepare a plan for downtown and the surrounding area which addresses land use, traffic circulation, parking, and design.

*The city should develop a coherent plan for downtown. This plan should promote the vitality and economic health of the downtown area to serve local residents and visitors to the community.*

**Neighborhood Commercial Areas, ( such as the area along 16<sup>th</sup> Street, from California St. to Home Ave., and Home Ave. between 16<sup>th</sup> and 17<sup>th</sup> Streets):** These are areas characterized by small shops with unique or specialized merchandise. The commercial development is in scale with the surrounding neighborhood and does not generate excessive traffic.

**POLICY E-1-8:** Allow rezoning of residential lots and structures to business use only when these changes are consistent with an overall plan for the neighborhood; prevent the conversion of individual residential structures to incompatible business use.

*These business areas can enhance the vitality and convenience of their neighborhoods, but the residential character can be damaged by encroachment of incompatible businesses into the residential portions of neighborhoods. The city should prepare neighborhood plans which will encourage appropriate neighborhood business areas.*

**POLICY E-1-9:** Encourage businesses that are consistent in scale and character with the residential neighborhood and which do not detract from the enjoyment of residential properties.

*Many businesses need highway visibility in order to succeed, and landscape materials, especially trees, should be chosen to preserve the views of the buildings. These views also can reduce vandalism and improve safety.*

**POLICY E-2-5:** Establish accessibility standards for all new development and redevelopment.

*Buildings and parking areas should be designed to provide accessibility for all, including the physically challenged.*

**POLICY E-2-6:** Protect the floodway areas from development, but allow existing buildings to be enlarged if the expansion can be done in a manner which does not increase flood heights nor endanger life or property.

*Development in floodway areas increases flood heights and therefore increases property damage from flooding. Downstream areas also can be damaged from chemicals and debris carried in the floodwaters. While individual construction projects may not significantly increase flood heights, there is a cumulative effect from such projects; therefore, the best practice is to prevent new construction in the floodway. There are many existing buildings located in the floodway in Columbus. In some cases, these can be expanded without causing any increase in flood height, because the existing building creates an obstruction which will not be made larger by a downstream addition. In these cases, expansion should be allowed.*

**POLICY E-2-7:** Require signs to be designed in accordance with street types and traffic patterns so that signs are appropriate to the conditions in which they are seen and in a manner which effectively informs drivers about available business activities along the corridors.

*Signs along highway corridors should contain messages short enough to be read from a moving car, traveling at normal speed for that highway. Letters should be large enough to be readable, and signs should be at a height which is in the line of vision of drivers on that road. This height will vary with road design; signs easily visible from a 2-lane road may not be visible from the inside lanes on a 4-lane road. The topography also affects sign visibility. Traffic safety is improved by signs which are visible and readable from the highway.*

**POLICY E-2-8:** Prohibit billboards on all highway corridors.

*Billboards are distracting to drivers, and they create unattractive sign clutter which obstructs views of buildings and natural landscapes.*

**POLICY E-2-9:** Encourage the installation of sidewalks as part of the road widening projects and as properties are redeveloped.

*See Policy A-2-15.*

**POLICY E-2-10:** Encourage businesses along these corridors to add landscaping.

*Landscaping adds greatly to the appearance of the community, and it offers environmental, economic, and psychological benefits. Highway corridors are the most visible areas to visitors and local residents alike; therefore, landscaping is particularly important in these areas.*

**POLICY E-2-11:** Establish and maintain a coherent system of public signs which help local residents and visitors to find locations in the community, but which avoid visual clutter.

*Signs placed by the units of government should set an example for readability and usefulness. The signs should be clear and simple and not create visual clutter.*

**POLICY E-2-12:** Encourage parking lot and circulation designs which are safe and efficient, both for motor vehicles and for pedestrians.

*Parking lot design can define and channel traffic flow and reduce the likelihood of accidents. In addition, pedestrian circulation in parking areas can be designed to improve pedestrian safety and access. For example landscaped traffic islands with sidewalks can be used to channel traffic and provide pedestrian access to buildings.*



*Appropriate neighborhood businesses are an asset, but care must be taken to ensure that these activities add to rather than detract from the area. Small-scale restaurants or retail stores can add to the attractiveness and convenience of a neighborhood, while a fast-food restaurant with a drive-through or a "big-box" retail operation would adversely affect the residential quality.*

**POLICY E-1-10:** Encourage businesses which can utilize on-street parking or parking behind buildings.

*In neighborhood settings, asphalt parking lots in front yards are inconsistent and unattractive. Neighborhood business areas should be designed with parking behind the buildings wherever possible, or they should be of sufficiently small scale to allow on-street parking.*

**POLICY E-1-11:** Encourage use of buffers to separate residential uses from business uses.

*Appropriate buffering can reduce the adverse impacts of businesses located adjacent to residences. This buffering can consist of physical separation, landscaping, fencing, or a combination of these.*

**East Columbus (excluding the S.R. 7 corridor):** East Columbus is a traditional, mixed-use neighborhood with several businesses catering to neighborhood trade.

**POLICY E-1-12:** Encourage businesses that are consistent in scale and character with the residential neighborhood and which do not detract from the enjoyment of residential properties.

*See Policy E-1-9.*

**POLICY E-1-13:** Encourage businesses which can utilize on-street parking or parking behind buildings.

*See Policy E-1-10.*

**West Hill/Tipton Lakes/Westwood:** West Hill Shopping Center, Woodcrest (athletic club, office buildings, funeral home, Marriot)

**POLICY E-1-14:** Encourage new businesses in this area to be of a similar character to those already developed, utilizing planned commercial centers.

*All the commercial lots in this area originally were proposed for development under the planned unit development concept. As a result, these business areas have been planned as commercial centers with controlled access and consistent architectural style. Additional commercial development in this area should continue this trend.*

**GOAL E-2: Promote the use of designated highway corridors as areas for commercial development.**

**POLICY E-2-1:** Encourage development of these corridors in a manner that is visually appealing.

*Highway corridors greatly impact the appearance of a community. Because community appearance is important to local residents, the city should encourage these corridors to be developed in a manner that enhances community appearance. Elements to be considered include landscaping, screening of outdoor storage and display, appearance of buildings, design of parking areas, and others.*

**POLICY E-2-2:** Encourage smooth, efficient traffic flow, and as properties are redeveloped, reduce the number of driveways onto these highways.

*The primary function of these highways is to move traffic, not to provide access to property. The traffic flow is disrupted by numerous driveways, which create points of traffic conflict. The city should plan for safe access which minimizes driveways and intersections.*

**POLICY E-2-3:** Establish objective design standards (not an architectural review committee), to encourage development with appropriate landscaping, parking, setbacks, visually appealing buildings, and attractive and effective signage.

*Design standards could include such things as requirements for variations in building facades, roof lines, materials, colors, and limitations on outside storage.*

**POLICY E-2-4:** Encourage landscape materials which do not obscure views of the businesses from the highway.



**POLICY E-2-13:** Discourage encroachment of business into residential areas on a lot-by-lot basis along the highway, but logical expansions of existing businesses and redevelopment of multiple residential lots for commercial purposes should be considered.

*The enjoyment of residential property can be diminished by inappropriate encroachment of businesses into neighborhoods. Allowing residences to be converted to businesses on a lot-by-lot basis creates strip commercial developments and detracts from the residential quality of neighborhoods. At the same time, neighborhoods which border highway commercial corridors already are located in mixed-use areas and in the path of possible business growth. Expansions of existing businesses into these residential areas is sometimes desirable and justified, as are redevelopment projects in which groups of residential lots are converted into a planned business project.*

**POLICY E-2-14:** Encourage development of commercial and office centers, rather than strip development.

See Policy A-1-3.

**POLICY E-2-15:** Encourage maintenance of views to the landscape beyond the road frontage.

*Columbus is characterized by open spaces and river corridors which are visible from highway corridors. These views add to the attractiveness of the community and contribute to a "sense of place." These views should be preserved as the city grows.*

**National Road and 25<sup>th</sup> Street:** This area is characterized by retail, fast-food, and service businesses catering to the community as a whole. There are several strip shopping centers, "big box" businesses and a mall located along this corridor.

**POLICY E-2-16:** Support the widening of National Road to promote safety and smooth traffic flow.

*The commercial development on National Road has led to traffic congestion. This widening project will help relieve that congestion and improve traffic safety and convenience.*

**U.S. 31 (south of National Road corridor, north of Lowell Road):** These areas are largely undeveloped, but future commercial growth may take place in these areas as the city grows. The proximity to a primary arterial highway makes this area attractive for additional commercial growth.

**POLICY E-2-17:** Require development of frontage roads as this area develops.

*The primary purpose of a highway is to move traffic, not to provide access to property. As commercial growth takes place, frontage roads should be developed to prevent traffic congestion.*

**S.R. 11 (Garden City):** This area contains several large businesses of a specialized nature and businesses requiring large tracts of land. Mixed with these are commercial establishments which primarily serve the Garden City area.

**POLICY E-2-18:** Support the widening of S.R. 11 to promote traffic safety and smooth traffic flow.

*Commercial and residential development south of Columbus has added to the traffic on this highway, and this growth is expected to continue. S.R. 11 should be widened to promote traffic safety and convenience.*

**POLICY E-2-19:** Uses of a similar nature to those already established in this area should be encouraged to seek locations along this corridor.

*Columbus needs to ensure that there are appropriate locations for a full range of businesses and services. The Garden City area can continue to accommodate growth of businesses similar in character to those existing in this area.*

**S.R. 11 (north of 8<sup>th</sup> Street):** This area has developed with a variety of businesses, primarily those oriented toward a broad market.

**POLICY E-2-20:** To promote traffic safety and enhance views, encourage sufficient building setbacks for new buildings.



*Along this corridor drivers have views of farm fields, river corridors, flood plains. It also is a heavily traveled, high-speed highway. Businesses located on this highway should be sufficiently set back from the street to preserve the views and to offer good visibility for drivers.*

**S.R. 7:** This highway corridor contains a mix of uses, several of which are large-scale commercial or industrial operations. Most buildings are located close to the street; there are few parking lots in front of buildings.

**POLICY E-2-21:** Maintain the relationship of buildings to the street as properties are developed or redeveloped.

*In order to preserve the character of this neighborhood, new buildings should be located close to the street, with any needed off-street parking provided behind the buildings.*

**S.R. 46 W:** From the Tipton Bridge to Carr Hill Road, this corridor is largely open space and agricultural land. Much of the land is in flood plain. West of C.R. 350 W, the corridor is a mix of residential, agriculture, and open space. The area between Carr Hill Road and C.R. 350 W contains a mix of strip commercial and planned commercial development.

**POLICY E-2-22:** Limit commercial development to the area between C.R. 350 W and Carr Hill Road.

*The I-65 interchange and residential development along this corridor has prompted commercial growth. In order to promote traffic safety, planned commercial areas, residential growth, and maintenance of views, the commercial development should be confined.*

**GOAL E-3: Encourage a business-friendly climate which will foster growth in the commercial sector, while protecting the character of neighborhoods.**

**POLICY E-3-1:** Allow the free market and private investment decisions to govern the quantity of each type of business and the variety of goods and services available, within the framework of an overall land use plan.

*The city should not make decisions about the number of certain businesses that are needed. The market, not the government, should decide whether another restaurant, another filling station, or another clothing store is needed. These businesses, however, must be located in areas where the plan indicates that they are appropriate and compatible with surrounding land uses.*

**GOAL E-4: Promote a safe environment for businesses.**

**POLICY E-4-1:** Encourage lighting of streets, parking areas, and other spaces which will promote safety and security without adversely affecting neighboring properties.

*Businesses will thrive where people feel safe. Streets and parking areas should be well-lighted to reduce vandalism and promote safety. Such lighting should be designed so that it does not disrupt the enjoyment of neighboring properties.*

**POLICY E-4-2:** Encourage landscaping to be designed in a manner which promotes safety.

*Landscaping greatly enhances the appearance of commercial areas, and it has economic, environmental, and psychological benefits. At the same time, landscaping should be designed with safety in mind. Vegetation should not interfere with sight distance for drivers, nor should it encourage illegal activity by providing screening of public areas.*

## **F. Transportation, Streets**

**GOAL F-1: Provide a safe and efficient network of arterial and collector streets and a network of local and neighborhood streets which offer suitable access to property and safety for vehicular and pedestrian traffic.**

**POLICY F-1-1:** Reduce points of traffic conflict on public streets through driveway and intersection separation requirements.

*Traffic flows more smoothly and safely when there are fewer points of conflict and fewer places where turning movements take place. Proper spacing of driveways and intersections reduces these conflict points and improves traffic safety.*

**POLICY F-1-2:** Improve traffic flow on arterial and collector streets by proper location and spacing of traffic signals and through proper geometric design of streets and intersections.

*Streets should be well-engineered for safety. Signals and other traffic control devices should be installed where needed, and streets and intersections should be properly designed for sight distance.*

**POLICY F-1-3:** Encourage heavy trucks and through traffic to use arterial streets which are designed for such traffic, avoiding local streets where this traffic is more likely to cause safety problems.

*Major streets are designed to accommodate through traffic and trucks; neighborhood streets are designed for access to property and not for this type of traffic.*

**POLICY F-1-4:** Encourage orderly growth by planning and providing an arterial street network paid for from public and private sources in a fair and equitable manner.

*The city should plan its major traffic arteries to encourage growth to take place in areas where the land use plan calls for this growth. Excellent streets attract development, and the city should use its investments in streets to promote orderly growth. Requirements for private contributions toward these street improvements should be predictable, fair, and consistent. It is less expensive to build streets in advance of development than it is to widen streets after traffic congestion problems arise.*

**POLICY F-1-5:** Encourage proper lighting of all streets to provide for traffic safety.

*Street lighting is important to traffic safety, and the city should work to ensure that all streets are properly lighted.*

**POLICY F-1-6:** Develop and adopt a new thoroughfare plan for the City of Columbus. This plan should include minimum street standards and a plan for the opening and extension of streets.

*The city's thoroughfare plan needs to be updated to reflect these goals and policies as well as the land use plan. This thoroughfare plan should offer clear direction for developers and decision-makers regarding the location and design of new streets and of improvements to existing streets.*

**POLICY F-1-7:** Develop a critical access corridor plan which addresses the coordination of the closing of any entrance to the city.

*Good access into and out of the city is important to safety, especially in the event of a natural disaster, such as a major flood. The city should have an emergency preparedness plan which addresses such issues as temporary or permanent street or bridge closings.*

**GOAL F-2: Ensure safe, convenient, pedestrian-friendly neighborhood environments, which are accessible to all citizens. These pedestrian facilities should be provided in a cost-effective manner.**

**POLICY F-2-1:** Develop a traffic calming plan for new and existing neighborhoods. This plan would include such measures as minimizing pavement widths, installing medians and/or traffic circles, shortening street lengths, and discouraging long, straight pavement stretches.

*Traffic in residential neighborhoods should move at relatively slow speeds to protect pedestrians and bicyclists and to improve convenience for local traffic. The city needs to develop a plan to maintain these slow speeds in neighborhoods.*

**POLICY F-2-2:** Consider pedestrian facilities and People Trails to be a component of all street construction or reconstruction projects.

*The most cost-effective time to install pedestrian facilities is when streets are being built, rebuilt, or widened. These facilities should be provided in conjunction with street projects.*

**POLICY F-2-3:** Avoid, whenever possible, disruptive street widening projects in residential neighborhoods.

*Street widening projects cause inconvenience to neighborhoods. They create access problems, require rights-of-way which reduce yard space, and create noise, dust, and mud.*

**POLICY F-2-4:** Ensure that pedestrian facilities are accessible to persons with physical challenges.

*See Policy A-3-2.*

**POLICY F-2-5:** Ensure that pedestrian facilities are safe, attractive, and properly lighted.

*Sidewalks should be properly maintained and designed for safety and attractiveness.*

**POLICY F-2-6:** Encourage service areas to be so located that they will not interfere with pedestrian activity.

*Loading docks, refuse disposal areas, and air conditioning units should be located so that they do not interfere with pedestrian flow in parking lots and on sidewalks.*

**POLICY F-2-7:** Because signs are distracting, and an excess of signage is ineffective, encourage streets to be designed to minimize the need for signs.

*A well-designed street needs fewer signs, because the traffic pattern is clear without such signs. Street signs are essential, but the city should use available opportunities to reduce the number of signs needed.*

**POLICY F-2-8:** Encourage creativity in design of subdivision streets to promote safety.

*See Policy F-2-1.*

**POLICY F-2-9:** Reduce neighborhood disruptions from street improvement projects.

*See Policy F-2-3.*

**GOAL F-3: Develop a transportation system which integrates alternative modes of transportation and serves persons with physical challenges.**

**POLICY F-3-1:** Encourage the use of public transit and encourage such a system to be self-supporting while affordable. Consider incentives to promote public transit.

*Use of public transit reduces dependence on automobiles and reduces air pollution.*

**POLICY F-3-2:** Develop a safe network of pedestrian and bicycle paths throughout the community.

*Pedestrian and bicycle systems can be a part of the transportation network. People can walk or cycle to work, stores, libraries, parks, and other destinations.*

**POLICY F-3-3:** Encourage the use of the Columbus Municipal Airport as a community asset.

*Columbus is fortunate to have a municipal airport. Several local corporations and individuals own airplanes housed at the airport, and charter service is available. The airport has potential for wider transportation use.*

**POLICY F-3-4:** Ensure that all transportation facilities are accessible to persons with physical challenges.

*See Policy A-3-2.*

**GOAL F-4: Develop a transportation system which is commensurate with and supportive of the efficient and economical use of public funds.**

**POLICY F-4-1:** Minimize maintenance and replacement costs for public streets.

*Streets which are well-designed and properly constructed will have a longer life and require less maintenance.*

**POLICY F-4-2:** Costs for street improvements necessitated by new development should be borne in a fair and equitable manner by the developer, not by the community as a whole. New development should not substantially diminish the level of service currently enjoyed by local residents.

*While developers traditionally have been required to install all new streets to serve their developments and to improve existing streets along the frontage of their property, they have not been asked to make off-site improvements. New developments can have dramatic impacts on existing streets, necessitating public improvements such as widening, and eliminating sharp curves and hills. Developers should pay a fair share of the cost of improvements necessitated by their development projects.*

**GOAL F-5: Provide adequate, attractive, and safe parking facilities.**

**POLICY F-5-1:** Require new developments to construct sufficient but not excessive parking for their demand.

*When businesses, apartments, and other uses do not have sufficient parking, the customer and tenant base is affected. In addition, the surrounding neighborhoods may be disrupted by on-street parking by customers of businesses with inadequate parking. At the same time, parking lots use large amounts of land, the pavement surface causes increased stormwater runoff and "heat islands," and expanses of asphalt are generally unattractive. Sizing parking lots to meet peak demand can waste land. Other approaches, such as using grassed areas for overflow parking, should be considered.*

**POLICY F-5-2:** Encourage flexibility in meeting parking demand (shared parking, grassed overflow areas for peak demand and similar practices).

*The city should explore ways to reduce the amount of land consumed by parking lots. These might include smaller parking spaces for compact cars, shared parking between uses with different hours (such as using church parking lots for businesses during the week), and temporary overflow parking areas.*

**POLICY F-5-3:** Develop adequate parking to serve downtown and to encourage growth of downtown businesses.

*An adequate supply of convenient parking is essential to the success of downtown business. The city needs to encourage the development of additional parking to serve workers and customers.*

**POLICY F-5-4:** Develop standards for safety, circulation, and accessibility in all parking facilities while maintaining aesthetic standards.

*See Policy E-2-12.*

**POLICY F-5-5:** Require internal landscaping in all large parking lots.

*Uninterrupted expanses of asphalt are unattractive, and they increase stormwater runoff and create "heat islands." Landscaping can mitigate all of these effects.*

**POLICY F-5-6:** Ensure that parking lot driveways and circulation lanes are adequate for access by maintenance, construction, and utility vehicles.

*Parking lots should be designed so that driveways and circulation lanes can accommodate vehicles used for building maintenance, sign maintenance, remodeling, and maintenance of utilities.*

## **G. Drainage and Stormwater**

**GOAL G-1: Ensure that all storm runoff is handled in a safe and efficient manner and that streets and neighborhoods are properly drained.**

**POLICY G-1-1:** Control ponding on city streets.

*Ponding of stormwater on city streets is a traffic hazard which should be controlled.*

**POLICY G-1-2:** Provide for proper drainage as the city grows and changes, ensure that drainage is considered on a watershed basis, and that new development does not create drainage problems adversely affecting other properties in the watershed.

*This community has a network of rivers and streams and many areas of high water table. All these factors contribute to potential flooding and poor drainage. The city needs to plan and provide for proper drainage, and this planning needs to be on a watershed basis to insure its validity.*



**POLICY G-1-3:** Ensure that all storm drainage facilities are maintained in good working condition.

*To function properly, storm drainage facilities must be maintained. Clogged or blocked drainage systems will cause water to back up.*

**POLICY G-1-4:** Correct existing drainage problems as resources permit.

*Correction of existing drainage problems can be extremely costly, but the city should make these improvements as resources allow.*

**POLICY G-1-5:** Develop and maintain a systematic stormwater management program.

*The city should develop a plan for evaluating the stormwater effects of new development, for maintaining drainage systems, and for correcting existing drainage problems.*

**GOAL G-2: Keep the streets and streams free of mud and sedimentation.**

**POLICY G-2-1:** Minimize soil erosion and sedimentation caused by construction of new developments and by the operation of storm drainage facilities.

*New construction disturbs soil and creates erosion and construction vehicles deposit mud on the streets. Storm drainage facilities, such as open swales, also can cause erosion, and the drainage facilities can carry silt into the waterways. The city should encourage practices which minimize this erosion and sedimentation.*

**POLICY G-2-2:** Encourage retention and protection of existing natural vegetation wherever possible.

*Natural vegetation protects against erosion and sedimentation.*

## H. Utilities

**GOAL H-1: Provide safe and abundant water for drinking and for fire protection for the community.**

**POLICY H-1-1:** Require that new growth be consistent with a growth management plan and encourage Columbus City Utilities to have an aggressive growth plan.

*Growth should not be allowed to outstrip the community's ability to provide abundant water for domestic consumption and for fire protection. Columbus residents have not been required to restrict lawn watering or take water conservation measures. This water supply should be protected as the city grows.*

**POLICY H-1-2:** Achieve the best practical fire protection rating to reduce insurance costs for local residents.

*An excellent fire protection rating means that losses will be minimized, and insurance premiums will be reduced. The city should strive for short response times and high-quality service.*

**POLICY H-1-3:** Provide the highest practical drinking water quality.

*Excellent drinking water is a health benefit and an improvement to the quality of life. The city should provide the best quality practical to local residents.*

**POLICY H-1-4:** Require nonfarm uses within the city limits to connect to city water supplies wherever they are available.

*Because safe drinking water is important to public health, homes and businesses should use the city's water supply wherever it is available. Private wells can be contaminated from a number of sources, and without regular testing, property owners may be unaware of problems.*

**GOAL H-2: Provide efficient and environmentally responsible wastewater collection and treatment.**

**POLICY H-2-1:** Encourage the installation of separate storm and sanitary sewers, to increase the capacity of each and reduce the discharge of waste into the waterways.



*Combined storm and sanitary sewers often are filled beyond the treatment capacity during heavy rains, causing runoff of raw sewage into the waterways. Inadequate capacity of combined systems also leads to drainage problems. Installing separate storm sewers increases the capacity of the sanitary system and provides better drainage.*

**POLICY H-2-2:** Require that all liquid wastes (industrial, commercial, and household) be properly treated.

*Proper treatment protects the waterways from pollution from these sources.*

**POLICY H-2-3:** Minimize the amount of clear water (from down spouts, infiltration, etc.) which enters the sanitary sewer system to increase capacity and reduce treatment costs.

*When clear water enters the sanitary sewer system, that water is treated unnecessarily, and the capacity of the treatment plant is reduced.*

**POLICY H-2-4:** Require nonfarm uses within the city limits to connect to the city sanitary sewer system wherever it is available.

*A sanitary sewer system is a safer means of waste disposal than is an individual on-site disposal system, such as a septic tank and filter field. Individual systems can contaminate the ground water, and filter fields can clog up and fail. Within the city, uses which have sanitary sewers available should be connected to this system.*

**GOAL H-3: Provide high-quality utility service at the lowest possible rates.**

**POLICY H-3-1:** Costs for utility improvements necessitated by new development should be borne in a fair and equitable manner by the developer, not by the community as a whole. New development should not diminish the level of service currently enjoyed by local residents.

*While developers are required to pay for utility extensions to serve their subdivisions, each new development reduces the available capacity of the system, particularly the treatment plant.*

**POLICY H-3-2:** Use available outside funding sources, such as state and federal grants, to help pay for needed improvements and extensions.

*The city should reduce the cost impacts of utility systems on individuals by using available outside funding sources to help pay for utility improvements.*

**POLICY H-3-3:** Maintain the systems in a manner which will minimize costs.

*Regular maintenance of the sewer and water systems is less costly than major repairs which may be needed without such maintenance.*

**GOAL H-4: Ensure that all utilities serving city residents are of the same high standards.**

**POLICY H-4-1:** Manage and/or direct community growth through utility policy.

*Excellent public utilities attract growth. The city should use its investments in utilities to direct growth to areas where such growth is desired.*

**POLICY H-4-2:** Provide utility extensions, improvements, and upgrades only in a manner consistent with the city's growth management strategy.

*Utility extensions and improvements should not be available except to areas where development is consistent with the city's plans for growth.*

**POLICY H-4-3:** Eliminate conflicts among competing utilities.

*Several utility companies other than Columbus City Utilities have authority to provide service in and around Columbus. Confusion and conflicts among these companies increase the uncertainty and cost involved in new development. These competing utilities also create uneven service levels and increased rates for city residents.*

**POLICY H-4-4:** Ensure that all new development is served by city utilities or by utilities with equivalent levels of service. This policy includes availability of a water system which will ensure a fire service rating equivalent to the city's rating.

*The rural water systems serving Columbus and its outlying areas are not fire rated and cannot at this time provide the water flows necessary for hydrants adequate for city fire fighting equipment. City residents should all be entitled to the same level of service at a reasonable cost. If these rural companies are to continue to serve Columbus, their systems should be upgraded to a level of service at least equivalent to the city's system.*

**POLICY H-4-5:** Ensure public control of utility policy.

*Because utility policy is extremely important to growth management, the city should ensure that the utility operates responsibly in relation to the city's growth policy.*

## **I. Public Facilities**

**GOAL I-1: Provide high-quality public facilities in locations which are convenient and accessible to local residents.**

**POLICY I-1-1:** Ensure that pedestrian connections to public facilities are provided in conjunction with new development and that these pedestrian systems are designed to promote safety and efficiency.

*Public facilities such as libraries, parks, and schools should be accessible to pedestrians.*

**POLICY I-1-2:** Encourage the ColumBUS system to coordinate its schedules and routes with the school corporation, the Foundation for Youth, and other similar agencies to increase the accessibility of these facilities.

*Young people in Columbus should have easy access to public facilities. Many do not have private transportation available to allow them to travel home from after-school activities or to go to public or recreational facilities. ColumBUS should try to fill this need.*

**POLICY I-1-3:** Encourage public facilities, particularly schools, to be so located that they serve a socioeconomically diverse population.

*The community, and particularly children, benefit from socioeconomic diversity. Schools should have diverse student populations, and other public facilities, such as recreational facilities should be located to attract diverse populations.*

**POLICY I-1-4:** Encourage new school locations to be convenient for a sufficient number of pupils to make the school educationally efficient and effective.

*Elementary schools, are most successful if they are in a size range of 300 to 700 pupils, and young children should not spend inordinate amounts of time being transported to and from school. Likewise, there are optimum sizes and travel times for secondary schools. When school locations are selected, these locations should be convenient to school populations which are within recommended size ranges.*

**GOAL I-2: Provide high-quality public facilities as economically as possible, while preserving community standards for design.**

**POLICY I-2-1:** Encourage new public facilities to be constructed in locations where adequate infrastructure and services are in place.

*As is true of other types of development, public facilities should have adequate roads, parking, sewer, water, and other services and facilities.*

**POLICY I-2-2:** Encourage the use of school facilities by community groups, including public health clinics, during non-school hours.

*Schools represent an enormous investment of public funds, and these facilities should be available for public and community events, provided that this facility use does not interfere with the educational mission of the schools.*



**POLICY I-2-3:** Encourage the use of public facilities, particularly school facilities as emergency shelters.

*Local emergencies, such as flooding or tornadoes, can force local residents from their homes and businesses. Appropriate public facilities should be made available for emergency shelter.*

**POLICY I-2-4:** Promote design excellence in public buildings.

*Columbus has a tradition of excellence in design and architecture. The city should continue this tradition by ensuring that public buildings are of the highest standard.*

## **J. Economic Development**

**GOAL J-1: Promote economic growth which will enable the community to retain its small-city image.**

**POLICY J-1-1:** Aim the economic development recruitment efforts at attracting companies in a size range that will enable the city to efficiently and economically provide needed infrastructure, services, and supporting activities (housing, recreation, schools, etc.).

*Maintaining a manageable rate of growth is important to preserving the quality of life in Columbus. A sudden influx of large numbers of workers or residents could outstrip the city's ability to maintain the level of service it now provides. Growth should be encouraged at a manageable rate.*

**POLICY J-1-2:** Support and enhance the community's educational system.

*Excellence in education is critical to the local economy. Businesses need a well-educated work force, and they benefit from the resources available throughout the educational system.*

**GOAL J-2: Maintain the characteristics of the small city which improve its competitive position in attracting desired economic growth.**

**POLICY J-2-1:** Maintain and enhance the safety and attractiveness of the entrances to the city.

*The entrances to the city create the first impression of Columbus for visitors, some of whom are potential investors in the community's economic growth. These entrances should provide safe and easy access into Columbus, and they should be attractive.*

**POLICY J-2-2:** Maintain and enhance the vitality, cleanliness, and appearance of all areas of the city.

*One of the traditional strengths of Columbus is its attractive appearance. This attractiveness, particularly of the downtown, helps to attract businesses and workers to the community.*

**POLICY J-2-3:** Encourage industrial development to be integrated with its surroundings, providing smooth transitions between differing land uses.

*Columbus economic success has been tied to successful local industry. In years past, industries located in the downtown and other neighborhood areas, close to the work force and to public facilities and services. Different types of industries are appropriate in different types of surroundings. The city should take steps to ensure that industries are good neighbors and that appropriate measures are employed to ensure compatibility of adjacent uses.*

**POLICY J-2-4:** Prevent location of new industrial development in dense residential areas.

*Dense neighborhoods are incompatible with new industrial growth. Industries generate volumes and types of traffic which are disruptive to neighborhoods.*

**GOAL J-3: Provide for continued industrial growth while protecting the agricultural sector of the economy by retaining expanses of productive agricultural land.**

**POLICY J-3-1:** Limit the growth of industrial activity to the areas most suited for this use, minimizing the impact of this type of development on agricultural businesses.

*The city needs to continue its industrial growth for long-term economic health. Much of this growth will take place on land that now is used for farming. While it is recognized that some farmland will be lost to this growth, the city should minimize the impacts on farm operations.*



**POLICY J-3-2: Promote infill development in existing industrial areas.**

*Infill development conserves land and helps ensure compatibility of new development with neighboring uses.*

**Woodside/Walesboro Area**

**GOAL J-4: Promote continued economic development in this area to provide jobs which will improve the standard of living and provide upward mobility for local residents.**

**POLICY J-4-1:** Encourage new industrial development to be similar to that experienced in this area in the past.

*This area has been the location of significant industrial growth in recent years. These industrial parks are attractive and accessible. New development of a similar nature will enhance the strength of the existing businesses and continue to provide economic and job growth.*

**POLICY J-4-2:** Encourage the growth in this area to take place in an orderly manner. Where possible, this growth should be contiguous or in close proximity to the existing development in order to facilitate provision of infrastructure and services.

*Infrastructure and services can be provided most efficiently to development contiguous to existing development of a similar nature.*

**POLICY J-4-3:** Designate the land bounded by CR 350 S, CR 400 W, CR 700 S, and SR 11 as an economic growth area.

*While it will be many years before this entire area is occupied by industrial development, it is important to set aside an area to accommodate the growth and to discourage incompatible land uses which in turn will discourage desired industrial growth.*

**POLICY J-4-4:** Maintain manufacturing, offices, office/warehouse and similar uses as the principal uses in this area.

*See Policy J-4-1.*

**POLICY J-4-5:** Encourage small-to-medium-sized companies to locate in the northern portion of the Walesboro property of the Columbus Board of Aviation Commissioners by reserving the land in this area for such companies. (See Goal J-10)

*The city needs to set aside appropriate locations for small-to-medium-sized companies, as these are a major source of job growth. These companies can provide a buffer between larger companies and residential areas, and this area offers excellent access to transportation and services.*

**POLICY J-4-6:** Within the designated economic growth area, prevent residential subdivisions which would consume land needed for future industrial development.

*See Policy J-4-3.*

**POLICY J-4-7:** Within the designated economic growth area, encourage only that commercial development which will support the industrial activity; prevent commercial development of a scale which would consume land needed for future industrial development.

*See Policy J-4-3.*

**Columbus Municipal Airport Area**

**Goal J-5: Ensure the continued desirability of the airport area as a location for aviation and for small-to-medium-sized enterprises, including high-technology companies, educational institutions, health care facilities, offices, and other similar uses.**

**POLICY J-5-1:** Reserve the land at Columbus Municipal Airport for aviation-related uses, for development of small-to-medium-sized businesses, offices, institutions, health care facilities, light industries, high-technology enterprises, and educational and technical centers which have high economic impact and high growth potential.

*The aviation function of the airport needs to be retained and enhanced. The airport is an important community asset which should be utilized to best advantage. The educational institutions which are located there can create a positive synergy with new office, institutional, health care, and high-technology uses.*

**POLICY J-5-2:** Maintain and enhance the visual quality of the airport.

*If the airport is to attract the types of uses the city desires, it needs to be visually appealing.*

**POLICY J-5-3:** Provide infrastructure and services to the airport which are sufficient to retain its desirability as a business location.

*The city and the aviation board should ensure that the airport has adequate infrastructure to attract and support the desired businesses and institutions.*

**POLICY J-5-4:** Continue to maintain and enhance the aviation capabilities of the airport.

*See Policy J-5-1.*

**POLICY J-5-5:** Maintain and support the existing post-secondary educational facilities at the airport.

*Educational institutions provide important support for industry, both in terms of educating the work force and in being a source of expertise and resources.*

**POLICY J-5-6:** Within the airport area, prevent residential development which would consume land suited for aviation, light industrial, institutional, and other appropriate business growth.

*There is an abundance of suitable residential land in the community, but land suited to aviation, light industrial, institutional, and business growth is less plentiful. The city should reserve land which meets the criteria for these purposes in order to assure the availability of land for future economic growth.*

**POLICY J-5-7:** Within the airport, restrict retail and similar commercial development to that which will support the desired activities.

*Retail commercial development, fast-food operations and similar uses can interfere with other economic growth, and land meeting the criteria for this growth should be reserved for that purpose, not converted to other uses. Some commercial development is appropriate in these areas, to the extent that the commercial enterprises support the primary economic activities. Examples of this commercial development include automobile service stations, restaurants, and office supply stores.*

**POLICY J-5-8:** Discourage noise-sensitive uses from locating at the airport.

*Some uses are incompatible with noisy environments. Developers of these businesses should be cognizant of current and future noise levels at the airport.*

**POLICY J-5-9:** Develop a plan for the future use and development of the airport which considers the effect of aviation and other airport activity on the surrounding neighborhoods and the community as a whole.

*The city needs to develop a land use plan for the airport and its environs that reflects these goals and policies and makes the best use of this important community asset.*

**SR 11 - US 31 Corridor** (US 31 north of its intersection with Washington Street, SR 11 from 8<sup>th</sup> Street to US 31)

**GOAL J-6:** Continue to provide for economic growth along this previously designated economic growth corridor while protecting floodway areas from development.

**POLICY J-6-1:** Encourage the development of industrial and office parks along this corridor, on the land that is outside of the designated floodway.

*The city has designated this corridor as an economic growth area because of its excellent highway and rail access. As this land develops, the city should ensure that floodway areas are protected to reduce the likelihood of increased flooding or property damage due to flooding.*

**POLICY J-6-2:** Encourage the continued agricultural use of the flood plain areas along this corridor.



*The flood plain areas along this corridor are suitable for continued agricultural use, although there is a risk of crop loss caused by flood waters.*

**Other Corridors** (SR 7, US 31 south of CR 50 N, SR 11 south of the Tipton Bridge)

At this time, it is not anticipated that these corridors are needed or will be suitable for industrial growth during the time period covered by this plan.

**East Columbus Industrial Area** (State Street/South Mapleton/South Gladstone/South Marr Road)

**GOAL J-7: Provide for continued industrial development to further the economic well-being of the community, while preserving the floodway areas and surrounding farmland from further encroachment by urban development.**

**POLICY J-7-1:** Encourage industrial development consistent in character with the existing industries to locate in this area, particularly within the city limits, where infrastructure and services can be provided.

*New development of a similar nature will enhance the strength of the existing businesses and continue to provide economic and job growth.*

**POLICY J-7-2:** Prevent development in the floodway areas and encourage continued agricultural uses in the floodway areas.

*See Policy J-6-2.*

**POLICY J-7-3:** Prevent development of residential subdivisions in this area.

*See Policy J-5-6.*

**Downtown/Urban Industrial areas** These areas include the Cummins main engine plant, Reliance, and the industrial area along and near Central Avenue.

**GOAL J-8: Retain and enhance the economic vitality of these industries.**

**POLICY J-8-1:** Continue to nurture and support these industries, provided that they do not expand in a manner which will have significant adverse effects on neighboring uses.

*Industrial development shaped some of the older urban areas in Columbus, and they continue to be an integral part of their neighborhoods. This traditional land use should be recognized and continued.*

**POLICY J-8-2:** Prevent expansion which will create environmental problems or which will significantly increase traffic, noise, glare, vibration, or other similar impacts which will adversely affect the surrounding area.

*These uses should not be changed or expanded in a way which diminishes the use and value of surrounding properties. Effects to be considered include noise, vibrations, air pollutants, and significant changes in traffic patterns.*

**GOAL J-9: Ensure that new development has appropriate infrastructure and services and that these services are provided in a cost-effective manner.**

**POLICY J-9-1:** Encourage economic growth to take place in areas where appropriate infrastructure and services are available or can be provided at reasonable cost.

*Healthy industrial development needs appropriate infrastructure and services. Adequate sewer and water service, police and fire protection, and convenient transportation networks all are important. These facilities and services are costly to provide, and locational decisions should be made in a manner which conserves resources.*

**POLICY J-9-2:** Encourage similar uses to locate in clusters, to facilitate provision of appropriate infrastructure and services.

*Infrastructure and services can be provided most efficiently to business areas which have similar needs for highway access, rail service, sewer capacity, water pressure, and other facilities.*

**GOAL J-10: Diversify the economy by providing small-business opportunities.**

**POLICY J-10-1:** Create a positive business climate characterized by flexibility.

*The needs of businesses are continuously changing, and the city needs to have sufficient flexibility in its regulatory system to respond to these changes and to encourage and nurture new businesses.*

**POLICY J-10-2:** Provide opportunities for start-up of small-to-medium-sized companies.

*A high percentage of new jobs are created by small business. The city needs to set aside appropriate locations for start-up companies and to provide business assistance to help these companies succeed.*

**POLICY J-10-3:** Promote the growth of local companies.

*Columbus' economic history is tied to the growth of its industrial base. In addition to attracting outside companies to locate in Columbus, the city should nurture the growth of those companies already located in the community.*

**POLICY J-10-4:** Protect existing small-to-medium-sized companies located in mixed-use urban areas, and allow these companies to expand, provided that there are no significant adverse effects on other properties in the area.

*Many start-up companies locate in mixed-use urban areas, where land tends to be less expensive. There should be reasonable opportunities for these companies to expand, provided that this expansion does not significantly diminish the enjoyment of neighboring properties.*

**Goal J-11: Continue providing various incentives to encourage new businesses to locate in Columbus and to encourage existing businesses to expand.**

**POLICY J-11-1:** Continue the use of economic incentives to attract new and expanding businesses.

*A major contributor to the success of the local economic development program has been the ability to offer and receive tax abatement. As a result, the tax rate has gone down and revenue to the city has increased. The city should continue the use of tax abatement.*

**POLICY J-11-2:** Evaluate the need to expand the availability of tax abatement within the city.

*Many businesses currently qualify for incentives on new investments but aren't located in a previously declared economic revitalization area.*

**POLICY J-11-3:** Strive to maintain or lower the current tax rate.

*A low tax environment is conducive to job creation and the commitment to a low tax rate over the long term should provide for the continuation of job retention and creation.*



# SUPPLEMENTARY GOALS AND POLICIES

## Landscaping

### FINDINGS

The City of Columbus finds that landscaping is of enormous value to the community and offers the following types of benefits:

- Economic
- Environmental
- Safety
- Aesthetic
- Psychological

### Economic Values

According to *Local Landscape Ordinances*, published by the American Society of Landscape Architects, research indicates that property leases more quickly and property prices are higher on parcels which are attractively landscaped. In addition, landscaping is a cost-effective means of improving values; a small investment in planting will bring a return in increased property value. Research also indicates that attractive landscaping attracts more new business investment and increases business. For example, retail is more successful in areas with such landscaping. Landscaping can mitigate adverse effects of otherwise incompatible land uses by reducing noise, vibration, glare, air pollution, flooding, and soil erosion and by screening unattractive views.

While it is recognized that landscaping improves property values, the costs of compliance with landscape regulations should not be so high as to be onerous or to discourage business development. The costs of installation and maintenance of landscape materials should be reasonable in relation to other investments in the property.

### Environmental Values

The role of plants in preventing soil loss, reducing siltation, and reducing the effects of flooding is well-documented. Plants hold the soil in place, particularly on steep slopes and stream banks. They also slow the rate of flow of stormwater. Landscape areas can be designed so that they provide absorption areas for stormwater. Retention ponds, berms, and other landforms can channel and store stormwater.

Plants contribute organic matter to the soil, which improves soil condition. Planting areas also help counter the adverse effects of impervious surfaces, which include increased amount and speed of stormwater runoff, and increased heat levels in the summer.

Plants provide extra oxygen in the atmosphere and reduce carbon dioxide. They also filter particulate pollutants from the air. Trees, masses of plantings, and berms absorb sound and reduce unwanted noise. Because sound attenuates as it travels, the effects of noise on neighboring properties or uses are mitigated by open space.

Trees, other plantings, and landforms serve as wind breaks and offer protection. They also provide shade and reduce ambient air temperature. Deciduous trees can reduce heating and cooling needs by providing summer shade while allowing solar heating in winter months.

## **Safety**

Planting areas channel traffic in parking areas and lessen the likelihood of traffic accidents. Planting areas along streets and within parking lots provide "safety islands" for pedestrians and help separate pedestrian and vehicular traffic.

Planted buffer strips reduce the noise, vibration, heat and glare produced by certain land uses and provide protection for neighboring properties. They also provide physical barriers which discourage intruders.

Landscaping requirements should not interfere with adequate access to structures, (such as free-standing signs, mechanical areas, etc.) for maintenance. They also should allow for mowing, snow plowing and snow storage, and other similar activities to be carried out safely and efficiently.

Landscape materials should be selected and located in such a manner that they do not interfere with overhead or underground wires, pipes, etc. They also should not interfere with natural or man-made drainage courses.

## **Aesthetics**

Planting areas along streets soften the edge and improve the appearance of the community. They vary the look of an area and create visual interest. Trees, shrubs, water features, and other landscape elements interrupt large areas of asphalt and thus improve the appearance of parking areas.

Plantings can enhance the appearance of building and structures and provide visual unity with the ground. They can be used to block views of incompatible land uses (i.e., factories adjacent to houses) and of inherently unattractive uses (outdoor storage, dumpsters, salvage yards, etc.). Landscaping can tie buildings or uses together and create a sense of identity. Shopping areas, industrial parks, and residential neighborhoods are examples of areas which can benefit from unifying landscape elements. Landscape areas provide visual boundaries between uses and along pavement edges.

## **Psychological**

Research indicates that employees and customers experience psychological benefits from landscaping. Trees, flowers, shrubs, water features and the like contribute to a more humane environment. Research indicates that there is less destruction of property and less graffiti in properly landscaped environments. Landscaping improves the overall quality of life in the community.

## **S-L-1. Economy**

**GOAL S-L-1: Protect and enhance property values and improve economic vitality.**

**POLICY S-L-1-1:** Require appropriate landscaping for new or expanded businesses, public facilities, subdivisions, apartment complexes, and other similar uses.

**POLICY S-L-1-2:** Ensure that landscape requirements are fair and equitable and do not discourage desirable business development.



## **S-L-2. Environment**

### **GOAL S-L-2: Improve air and water quality, reduce noise, and conserve energy.**

**POLICY S-L-2-1:** Require landscaping where appropriate to reduce soil erosion and lessen the adverse effects of flooding and improve drainage.

**POLICY S-L-2-2:** Encourage effective use of landscaping, such as medians, traffic islands, and parking lot landscaping, to reduce the adverse effects of impervious surfaces.

**POLICY S-L-2-3:** Encourage use of street trees and landscape buffers to reduce the adverse effects of air pollution.

**POLICY S-L-2-4:** Encourage use of landscape buffers to reduce the impacts of noise, including traffic noise.

**POLICY S-L-2-5:** Encourage site design which uses landscaping to control winds and conserve energy.

**POLICY S-L-2-6:** Encourage agricultural operations to use filter strips to reduce siltation and sedimentation.

## **S-L-3. Safety**

### **GOAL S-L-3. Improve the safety of traffic flow on streets and in parking areas.**

**POLICY S-L-3-1:** Encourage site design which employs landscaping to improve traffic flow and increase pedestrian safety in parking areas.

**POLICY S-L-3-2:** Encourage street design which uses landscaped areas as traffic calming measures.

**POLICY S-L-3-3:** Encourage landscape designs which are easy to maintain and which do not interfere with maintenance of structures, utility installations, and parking areas.

**POLICY S-L-3-4:** Ensure that landscape elements do not interfere with utilities or with drainage.

**POLICY S-L-3-5:** Encourage landscape designs which promote personal safety (i.e., designs which allow views into business property, which screen hazardous areas, and which do not interfere with sight distances).

## **S-L-4. Aesthetics**

### **GOAL S-L-4. Enhance the appearance of the community.**

**POLICY S-L-4-1:** Make extensive use of street trees throughout the community, requiring them in new development.

**POLICY S-L-4-2:** Encourage use of landscaping to improve the appearance of parking areas, requiring it in new large parking areas.

**POLICY S-L-4-3:** Encourage landscape designs which enhance the appearance of buildings.

**POLICY S-L-4-4:** Encourage use of landscaping to screen and buffer incompatible and/or unattractive uses.

**POLICY S-L-4-5:** Encourage landscape designs which unify elements in an area.

**POLICY S-L-4-6:** Encourage use of landscaping to define street edges and separation of uses.

## **S-L-5. Social**

**GOAL S-L-5. Improve the psychological and social well-being of the community.**

**POLICY S-L-5-1:** Encourage the use of landscaping to reduce vandalism to property.

**POLICY S-L-5-2:** Encourage businesses to use landscaping to improve the quality of the environment for customers and employees.





# PART I

## COMMUNITY VALUES

Successful community plans are those that accurately reflect the desires of the residents. These desires are based on an underlying set of values, and these values differ from one community to another; that is why each community is unique. Identifying and expressing these values is critical to effective planning. In Columbus, more than 90 people donated many hours of time to articulate local values. The Design Team members and the citizens who served on subcommittees studied the results of surveys and public meetings as well as background information provided by the Burnham Group, the planning staff, and other resources.

The area governed by this plan includes the City of Columbus and its extraterritorial jurisdiction, which extends approximately two miles beyond the corporate boundaries. According to the land use analysis prepared for this plan, this area contains 10 to 20 times more land zoned for future development than is needed to sustain the city's growth rate for the next twenty years. The citizens involved in the process agreed that the city should manage its growth so that new development takes place in the areas which are best suited for such growth. This concept is the underlying foundation for the goals and policies contained in this document.

### Small-city Atmosphere

One theme emerges as the dominant feature the community wishes to retain: the small-city atmosphere. The characteristics of small-city life include the following:

- Friendliness
- Inclusiveness
- Low crime rate and perception of safety
- Healthy citizens and healthy environment
- Convenience
- High-quality services
- Ready access to government and other institutions
- Opportunities for participation in all types of community activities
- Surrounding rural countryside and open space
- Lack of traffic congestion

These attributes contribute to the quality of life and to the community's economic vitality. Many believe that

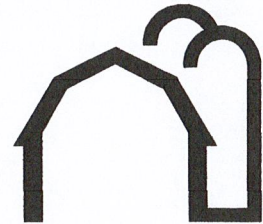
companies are more likely to invest in communities which have these characteristics, and people prefer to shop in safe, secure, attractive, friendly environments.

Although there is a strong desire to maintain this small-city atmosphere, there is also a desire to accommodate community growth. The community wants the growth to take place in an orderly fashion, with emphasis on infill development and growth contiguous to already developed areas. This type of growth pattern offers several advantages:

- Efficiency in providing infrastructure and public services
- Convenience
- Conservation of open space

### Farmland, Open Space and Recreation

A second dominant theme is a desire to preserve farmland and open space and to provide diverse opportunities for active and passive recreation. Historically, the quality of life in Columbus has been enhanced by its agricultural heritage and rural life style. This area has productive soils, and agriculture is an important part of the local economy. In order for Columbus to continue to be an attractive place to live and to retain financial stability, it will be important for the city to maintain a balance between agriculture, job growth, and residential growth. In recent decades, hundreds of acres of farmland have been developed. The Columbus community values the agricultural life style in rural areas of the county, and it values farmland for its productive and scenic qualities. At the same time, the community recognizes the need to provide for future growth. Local residents want to direct growth away from the most productive farmland, and they want to avoid the urban sprawl which has consumed the countryside in other communities. Sprawling development patterns waste land and create development which is expensive to provide with services. These patterns also detract from the small-city atmosphere which the community wishes to preserve.









The quality of life in a community is related to the dedication of that community in preserving the natural environment.

Open space areas, river and stream corridors, and recreation areas are valuable community assets which contribute to the community character and quality of life. They provide areas of scenic beauty as well as areas for both active and passive recreation.

The character of Columbus is partly defined by the corridors of rivers, streams and tributaries that flow through the community. These water corridors create a system of natural greenways throughout the city, giving a beautiful rural feeling to an urban community. Because of the nature of Midwestern rain (high volume, high intensity thunderstorms) and the mass of water upstream that is beyond the city's jurisdiction, the currents and paths of these tributaries are constantly in flux. This continuous change makes an accurate delineation of floodway and floodway fringe areas difficult and creates a potentially unsafe situation for residential development on these sites, thus affecting the welfare of our citizens by causing possible public health and safety problems. These flooding problems coupled with the high value placed on open space lead to the conclusion that floodway areas should be used for recreation, agriculture, and open space.

Because the city is downstream from a much greater water source and has no control over those channels, it is essential that erosion be controlled as well as possible along our river and stream banks. Some of these areas are suited for active human use, and others are best left as natural zones.

The community also values open space areas as wildlife habitats. Trees and landscaping should be encouraged for their environmental as well as their aesthetic benefits.

Parks are an important component of a successful community. A variety of park and recreation facilities is needed, including large parks for broad-based activities (sports leagues, swim teams), and smaller parks for neighborhood use. The citizens of Columbus value and support neighborhood parks and expect our existing parks to be preserved. Establishing neighborhood parks, especially in new developments, is seen as a way to encourage interaction among residents. Neighborhood parks

should be areas that residents enjoy for their restful qualities, in addition to being destinations for leisure activities.

## Environmental Quality

Clean air and clean water are essential to the health of the citizens of the community and are an integral part of the quality of life. These resources have aesthetic value as well. Many of the open-space areas described above also are irreplaceable fragile environmental resources. Columbus values its high-quality environmental resources, especially its water resources.

Local residents have serious concern about the use of individual septic systems and private treatment systems. The soils in the community generally are not conducive to the successful functioning of on-site disposal systems, and the failure rate is relatively high. Several privately owned treatment systems have suffered from lack of maintenance and therefore have degraded water quality and created health risks. The responsible collection and treatment of domestic and industrial waste are essential components of the short- and long-term health of our waterways and ground water. The use of septic systems and improperly maintained treatment systems should be discouraged.

The community also desires clean, free-flowing streams and rivers and favors erosion control to prevent sedimentation from entering our waterways.

## Housing

Decent, safe and sanitary housing, available to all community residents is an important element of a quality community. A healthy community has a diversity of residents, in terms of skills, income range, and ethnic background. This population diversity can be achieved only if there also is housing diversity. People should have choices in location of housing, so each geographic area of the city should afford a variety of housing prices and types. Private developers responding to market demand construct sufficient housing stock for those in the upper income categories, but public incentives should be investigated to insure that those of lesser income also are provided with housing choices.





Construction quality in both new homes and rehabilitation of existing housing is essential to long-lasting values in the homes, and the city should take active steps to ensure this quality. The quality of residential environments also is directly related to the quality of maintenance of residential buildings and grounds.

### Community Appearance

Columbus residents like the way their community looks, and they want to preserve and enhance the aesthetic quality of the city. Columbus' reputation as a quality community is based partly upon several appearance-related characteristics, including excellent architecture, low-rise buildings, the downtown skyline dominated by towers and church spires, cleanliness, good maintenance of buildings and grounds, plentiful trees and landscaping, and abundant open spaces and farmland which create lovely views.

Highway corridors and entrances to the city are important elements of community appearance. Our citizens want these corridors to be inviting to local residents and visitors alike. These corridors should not be cluttered by excessive or oversized signage, or outside storage of materials.

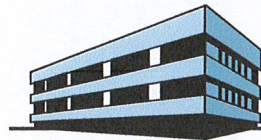
Landscaping is a primary component of the city's appearance, and excellence in landscaping should be encouraged. Trees are particularly beneficial, as they have the most impact on both visual and environmental quality.

A successful city comprises successful neighborhoods, each of which retains a consistent character. This neighborhood character is important to the appearance of the community, to its small-city atmosphere, and to its economic health. Many of the neighborhoods of Columbus have identifiable positive characteristics, while others have room for improvement by using infill development to relieve some of the pressure to develop outside the city, by creating alternative uses of vacant lots, such as parks, and by re-energizing the neighborhoods through a sense of identity.

### Economic Vitality and Diversity

Columbus citizens recognize that a healthy economy is critical to the quality of life in a community. The community must have an adequate supply of jobs for all types of skills and with a variety of pay scales. An excellent educational system is critical to economic success. The community's primary, secondary, and post-secondary schools must educate the work force so that local citizens can be productive employees. Educational quality also is important in recruiting companies to invest in Columbus, because employees of these companies value educational excellence for their children. Much of the recent history of Columbus is tied to its industrial development. The city's growth and success are related to its industries, particularly its home-grown companies. Columbus should be a well-rounded community with a diversified economic base, to provide for the economic well-being of the local citizens and to provide the resources to create a quality community.

Columbus benefits from economic growth, provided the growth does not place undue burdens upon facilities and services nor lower the level of service the community already enjoys.



The community favors steady incremental growth in its employment base. The adverse impacts of a new large employer could outweigh the benefits. These adverse impacts include development outpacing the city's ability to provide infrastructure and services, traffic congestion, loss of open space, and diminution of the attributes of small-city life.

In addition to supporting the large industries which have grown with the community, Columbus residents recognize that small businesses add to the employment base and provide entrepreneurial opportunities. These businesses have the potential to grow and become major influences on the local economy, and their growth is consistent with the desire for incremental growth.

The community also recognizes the importance of the agricultural sector. Productive farms are an integral part of the local economy and farming activity needs to be protected and nurtured. While industrial growth will consume some of the county's farmland, it will leave significant amounts undisturbed for continued successful farm businesses.





# City BZA Meeting

February 27, 2024



The following presentations are meant to capture most of the relevant talking points of the local citizen group identified as B4CSF. It is designed as fact based and on point to prove all 4 conditional use criteria are not being met by Carina Solar application.

---

# Innovative Ideas

---

CHERYL CAROTHERS



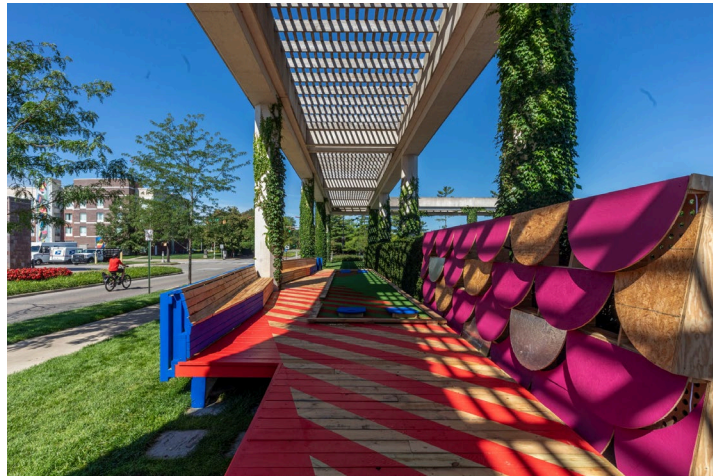




# Cincinnati Zoo Solar Parking Lot











# Columbus Gateways

---

TAFFY SCHROER

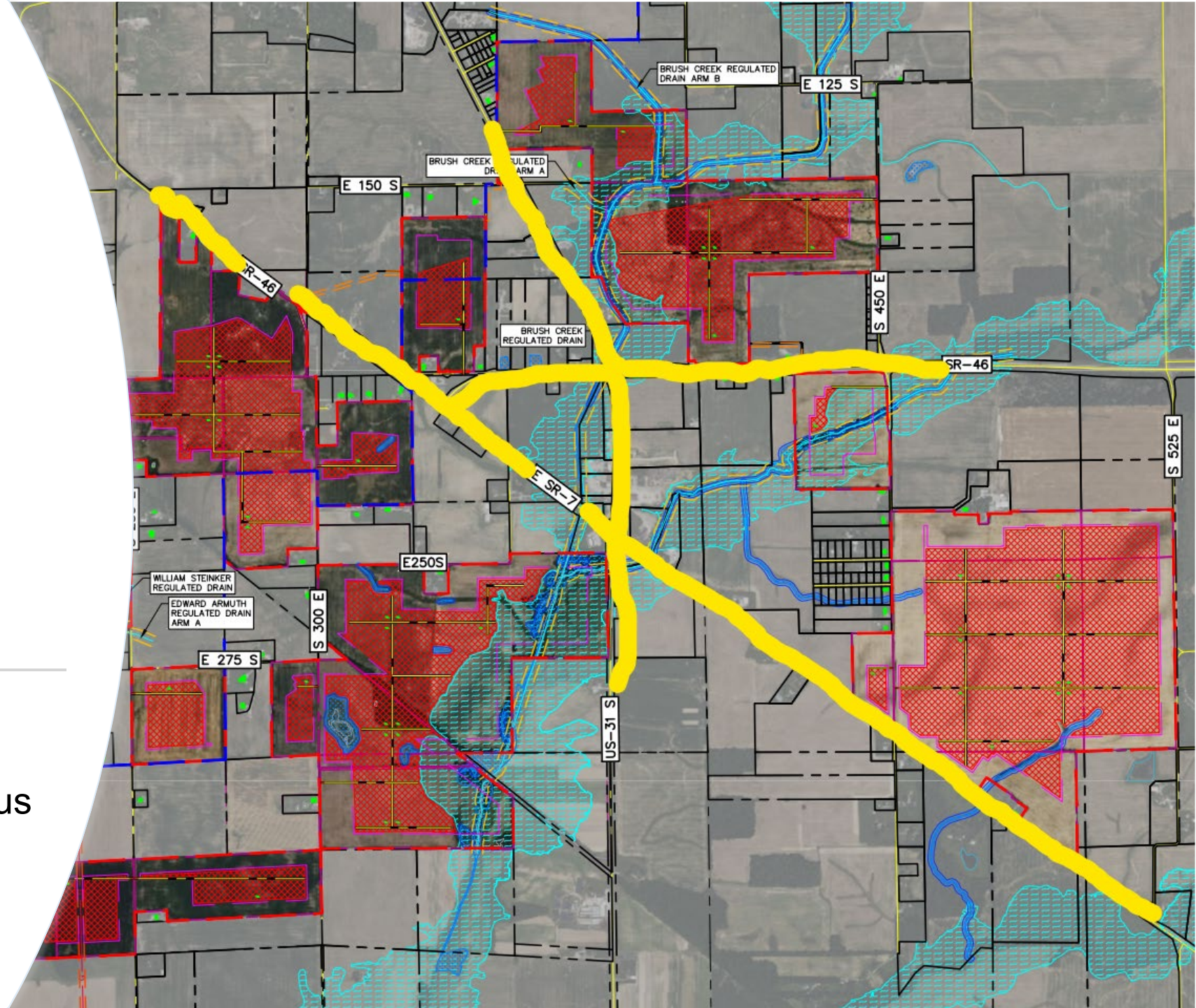


# Columbus Gateways and Criteria #4

Taffy Schroer

3950 High View Way Columbus

9520 E Base Road  
Columbus



Policy J-2-1  
Maintain and enhance the safety and attractiveness of the entrances to the city. The entrance to the city create the first impression of Columbus ...they should be attractive.

### Policy J-3-1

“Limit the growth of industrial activity to the areas most suited for this use. ...the city should minimize the impacts on farm operations.”

### Policy E-2-1

“Encourage development of these corridors as areas for commercial development.

Highway corridors greatly impact the appearance of a community. ...the city should encourage these corridors to be developed in a manner that enhances community appearance.”



Criteria #4  
The conditional use will be consistent with the character of the zoning district in which it is located and the recommendations of the Comprehensive Plan.

## Farm Fields become Solar Fields!

Will the conditional use change the character of the area?

**YES**

Will it involve the building, operation or feature that are significantly different than what is common to the zoning district?

**YES**



## Carina response to Criteria #4 and its follow-up questions:

“The conditional use will be consistent with the character of the zoning district in which it is located and the recommendations of the Comprehensive Plan.”

-Change the character of the area?

-Features different than what is common to the zoning district?

- The Columbus Indiana Comprehensive Plan Land Use Plan Element, adopted June 5, 2002, states that "The plan calls the most productive **farmland to be preserved** and protected." Unlike traditional development of commercial and residential real estate, this conditional use will not involve the construction of any buildings. Power Generation Facility projects built on agricultural lands will **allow the soil to rest** for around 30 years or more. The U.S. Department of Energy (2022) states that "land can be reverted back to agricultural uses at the end of the operational life for solar installations." A life of a solar installation is roughly 30 years and can provide a recovery period, increasing the value of the land for agriculture in the future. Giving soil rest can also maintain soil quality and contribute to the biodiversity of agricultural land. Power Generation Facilities are passive uses that require even less activity and handling than agriculture. Such use is commonly cited in agriculture areas as they are so passive like growing crops sitting idle for extended periods.



Question:

If this AP appeal allows industrial solar plants as accepted use, then what restrictions remain to protect any future Agricultural Preferred property appeals?



With respect to Criteria #4:

- Solar arrays are not consistent with the surrounding land (Policies J-2-1, J-3-1)
- The applicant did not satisfy Criteria #4
- Solar does not create the welcoming vibe as described in Columbus' Comprehensive Plan

Intergovernmental Cooperation:

“Development inside and outside the city limits affects the community as a whole.”

Exclude industrial solar from our Gateways.





# Comprehensive Plan

---

CLAUDIA SIMS





CONDITIONAL  
USE CRITERIA:  
#4

Claudia Sims



# Columbus & Bartholomew Co. Zoning Ordinance

Board of Zoning Appeals (BZA) Applications

Conditional Use Application

Criteria Number 4:

*The conditional use will be consistent with the character of the zoning district in which it is located and the recommendations of the Comprehensive Plan.* Will the conditional use change the character of the area? Will it involve a building, operation, or features that are significantly different than what is common to the zoning district?

Pg. 2 - City of Columbus-Bartholomew  
County Planning Department  
Conditional Use Application

# Carina Solar's response:

“The Columbus Indiana Comprehensive Plan Land Use Plan Element adopted June 5, 2002, states that "The plan calls the most productive farmland to be preserved and protected." Unlike traditional development of commercial and residential real estate, this conditional use will not involve the construction of any buildings. Power Generation Facility projects built on agricultural lands will allow the soil to rest for around 30 years or more. The U.S. Department of Energy (2022) states that "land can be reverted back to agricultural uses at the end of the operational life for solar installations." A life of a solar installation is roughly 30 years and can provide a recovery period, increasing the value of the land for agriculture in the future. Giving soil rest can also maintain soil quality and contribute to the biodiversity of agricultural land. Power Generation Facilities are passive uses that require even less activity and handling than agriculture. Such use is commonly sited in agriculture areas as they are so passive like growing crops sitting idle.”





# Columbus Comprehensive Plan

**POLICY A-2-5:** Ensure that the city considers the impacts on agriculture when new development is proposed or infrastructure extended.

New roads and utilities can disrupt farming activities and increase development pressures in rural areas. Factories can cause air pollution and noise that adversely affect plants and livestock. Agricultural land should be viewed as land in active economic use, not as inexpensive vacant land.

Pg. 9

# Bartholomew County Comprehensive Plan

**POLICY 1-L:** Ensure that the Plan Commission and County Commissioners consider the impact on agriculture when they make decisions on extending infrastructure or approving new development.

Pg. 1

# Columbus Comprehensive Plan

**POLICY B-1-4:** Prevent soil erosion, both from urban development and from agriculture.

Topsoil is a valuable nonrenewable resource which should be preserved. In addition, improper or unwise development and farming practices result in the siltation of our waterways.

Pg. 12

# Bartholomew County Comprehensive Plan

**POLICY 11-B:** Promote conservation farming practices.

**POLICY 11-C:** Encourage best practices for reducing soil erosion from development activities and from agriculture.

Pg. 5



# Columbus Comprehensive Plan

**POLICY E-2-15:** Encourage maintenance of views to the landscape beyond the road frontage.

Columbus is characterized by open spaces and river corridors which are visible from highway corridors. These views add to the attractiveness of the community and contribute to a “sense of place.” These views should be preserved as the city grows.

Pg. 21

# Bartholomew County Comprehensive Plan

**POLICY 6-N:** Ensure that new development does not lower the level of service nor place an excessive burden on current residents.

Pg. 3



- This field of solar panels northeast of South Bend covers only 210 acres. The installation being built by Indiana & Michigan Power is much smaller than the controversial farms planned elsewhere in the state.

(Photo by Rob Franklin)

<https://www.ibj.com/articles/solar-farm-boom-hits-hoosier-backlash>





Criteria #4 is not being met by the Solar Panel Company.





# Soil Damage

---

HENRY SIMS



# Effects on Soil Condition

---

RETURNING LAND BACK  
TO AGRICULTURE?



# Criteria 4 is not being met.

---

Board of Zoning Appeals (BZA) Applications

Conditional Use Application

Criteria Number 4:

***The conditional use will be consistent with the character of the zoning district in which it is located and the recommendations of the Comprehensive Plan.*** Will the conditional use change the character of the area? Will it involve a building, operation, or features that are significantly different than what is common to the zoning district?

# Carina Solar's response:

---

“The Columbus Indiana Comprehensive Plan Land Use Plan Element adopted June 5, 2002, states that "The plan calls the most productive farmland to be preserved and protected." Unlike traditional development of commercial and residential real estate, this conditional use will not involve the construction of any buildings. Power Generation Facility projects built on agricultural lands will allow the soil to rest for around 30 years or more. The U.S. Department of Energy (2022) states that "land can be reverted back to agricultural uses at the end of the operational life for solar installations." A life of a solar installation is roughly 30 years and can provide a recovery period, increasing the value of the land for agriculture in the future. Giving soil rest can also maintain soil quality and contribute to the biodiversity of agricultural land. Power Generation Facilities are passive uses that require even less activity and handling than agriculture. Such use is commonly sited in agriculture areas as they are so passive like growing crops sitting idle.”



## Columbus Comprehensive Plan

**POLICY B-1-4:** Prevent soil erosion, both from urban development and from agriculture.

Topsoil is a valuable nonrenewable resource which should be preserved. In addition, improper or unwise development and farming practices result in the siltation of our waterways.

## Effects on the soil:





# Iowa State University Soil Erosion Research

“Some seriously eroded soils are not useable for crop production.”

Many studies have been conducted on the effect of depth of topsoil on corn yields in the Corn Belt states. Figure 1 (from Stallings, J.H. 1964. *Phosphorus and water pollution. Journal of Soil Water and Conservation* 22: 228-231) summarizes the relationship between topsoil depth and crop productivity. There is a direct relationship between topsoil depth and yield.

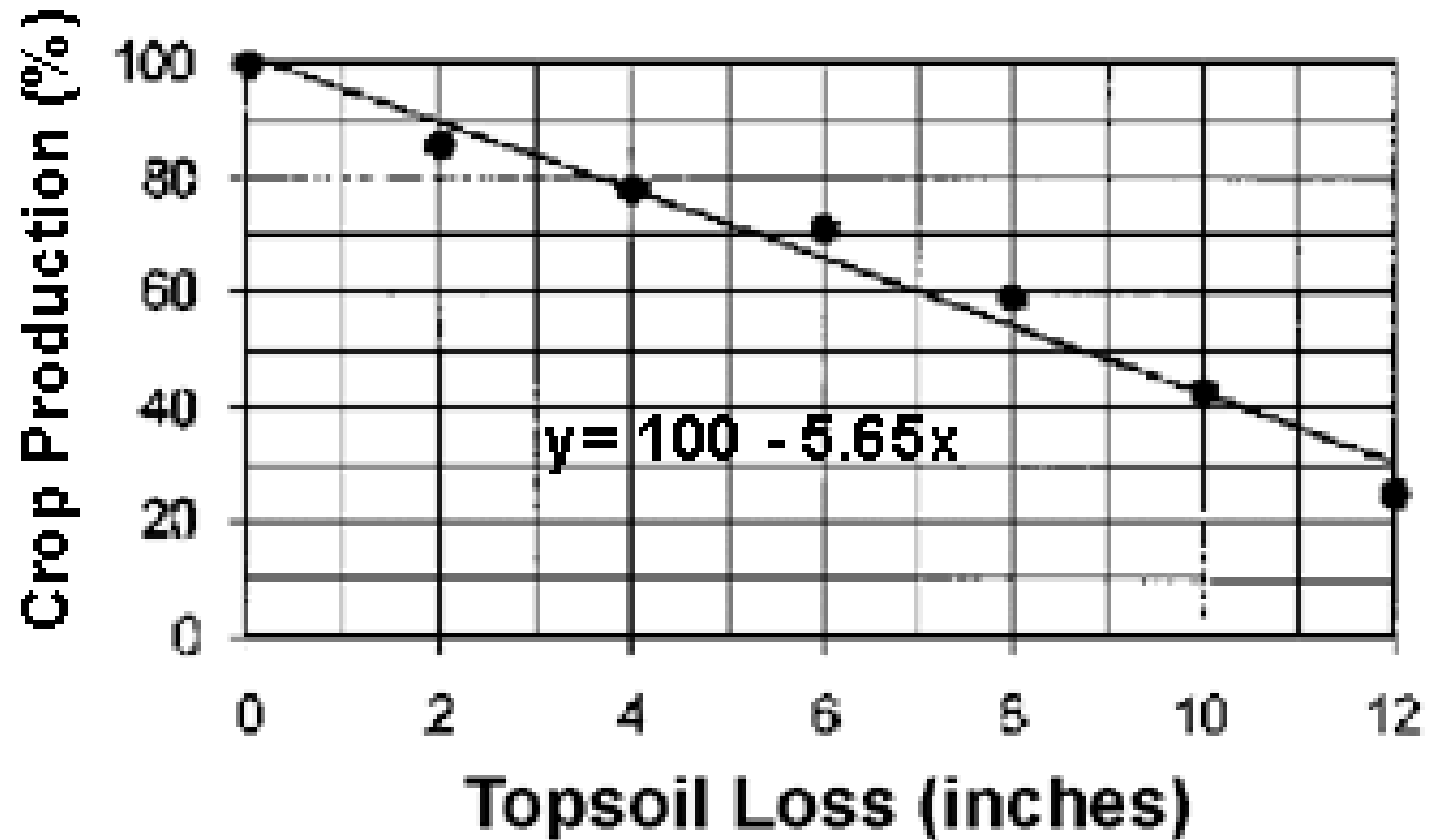


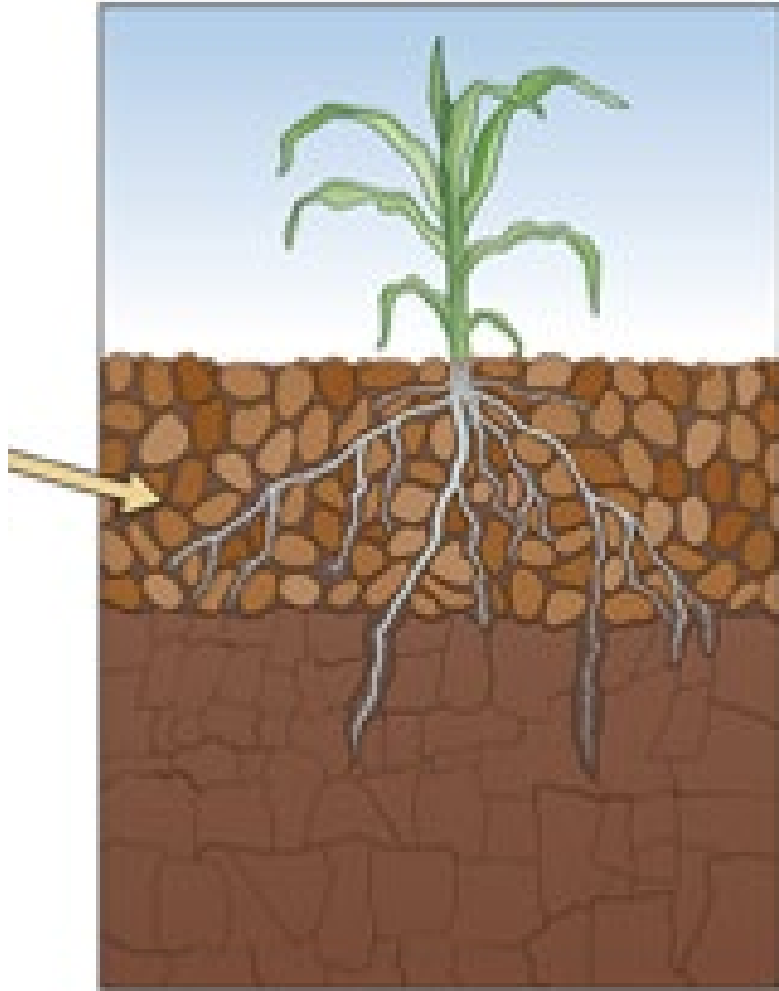
Figure 1. Reduction in crop productivity from loss of topsoil. Data were primarily collected on soils without adequate fertilizer treatment.



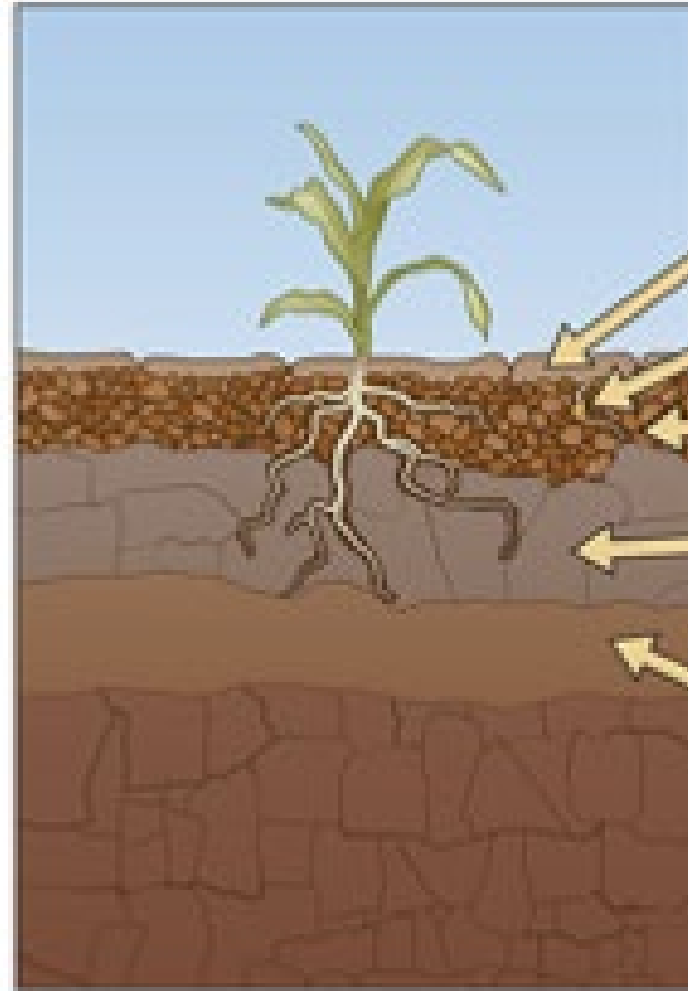
**Policy 11-B:**  
Promote conservation  
farming practices.



Porous (loose-fitting) crumbs and blocks



a) good soil structure



b) compacted soil

Surface Crust

Germinating Seed

Tightly packed crumbs

Large blocks with few cracks

Subsoil compaction



## 4.7 DECOMMISSIONING PLAN

A Decommissioning Plan is included in **Exhibit E** and it will ensure the Commercial Solar Energy System elements will be properly removed after the Commercial Solar Energy System is inoperable for twelve (12) consecutive months. The Decommissioning Plan will be in accordance with both the Bartholomew County Zoning Ordinance 6.10.D. The Decommissioning Plan outlines a strategy for the removal of all surface and subsurface physical improvements including but not limited to all solar arrays, electric systems and components, buildings, cabling, security barriers, interior drives, gravel areas, foundations, pilings, and fences. The Decommissioning Plan also includes the restoration of the surface grade and soil to pre-construction conditions and implementation of groundcover for erosion control. The combination of the native grasses and pollinator friendly seed mix established during the Project life and temporary rest of the soils from agricultural planting will promote soil restoration and more productive farmland after decommissioning.

Prior to commercial operation, the Applicant shall provide Bartholomew County with a decommissioning bond to ensure proper decommissioning at the end of the Project life.

## 4.9 STANDARDS AND CODES

Per Bartholomew County Zoning Ordinance 6.10.A.6, all on-site power and communication cables must be placed underground to a depth of 36" below grade unless otherwise expressly approved as part of the

**NO**  
**INDUSTRIAL**  
**SOLAR PLANTS**  
**ON FARM LAND**







# Youth

---

DENA HASSLER



# Home Values

---

JEFF FINKE, NATE ROSENBURG, &  
JEFF HILYCORD (LOCAL REALTORS)





# Utility–Scale Solar Installation

## Conditional Use Criteria:

3. ... “Is there reason to believe that the conditional use will cause harm to neighboring property values?”



**Amenities** – *features of a home that add value to property*



**Disamenities** – *features of a home that negatively impact the value of a property*









# “Good Neighbor Agreements”

2020 – Western Mustang Neighbor Agreement – **Monetary offer of \$17,000 to adjacent property owners** to the proposed solar facility.

2020 Lighthouse BP Neighbor Agreement – **Monetary offer of \$5000 - \$50,000 to adjacent property owners** depending on proximity to the solar facility.

2021 Vesper Energy Neighbor Agreement – **monetary offer ranging from \$7000 - \$25,000** depending on distance of property to solar farm payable in a lump sum at notice to proceed with construction.

2021 Posey Solar, LLC Neighbor Agreement – monetary offer equal to **10% of appraised value for neighbors within 300 feet of the solar field**, plus an annual \$1000 payment (\$35,000 cap for project life)

Exhibit L: Property  
Value Impact Study  
(By Others)



**Kirkland  
Appraisals**

Richard C. Kirkland, Jr., MAI  
3540 Layton Ridge Drive  
Apex, North Carolina 27539  
Phone (919) 771-2202  
[rich.kirkland@att.net](mailto:rich.kirkland@att.net)  
[www.kirklandappraisals.com](http://www.kirklandappraisals.com)

**“I often work with attorneys for Expert Witness testimony for  
obtaining Special Use Permits....”**

Kirkland Appraisers website

**Exhibit L - Pg 26 – Lawrence Berkley National Lab, March 2023**

“The conclusion found a 1.5% impact within 1 mile of a solar farm as compared to homes 2-4 miles from solar farms.”

**Lawrence Berkley National Lab, March 2023**

“For homes within 0.5 miles of a Large Scale Photovoltaic Project (LSPVP) compared to homes 2-4 miles away, we found a **reduction in home sales prices in MN (4% reduction), NC (5.8%) and NJ (5.6%)...**”

Study by Elmallah, Hoen, Fujita, Robson, Bunner

**5.13% avg. reduction in value**





# Utility–Scale Solar Installation

## Conditional Use Criteria:

3. ... “Is there reason to believe that the conditional use will cause harm to neighboring property values?”

**YES!**

“Our results suggest that there are **adverse property value impacts** of Large Scale Photovoltaic Project (LSPVP) construction for **homes very close** to a LSPVP and those **predominantly in rural agricultural settings surrounded by large projects.**”

“our overall heterogeneity analysis suggests that **adverse impacts** of LSPVP development **are present specifically in rural areas, where LSPVP displaces agricultural land uses, and where LSPVP installations are larger.**”



Exhibit L - p25 – Georgia Institute of Technology, Oct 2020

Utility-Scale Solar Farms and Agricultural Land Values

Nino Abashidze - Post Doctoral Research

“there are no direct affects of solar farms on nearby agricultural land values”

Georgia Institute of Technology 2019

Essays on Economic and Health Effects of Land Use Externalities

Solar Farms and Residential Property Values in North Carolina

Nino Abashidze – Doctoral Thesis (15,935 transactions)

“The primary analysis indicates that the **construction of a solar farm decreases property values of houses located within one mile of a solar farm by 8.7 percent** when the street network measure of distance to a solar farm is employed. **The effect is larger in magnitude (12.5 percent) when only houses within a half-mile of a solar farm are analyzed.**”



Exhibit L – pgs 112-113

“Dr Randall Bell, MAI, PhD, and author of the book Real Estate Damages, Third Edition, on page 146 “Views of bodies of water, city lights, natural settings, parks, golf courses, and other amenities are considered desirable features, particularly for residential properties.....

**The market often assigns significant value to desirable views irrespective of whether or not such views are protected by law.”**



# Utility–Scale Solar Installation

## Conditional Use Criteria:

3. ... “Is there reason to believe that the conditional use will cause harm to neighboring property values?”

**YES!**





Energy Economics 122 (2023) 106699



ELSEVIER

Contents lists available at [ScienceDirect](#)

Energy Economics

journal homepage: [www.elsevier.com/locate/eneeco](http://www.elsevier.com/locate/eneeco)



## House of the rising sun: The effect of utility-scale solar arrays on housing prices

Vasundhara Gaur, Corey Lang <sup>\*</sup>

*214 Coastal Institute, 1 Greenhouse Rd., University of Rhode Island, Kingston, RI 02881, United States of America*





Pg 2 – House of the rising sun: The effect of utility-scale solar arrays on housing prices. (2023 - 107,291 transactions studied)

“We posit that solar arrays on farm and forest lands (“greenfields”) cause greater externalities, given the combination of solar-specific dis-amenities and loss of open space amenities. Further, rural areas may be more impacted if industrial solar arrays are incongruent with highly valued rural character.”

“For properties lying in the vicinity of solar installations in rural locations, the decrease in value is between 2.5% to 5.8% post solar installation construction.”

“The market often assigns significant value to desirable views irrespective of whether or not such views are protected by law.”

Dr. Randall Bell, MAI, PhD

“our overall heterogeneity analysis suggests that adverse impacts of LSVP development are present specifically in rural areas, where LSPVP displaces agricultural land uses, and where LSPVP installations are larger.”

Lawrence Berkley National Lab Study

**University of Rhode Island – (2023)**

**(107,291 transactions)**

Corey Lang & Vasundhara Gaur

**-2.5 to -5.8%**

**University of North Carolina - (2019)**

**(15,939 transactions)**

Nino Abashidze

Essays on Economic and Health Effects of Land Use Externalities

**-8.7%** - within 1 mile (5280 ft.)

**-12.5%** - within ½ mile (2640 ft.)





**Exhibit L – Page 11**

**1 Mile Radius**

Average Home Price - 2028

\$359,701

2.5% - **\$8992.53**

5.8% - **\$20,862.65**

8.7% - **\$31,293.98**

12.5% - **\$44,962.62**

**3. ... “Is there reason to believe that the conditional use will cause harm to neighboring property values?”**

**YES!**





# Historical Homes

---

STEPHANIE MURPHY



**This Application Does Not  
Meet Criteria 1, 3 & 4**

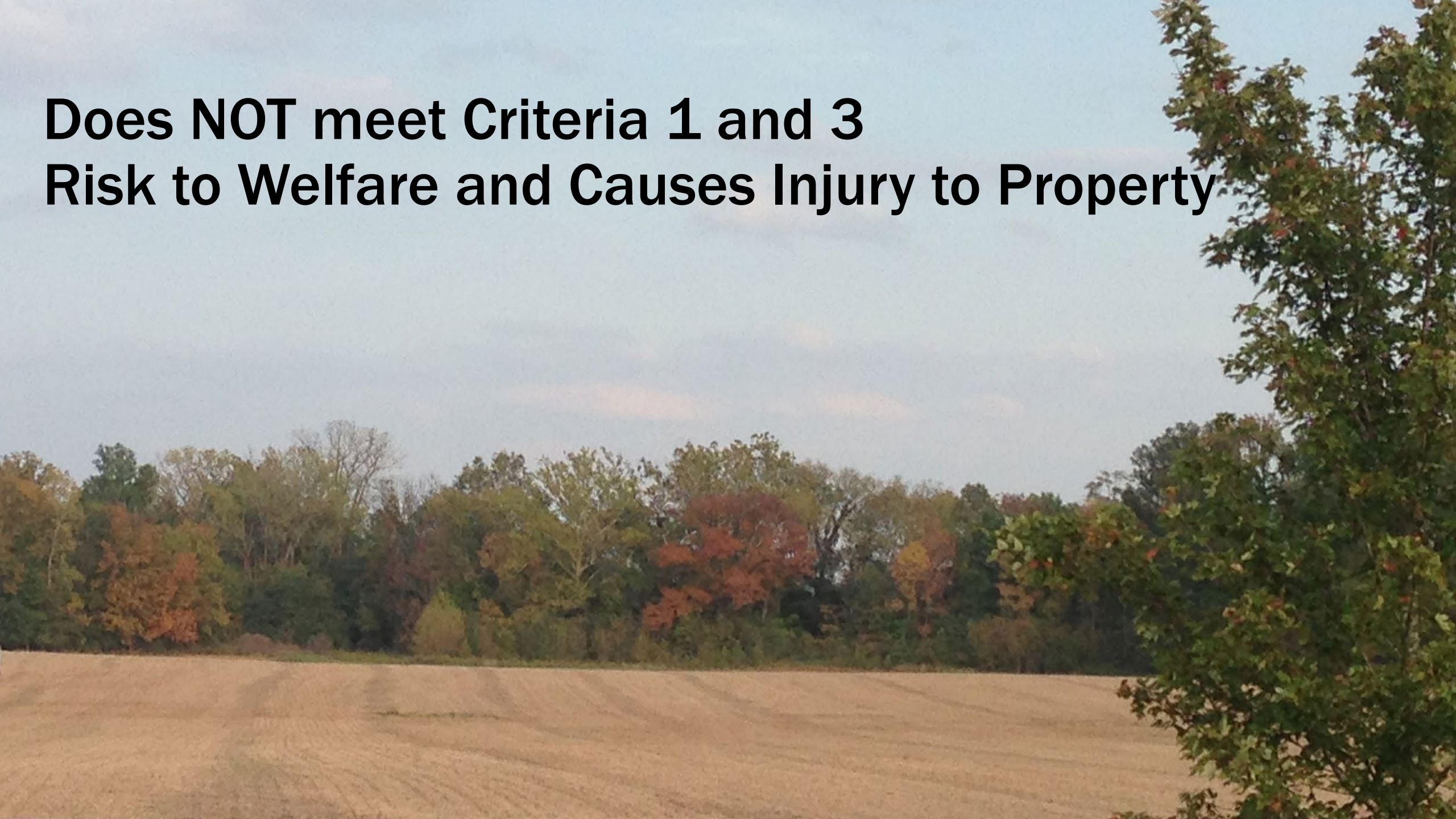
# Does NOT meet Criteria 1 Vulnerable to Weather

---





**Does NOT meet Criteria 1 and 3  
Risk to Welfare and Causes Injury to Property**





# Does NOT meet Criteria 1 and 3 Risk to Welfare and Causes Injury to Property

---

Indiana Planning Association Guide  
refers to *Land Use Law*

**“aesthetics alone is a legitimate governmental purpose in land use regulation.”**

# Does NOT meet Criteria 4

## Fails to preserve the Character and Culture



Jesse Hunter Farm 1850



St. Paul's 1887 Historic District

“Structures of historic significance, particularly concentrations of these structures, such as the houses in Sand Creek Township, should be protected wherever possible.” – *Comprehensive Plan*



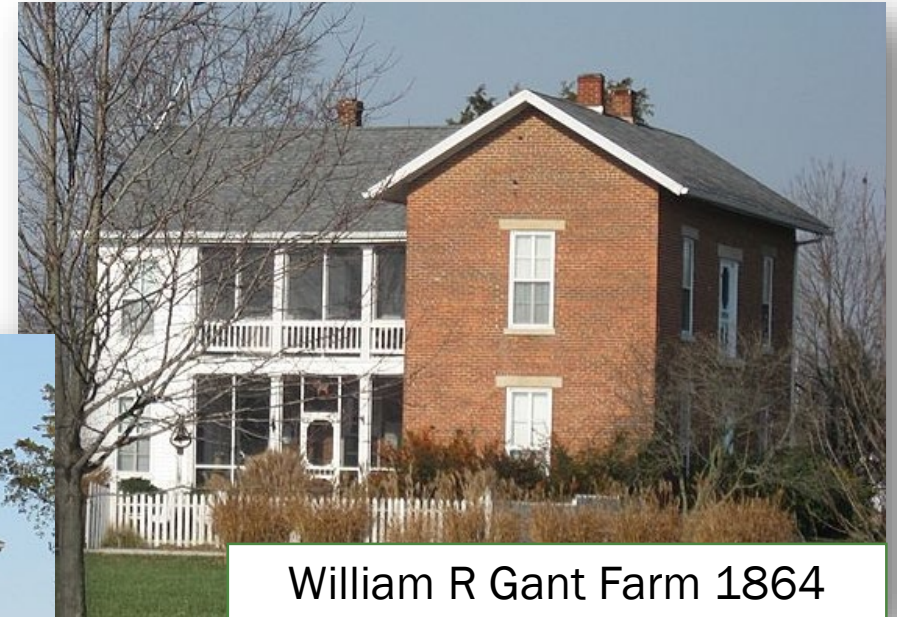
Does NOT meet  
Criteria 4

Fails to preserve  
the Character  
and Culture

“Structures of historic  
significance, particularly  
concentrations of these  
structures, such as the  
houses in Sand Creek  
Township, should be  
protected wherever  
possible.” –  
*Comprehensive Plan*



Newsom-Marr Home 1864



William R Gant Farm 1864



ELnora Daugherty Farm 1892



# This Solar Industrial Plant Does NOT meet Criteria

---

- Creates a health, safety and welfare risk
- Causes injury to property
- Fails to protect historic homes



# Underground Tile Damage

---

GEORGE HASSFEGER



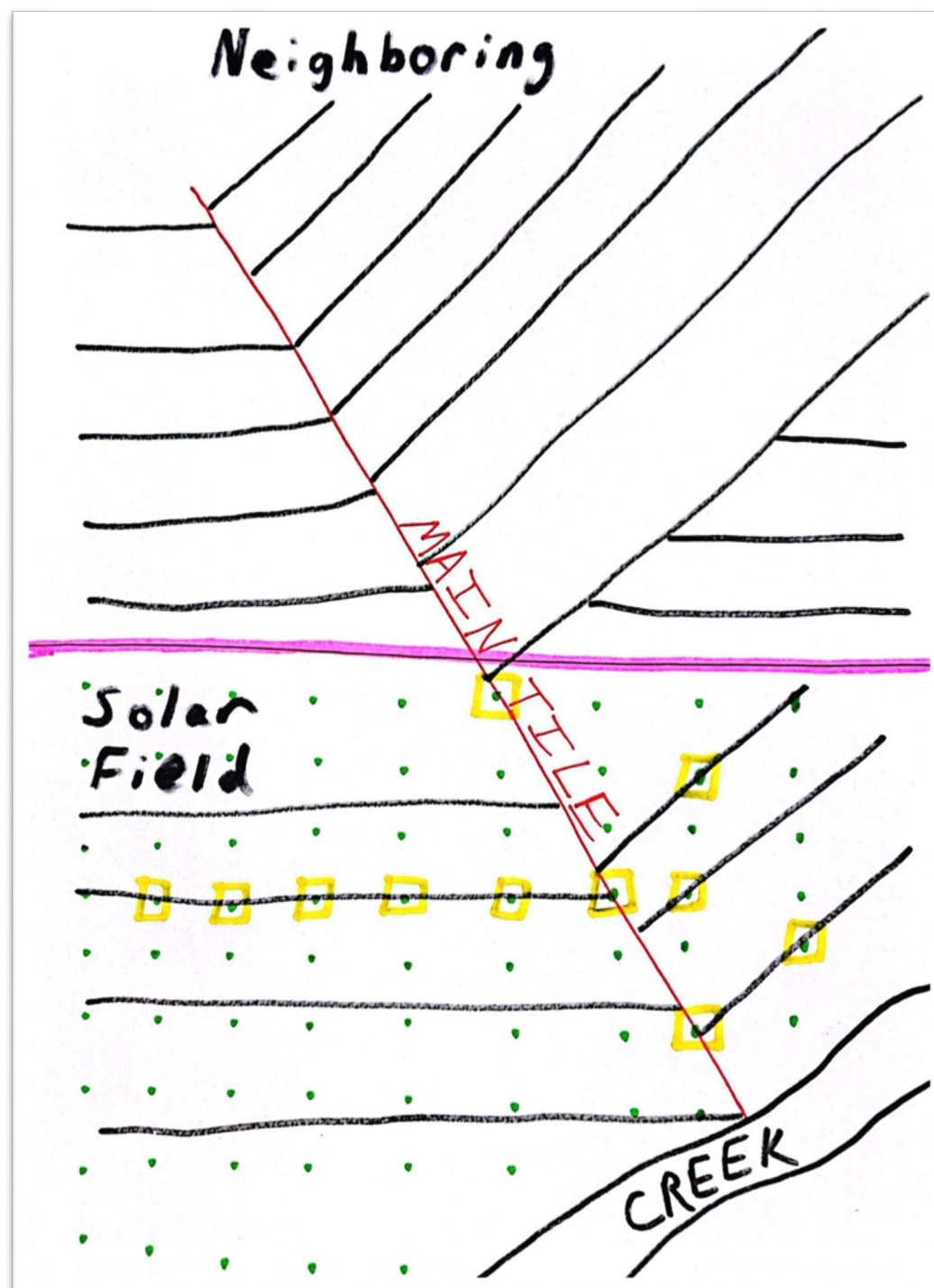
# Home Values

---

JEFF FINKE, NATE ROSENBERG, &  
JEFF HILYCORD (LOCAL REALTORS)



- Pink – Property Line
- Green – Panel Post
- Red – Main Tile
- Black – Lateral Tile
- Yellow – Tile Damaged





## II. GENERAL LAND USE PRINCIPLES

Make land use decisions that protect and improve community resources and the environment. Land use decisions and construction planning should consider impacts on county resources including, but not limited to, drainage systems, environmentally sensitive areas, surface and groundwater resources.....



# Drainage Concerns

---

MARLENE DOW



Rainwater Runoff  
Soil Erosion  
Changes in Natural Drainage

Marlene Dow  
2925 South 300 East  
Columbus, IN 47201

**Conditional Use #3 Will not permanently injure other properties or uses in the same zoning district and vicinity. Carina Solar will not meet Conditional Use Criteria # 3**

Neighboring landowners are concerned that the solar fields sitting higher to the west and south will drain water runoff through road culverts across their land and prevent full use of their land.

Older drainage tiles (on neighbor properties) may be injured from additional volume of water runoff.





Carina Solar Summary concerning Hydrologic Impacts of Utility Scale Solar Facilities:  
Their summary stated: “the solar panels themselves have little to no impact on runoff volumes or rates.”

But the abstract states :

**“It is possible that the kinetic energy of the water draining from the edge of the panels could cause erosion of the soil below the panels and at the spacer area.”**

Spacer area is between the rows of panels and is used by maintenance vehicles.

Erosion increases if the ground cover is gravel or bare ground due to design, lack of maintenance, grass becoming patchy from panel shading or traveled with vehicles.





# Rainwater Run Off

Solar panels have an impact on rainwater runoff and erosion.

The water runoff from the drip panel edge could be 10 times greater speed than that of rainfall.

This concentrated flow causes erosion of vegetative surfaces and loss of topsoil at the base of the solar panel or at the spacers between the rows of solar panels.

**Example of erosion  
at Tripton Park in North Vernon**







- Sandy Soil has a Runoff Coefficient of 0.25 (or less)
- Glass is 0.95 (or higher)
- Net Runoff Coefficient For a Solar Field is roughly = 0.81

Calculations:

Solar panel size is 17.55 sq-ft (65" x 39")

Estimated solar panel application for utility scale array is 2000 panels per acre

$17.55 \text{ sq-ft} \times 2000 = 35100 \text{ sq-ft}$  ( 1 acre = 43560 sq-ft)

$35100/43560 = 80\%$  coverage

80% of .95 (glass) plus 20% of .25 (soil) = 100% at 0.81 net runoff per acre

**$(.81-.25)/.25 = 224\%$  increase in runoff**

Hydrologists Use a “**Water Runoff Coefficient**” to Determine the Capacity for the Soil Surface to Retain and Absorb Rainwater

## Disturbing Land and Natural Drainage

- Excavation destroys natural drainage channels that takes 100s of years to create
- Compaction during construction will limit water infiltration for years
- Removal of topsoil during construction will take approximately 500 years for 2.5 cm layer of fertile topsoil to form under agricultural conditions
- Letting the soil “rest” in a monoculture environment will NOT improve the soil productivity nor help the natural cycle of ecological soil growth



## We are NOT against Solar

“We are in favor of projects to repurpose previously disturbed land into renewable energy sites to maximize benefits for climate, conservation, and local communities.”



# Wildlife Protection

---

DOUG ROXBURY



**FAILURE TO  
MEET CRITERIA  
3 & 4**



Doug Roxbury

5501 S 250 E

Columbus

- I request that the board reject the application, because it does not meet criteria 3 & 4
  - Criteria 3- Loss of availability to enjoy property and wildlife- Bald Eagles
  - Criteria 4- The proposed solar project will change the character of the area by damaging the habitat of local the Bald Eagles



# Exhibit D of the Application

- Page 15 of Exhibit D clearly states that there are no Bald or Golden Eagles in the area



- To the right is a Bald Eagle perched in my backyard on S 250 E

## Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

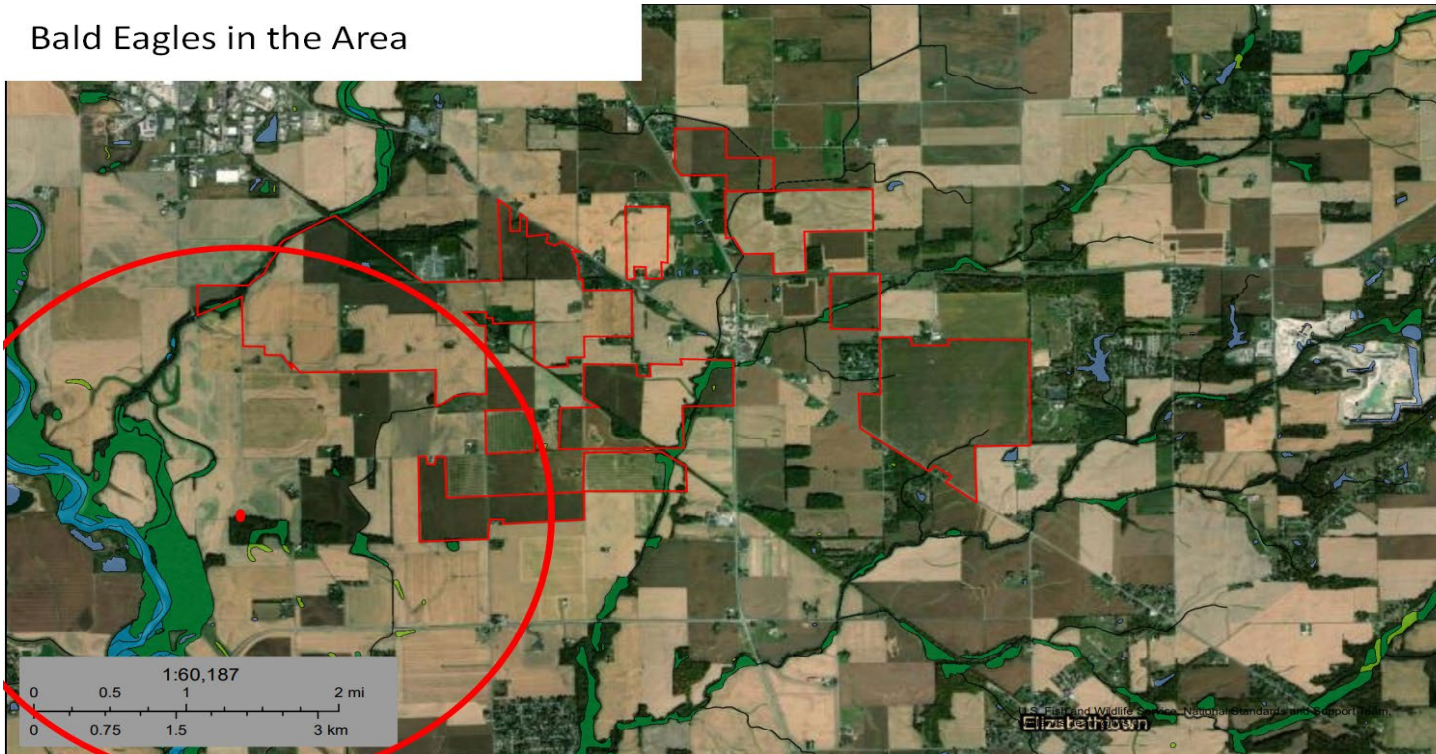
- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds  
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>



# Additional Bald Eagles Sightings in the Area

- Bald Eagles in field South of the corner of 150 E & 300 S
- Active Eagle nest South of the corner of 150 E & 300 S

Bald Eagles in the Area



U.S. Fish and Wildlife Service (Service) protocol for data collection to support an eagle incidental take permit application recommends surveys for occupied nesting territories be conducted potentially out to 10 miles around the perimeter of the area where take may occur (U.S. Fish and Wildlife Service 2013). The purpose of these surveys is to identify nesting pairs of eagles that might be disturbed or subject to potential lethal take by the activity associated with the permit request. Although the existing protocol recommends use of local information to inform more appropriate distances for surveys in areas of high eagle nesting density, application of this guidance in practice has proven difficult. In the years since the guidance was developed, the Service and collaborators have deployed satellite transmitters on over 700 golden eagles, many of which subsequently bred. The data from satellite-tagged breeding golden eagles provides new information on the ranging behavior of golden eagles around their nest sites. These data provide new quantitative information about the distance from nests at which risk of take becomes unlikely.

The Service conducted a preliminary analysis of satellite telemetry data for 101 breeding adult golden eagles from across North America to determine whether the existing nest survey guidance was appropriate, or warranted modification. The data set includes information from 55 breeding males and 46 breeding female eagles, 87 of which were tracked across >1 breeding season. Data from eagles that were not associated with breeding territories was excluded from the analysis. We computed distances between each eagle location in the data set and the geometric center of the individual's locations (likely the approximate nest location). We removed a few additional outlier locations, those in the 99<sup>th</sup> quantile of the distribution.

Based on the untransformed data, territorial breeding golden eagles appear to seldom range further than 3 km from their territory centers (Figure 1), and this pattern was evident for both males and females in nearly all geographic regions examined (Table 1). This is similar to the conclusion reached by Watson et al. (2014) in a more localized study of ranging behavior of satellite-tagged golden eagles. Available data from the literature suggest that bald eagle ranging behavior around nests is comparable, if not more constrained (Watson 2002, Smith et al. 2017).

Moreover, recent studies have shown that bald eagle ranging behavior around communal roosts such that a buffer distance of 2 miles (~3.2 km) would provide substantial protection for roosting eagles, as well as those moving into and out of roosts (Watts and Turrin 2017).

# Bald Eagles are

## Protected

Eagles are protected under- The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)

- This Act prohibits anyone without permit issued by the Secretary of the Interior, from "taking" bald or golden eagles
- The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."
- From the U.S. Fish and Wildlife Service documents- Updated Eagle Nest Survey Protocol it states "recent studies have shown that bald eagle ranging behavior around communal roosts is such that a buffer distance of 2-miles would provide substantial protection for roosting eagles, as well as those moving into and out of roosts."
- Additional information can be found from the U.S. Fish and Wildlife Service in the document- Eagle Conservation Plan Guidance where it describes disturbances in the Risks to Eagles section during energy development and infrastructure projects such as this solar project in the
- As shown on the next slide, the solar installation violates this 2-mile buffer and will disturb the eagle habitat







# In summary

- Based on the information I presented, Carina's application fails to meet Criteria 3 and 4 because it will disturb the eagle's habitat
  - Criteria 3- Loss of availability to enjoy property and wildlife
  - Criteria 4- The proposed solar project will change the character of the area by risking the habitat of the Bald Eagles

THANK YOU

Doug Roxbury

5501 S 250 E

Columbus





# Sell to Public Utility Concerns

---

ADAM WADE

# Adam Wade

6630 E 350 N  
Columbus, IN 47203

I have been approached by Tenaska and  
declined their offers.

I am not against solar technology.

## Conditional use request #2. Building, residence, and nonparticipating property setbacks.

- The land lease proposal we were presented had transfer of lease language in the contract.
- If the proposed Carina CSES lease is transferred to a public utility company, public utilities fall under state guidelines not local ordinances.
- This would mean that setbacks established in conditional use request #2 would not apply after the lease is transferred to public utility.
- We have been contacted repeatedly about leasing our land. Developer representatives came to our home to talk about leasing our land. The developer representatives or engineer were not able to answer technical questions or concerns we had.



Quietly - Have a show of hands of people in the audience who are against these type of projects?

Thank you for your time.





# Economics

---

TIM MCNEALY & CHRIS KIMERLING



Bartholomew County  
Production Agriculture's  
Local Economic Development

Tim McNealy

Resides: 912 5<sup>th</sup> Street, Columbus IN

Own and Farm 159 Acres in NE Clay Twp

Masters in Agricultural Education w/Minors in

Ag Engineering and Ag Economics

6,301 Ac Targeted Solar Lease Contracts

+341 Ac Electrical Transmission Easements

1,886 Ac Carina Conditional Use Application

# Displacing Local Farmer

- 277 Acres is Average Indiana Farmer's Farm
- 47% of Carina's Footprint (886 Ac) Tenant Farmed
- $886 \text{ Ac} / 277 = 3\text{-}4$  Farmers Displaced



**NOPE, GRANDPA & DADDY  
LEASED MY PRIVILEGE AWAY!**





# Economic Development Revenue Loss

Gross Revenue/Ac x Total Acres x 40 yrs x  
Lt. Gov. Multiplier  
x % Spent Local

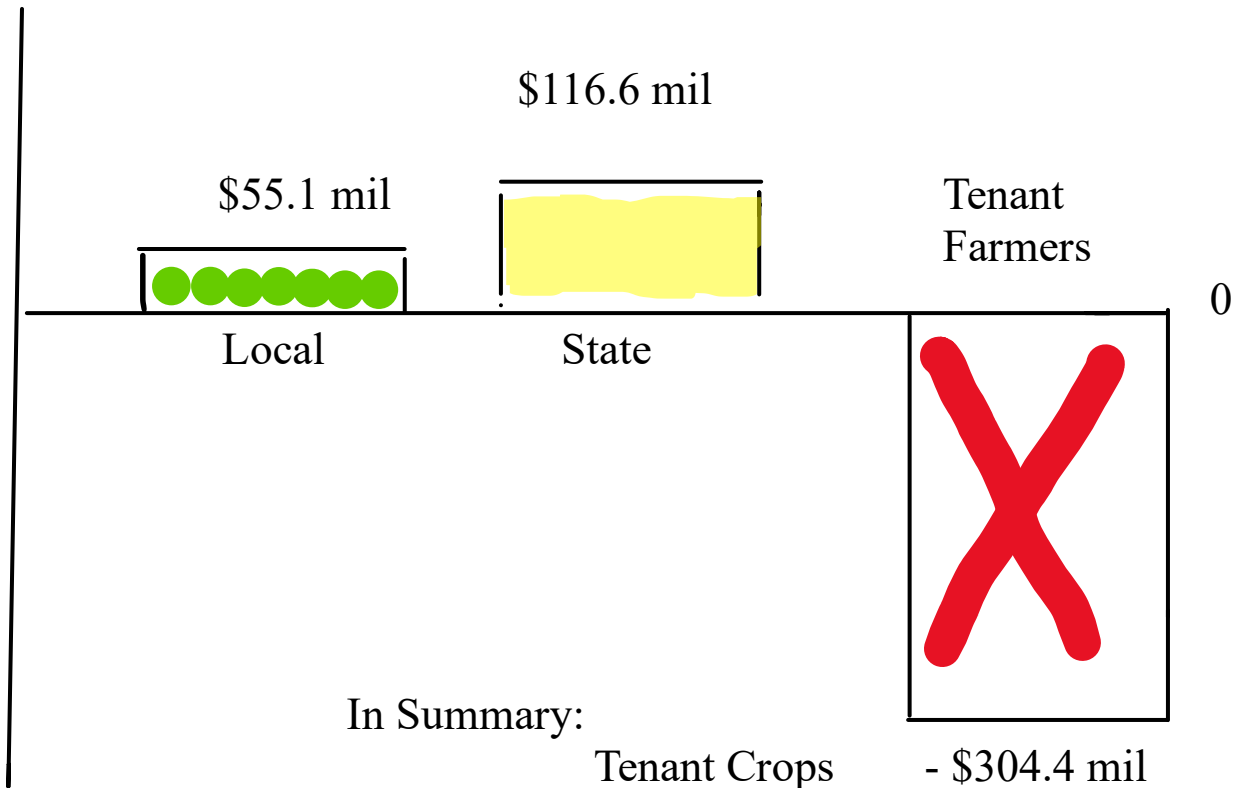
$$\$1,201/\text{Ac} \times 1,886\text{Ac} \times \underline{40 \text{ yrs}} = \$90,603,440$$

$$\$90.6 \times 4 = \$362.4 \text{ mil}$$

$$\$362.4 \text{ mil} \times 84\% = \$304.4 \text{ mil}$$

Note: 40 yr operation each Tenant Farmer  
Family looses \$332,677 Gross  
Revenue/Year

**CARINA SOLAR**  
**vs**  
**PRODUCTION AGRICULTURE**



In Summary:

Tenant Crops	- \$304.4 mil
Owner Crops	- <u>\$340.9 mil</u>
Total Crop L.E.D.	- <b>\$645.3 mil</b>



Injurious to all Local Retailers  
and  
Local Tenant Farmers

Fails Criteria #1  
and

Is “injurious to the General Welfare”  
of many in Bartholmew County



North District

Central District

South District

\$5,250 Ac

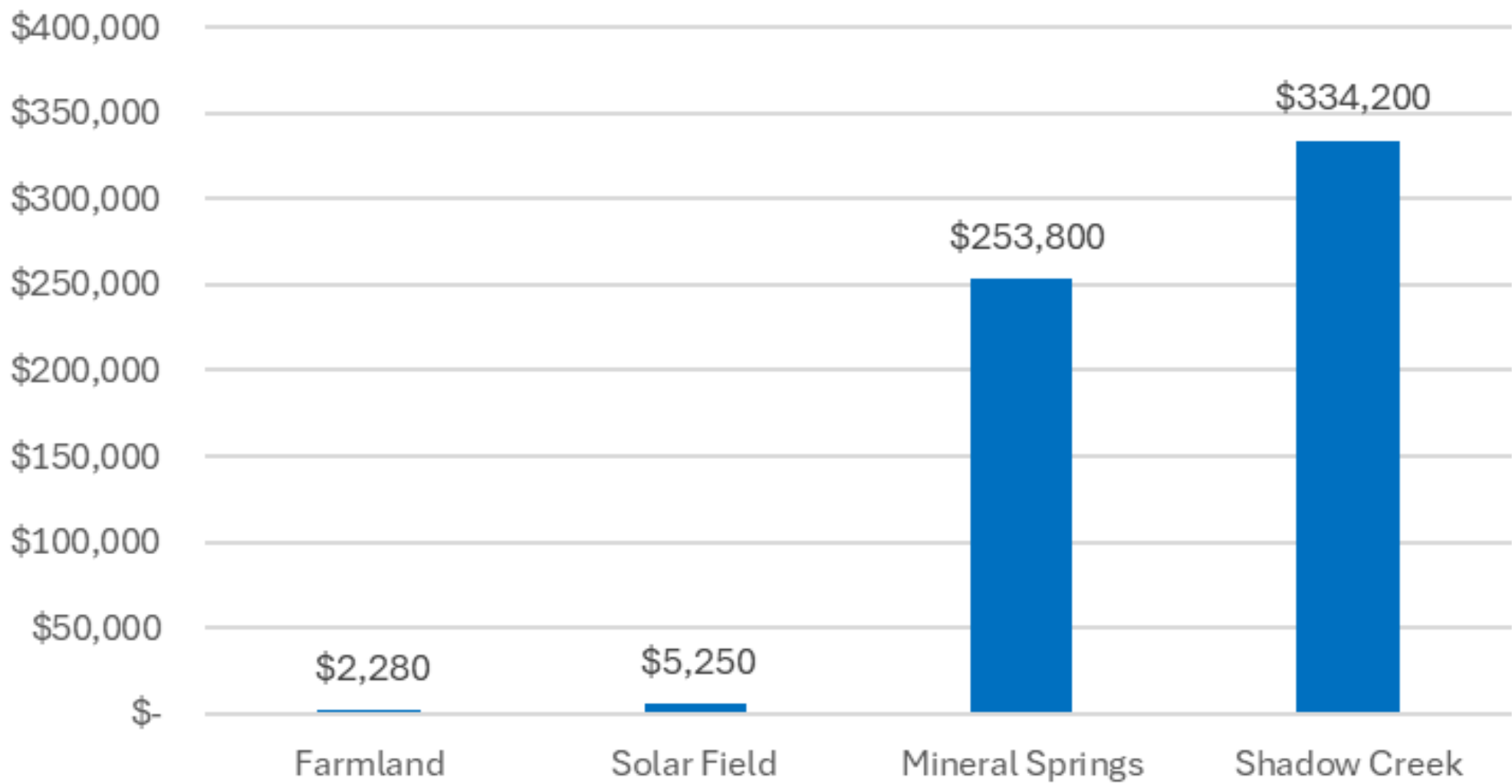
Indiana Governor Holcomb set this rate April 29, 2021. Solar Equipment is considered "Real Property" and can NOT be assessed separately as a Home or Building per Code 6-1. 1-8-24 of HEA 1348 . Usually, only Land is considered Real Property with Buildings and Homes considered Personal Property. There are 3 Assessment Districts For Solar Fields in Indiana: North 1/3 is \$12,870/Acre, Central 1/3 is \$13,000/Acre and **South is \$5,250/Acre.**

## ASSESSMENT COMPARISON

<u>Location</u>	<u>Per Lot</u>	<u>Lots/Acre</u>	<u>Assessed Value</u>	<u>Value Times Farmland</u>
Farmland local	-	1	\$2,280/Acre	1X
Solar Field	-	1	\$5,250/Acre	2.3X
Mineral Springs	\$42,300	6	\$253,800/Acre	111X
Shadow Creek	\$55,700	6	\$334,200/Acre	147X



# Assessed \$ Acre



**Summary** - Only 12.8 (1,886 divided by 147) New Homes with an avg value of \$334,200/home will need to be built in Carina's Footprint to equal the difference in Property Taxes collected.

**Question** - Is Bartholomew County willing to lock up 1,886 acres for 40-50 years for the added tax revenue that will be locked in at a much lower rate while all other properties will progressively be taxed at a much higher rate ???





# Lost Acreage

---

JENI SMITH



## Why the Applicant fails to Meet Criteria #1 & #4

---

Prepared by Jeni Smith - 4875 N CR 700 E, Hope

### Columbus, Indiana: Land Use Plan • Page 2

This land use plan is the second element of the comprehensive plan for Columbus and the surrounding area. The Plan Commission and City Council adopted the first element, Goals and Policies, in 1999, and the land use plan is a supplement to, not a replacement for, the 1999 plan. Both of these documents result from extensive citizen participation.

The Goals and Policies element contains two sections: Part I is a statement of community values, and Part II is a detailing of the city's policies for future development. **The plan identifies eight categories of community values, which form the basis for the city's planning efforts:**



- **Small-city atmosphere**



- **Environmental quality**



- **Economic vitality and diversity**

- **Streets & Utilities**



- **Farmland, open space, and recreation areas**

- **Community appearance**

- **Accessibility**

- **Intergovernmental Cooperation**





## Economic Impact

---

**Carina Solar's Economic Analysis prepared by 3 sustainable economists reports a total of 261,760 Total Acres / 409 Square Miles in Bartholomew County.**

**Carina's Application highlights the loss of Farmland in Bartholomew County since 2012.**

Year	Total Crop Acres
*2012	171,601
*2017	160,437
**2023 (August)	148,227 (local USDA office)

\*Carina's research  
\*\*Local USDA Reported Acres 8/23





## Key Points

---

**Approving this conditional use application adds an additional 3,686 Acres!**

**Carina Project - 1886 Acres of Loss**

**Tenaska Project - 1800 Acres of Loss**

These projects, if approved would bring the **total of lost acres since 2012 to 27,060 Acres which does not include any other “traditionally approved developments.”**

**27,060 Acres will account for 16% of 2012's total county crop acres available.**

\*This does not include future solar projects in Jonesville and Hope or the add on acres once a project is approved.

**There is no limit to the amount of acres that can be added to these applications.**

**CAN WE ECONOMICALLY AFFORD TO TAKE THESE ACRES OUT OF PRODUCTION FOR THE NEXT 30-50 YEARS?**





## Key Points

---

Here is a list of projects from the PRIOR 15 Months that adds to the total Acreage Loss through Traditional Development Expansion.

1. Stadler Farm at Garden City for Columbus Regional Hospital - **765 Acres**
2. Lowell Rd At I-65 City Annexation - **79 Acres**
3. Current Annexation Proposal At State St, 250E and Hwy 46E - **288 Acres**
4. Taylorsville Industrial Developments - **145 Acres**

**Total Traditional Commercial Developments Locally Beyond  
Commercial Solar Facilities =**



**1277 Additional Acres Lost!**



## Summary

---

**Based on Criteria #1, this added non-traditional loss of acreage**

**“IS injurious to the general welfare of our community”**

and reduces future economic development monies by directly impacting these industries:

- **Farmers**
- **Fertilizer Sales / Applicators**
- **Truck Sales / Repair**
- **Grain Handling / Transport**
- **Grain Elevator Operators**
- **Seed & Grain Sales**
- **Ag Equipment Sales / Repair / Support**
- **Grain Bin Sales / Installation**
- **Tire Repair**
- **Summer Employment for Youth**
- **FFA**





## Carina Solar's Application **DOES NOT** comply with the required

---

**Criteria #1** - because it “is injurious to the general welfare of our community” by reducing the number of acres of prime farm land in production, impacting the local industries that rely on the Ag preferred acres for their livelihood.

Carina Solar's Application **DOES NOT** comply with the required

**Criteria #4** - because it is not “Consistent with the character of the zoning district in which it is located and the recommendations of the Comprehensive Plan.” Which clearly states

- *“to preserve productive farmland for farming.”*
- *“provide a small town atmosphere.”*
- *Maintain “Farm land, open space, and recreational areas.”*
- *Maintain “Community Appearance.”*



Please Deny this Conditional Use Application!

---

Why would we

Trade this...



...for that





# Decommissioning

---

JUSTIN NOLTING

# Decommissioning of CSES

# Decommissioning Estimate?

## **Decommissioning Cost Estimate and Bonding**

An engineer's opinion of probable construction cost will be prepared as part of this decommissioning plan. Exhibit A will summarize probable costs associated with decommissioning exclusive of salvage values. Exhibit B will summarize probable costs associated with trucking panels to approved recycling facilities.

Bartholomew County Code requires Carina Solar, LLC to provide a faithful performance bond as a financial guarantee for proper decommissioning. This bond is separate from, and in addition to, performance bonding submitted for permitting. Furthermore, Carina Solar, LLC will be required to submit detailed engineering plans at the time of decommissioning, and obtain construction permits as required by appropriate authorities.

Industry standard prices for removal costs (labor, material and equipment) were determined using RSMeans cost data. Removal cost includes materials, contractor installation/demolition, mobilization and demobilization, overhead and profit, performance bonding, contingency, and engineering plans and permitting.

**Total probable cost of decommissioning is estimated to be TBD.**



# Duke Energy Decommissioning Cost Estimate Study

- Study performed by Burns and McDonnell Engineering Company, Inc. of Kansas City, Missouri.
- The purpose of the study was to review the facilities and to make a recommendation to Duke Energy Progress to conduct a Decommissioning Cost Study for power generation assets in North Carolina and South Carolina.
- The study compared decommissioning costs for twenty (20) sites, of which, four (4) were solar facilities.
- Using data from study, a 100 MW facility would cost \$15,200,000.00 to decommission.

# Who is Responsible for Decommissioning?

- Taxpayers and landowners are protected against decommissioning costs.

# Property Owner is Responsible Decommissioning

## Party Responsible for Decommissioning

The Project Company is responsible for this decommissioning, provided however that the Project Company may contract with a third-party to perform the decommissioning on its behalf. **Nothing in this plan relieves any obligation that the real estate property owner may have to remove the Facility as**

**Kimley»»Horn**

*Page 8*

**outlined in the Conditional Use Permit in the event the operator of the Facility does not fulfill this obligation.**



# What if Becomes Reality

- Mechanic's lien filed on Spencer County Property owners
- Grandview Solar failed to pay \$9,065,412.97 to contractors working on solar development.

# Conditional Use Criteria #1

- There is no guarantee that local taxpayers will not have to cover decommissioning costs. What is guaranteed is that the CSES will be decommissioned.
- Putting Bartholomew County taxpayers at risk for covering unfulfilled obligations of Solar Operator is detrimental to the general welfare of the Community and does not meet criteria #1.
- Please deny this application.





# Solar Panel Waste

---

DAN SCHROER

# Solar Panel Waste

Criteria 1- ..will not be injurious to the public health, safety, and general welfare of the community

Dan Schroer

3950 Highview Way

Farm Owner - SE Columbus Bordering Base Rd

Manager of Industrial Wastes – Reeves/Reliance/Master

# Will Proposed Panels Become Hazardous Waste?

Carina Project Description - 2.5 – Pg 9

- There are no toxic substances in the panels. The project will incorporate Tier 1 silicon-based PV panels, which have been analyzed as follows by **North Carolina State University**:



## North Carolina State University – Carina Schedule K

- risks of site contamination are much less than for most other industrial uses because PV technologies employ few toxic chemicals and those used are used in very small quantities. Schedule K-pg 3
- solar energy systems may contain small amounts of toxic materials, but these materials do not endanger public health.
- The other minor components of the PV cell are also generally benign; however, some contain lead, which is a human toxicant that is particularly harmful to young children.
- the glass frit and/or the solder may contain trace amounts of other metals, potentially including some with human toxicity such as cadmium.
- As with many electronic industries, the solder in silicon PV panels has historically been a leadbased solder, often 36% lead...
- Some solar modules use cadmium telluride (CdTe). Cadmium compounds are toxic,...
- Multiple sources report that most modern PV panels ... pass the TCLP test. **Not All!** Djs





A-1

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WASTE MANAGEMENT  
HAZARDOUS WASTE SECTION

Q: What if you know the type of panel? Can you tell if it's hazardous just by knowing what type of solar panel you have?

A: Just knowing the type of solar panel is not enough information to make a waste determination. In other words, **it is difficult to say if it is hazardous or not without performing testing**



- Some solar panels are considered hazardous waste, and some are not, even within the same model and manufacturer.
- According to RCRA, the way to determine if a PV panel is classified as hazardous waste is the Toxic Characteristic Leaching Procedure (TCLP) test

# Bartholomew County



- Landfill – Not Allowed
- Recycling Center – Not Allowed
  - Refers Panel Waste to Green Wave
- Green Wave - **“Not on their list”** of accepted wastes





# How Are Others Handling Solar Waste?

- **California**

- Classifies solar panels as hazardous waste.
- Promoting laws requiring the owner/operator as responsible (Manufacture thru disposal)

- **State of Washington**

- will require solar panel manufacturers to finance end-of-life recycling by 2025.

- **EU**

- Requires all producers of panels for countries in the EU to finance end-of-life collection and recycling.

# Harvard Business Review

## The Dark Side Of Solar

June 2021

- The [International Renewable Energy Agency \(IRENA\)](#)'s official [projections](#) assert that “large amounts of annual waste are anticipated by the early 2030s”
- ...push legislation now rather than later is to ensure that the responsibility for recycling the imminent first wave of waste is shared fairly by makers of the equipment concerned. If legislation comes too late, the remaining players may be forced to deal with the expensive mess The cost of creating end-of-life infrastructure for solar, therefore, is an inescapable part of the R&D package that goes along with supporting green energy.
- sustainable technology can least afford to be shortsighted about the waste it creates. A [strategy for entering the circular economy](#) is absolutely essential — and the sooner, the better.

# Conclusion...

- Criteria 1- ..will not be injurious to the public health, safety, and general welfare of the community
  - Testing for toxicity is not identified to provided objective identity
  - Unidentified waste stream classification will contribute to Improper handling and potential contamination
  - Potential for significant cost impact (Bond Underestimated) if Recycling is not a sustainable solution
  - obligation that the real estate property owner may have to remove the Facility as Page 8 outlined in the Conditional Use Permit in the event the operator of the Facility does not fulfill this obligation





# Force Majeure

---

CAITLIN MURPHY

# A Solar Industrial Plant is a Health and Safety Risk

Does NOT Meet Criteria 1

The approval of the conditional use will be injurious to the public health, safety, and general welfare of the community.



Department of Energy  
Lawrence Berkeley National Laboratory  
2021

**“key weaknesses in solar (PV) systems due to weather exposure.”**

**“very serious life-safety issues”**

# Federal Energy Management

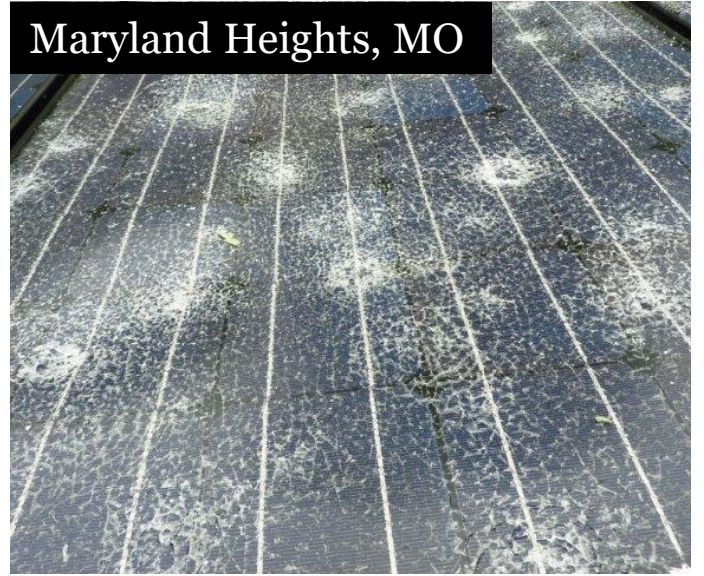
“basic hail certification is **not** sufficient.”

Hail certified panels are only tested with 1-inch ice balls at 51 mph.



# Certified Panels Damaged

Maryland Heights, MO



Scottsbluff, Nebraska

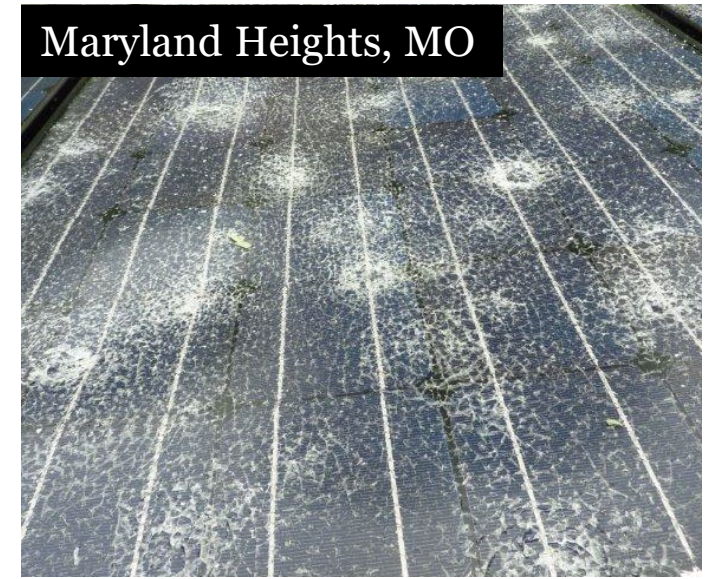


Fort Carson, CO



“not even the toughest glass can withstand larger chunks of hail”

Maryland Heights, MO



Scottsbluff, Nebraska



Fort Carson, CO



# Surrounding counties reported hail much larger than 1 inch!



# NOAA Storm Center Map

Severe (Pink)  
Locations exposed to  
equivalent hail size  $>$   
1.75 in. (44mm) and  $\leq$   
2 in. (51mm)



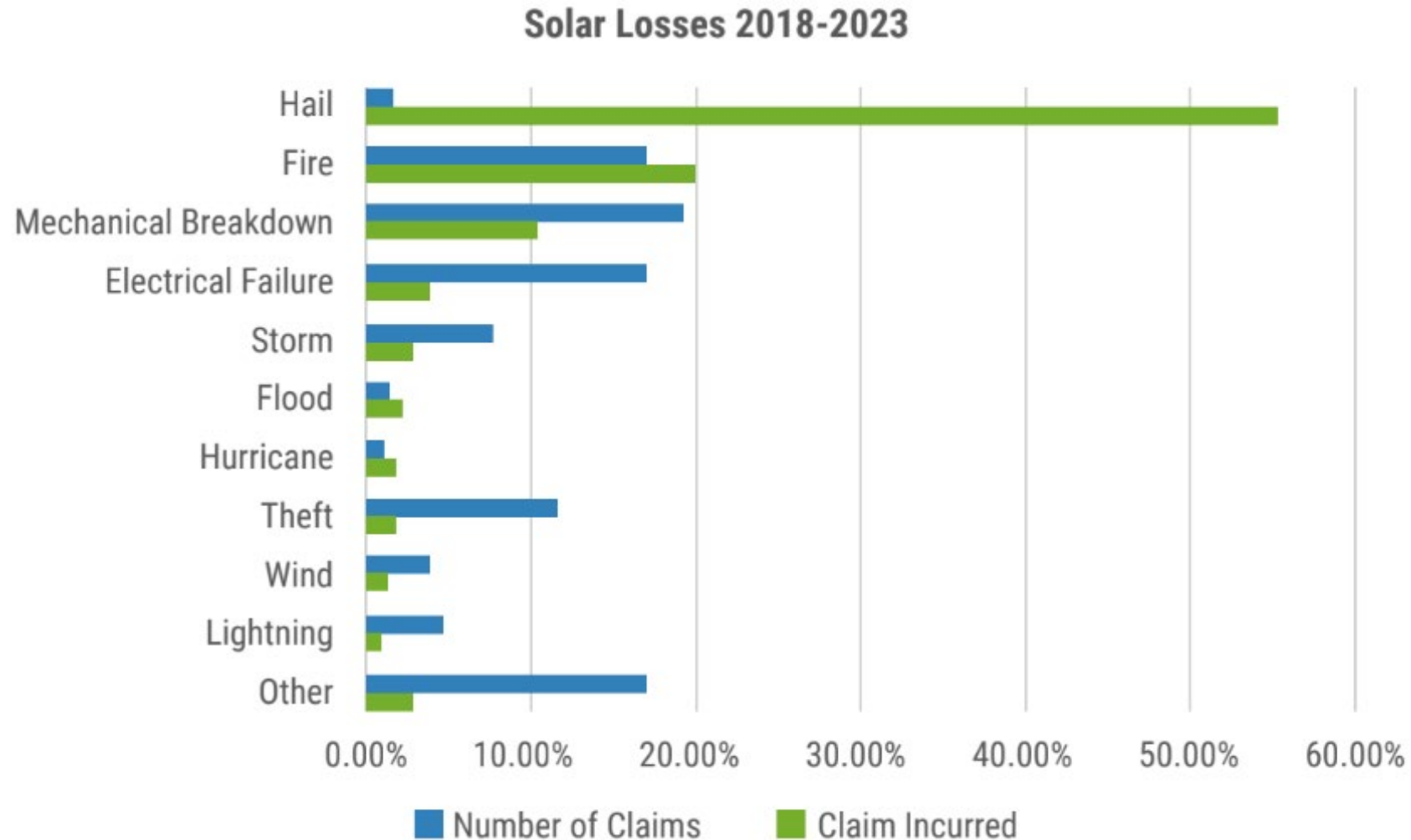
National Weather Service

Since 2000, **Bartholomew County** had **18 days** of hail  
**one inch or larger.**

30 years = 23 damaging hail events across approx. 500,000 panels



# Fifty-four percent of solar loss claims are due to hail damage.





Routine storms and wind cause damage.



Yearly averages for Indiana:

- 59 thunderstorms
- 22 tornadoes

New Paris, IN April 2023  
Straight-Line Wind Damage

<http://www.usa.com/columbus-in-natural-disasters-extremes.htm>  
[Tornado Averages in Indiana \(groundzeroshelters.com\)](https://groundzeroshelters.com)  
<https://escholarship.org/content/qt5t8569hf/qt5t8569hf.pdf?t=r4houo>



# Weather-Damaged Modules are a Safety Risk

Glass shards blown across residences and preschool playground





# Weather-Damaged Modules are a Safety Risk

- Glass shards blown across residences and preschool playground
- Hot spots and abraded wires cause **fires**

<https://coreenergyworks.com/wp-content/uploads/2021/06/COREEnergyWorks-NREL-PVRW-white-paper-20200529-1.pdf>

[Solar Panel Hotspots: Identifying and Preventing Potential Damage \(linkedin.com\)](https://www.linkedin.com/pulse/solar-panel-hotspots-identifying-preventing-potential-damage-kevin-chen)

<https://escholarship.org/content/qt5t8569hf/qt5t8569hf.pdf?t=r4houo>

<https://www.energy.gov/eere/solar/articles/assessing-fire-risks-photovoltaic-systems-and-developing-safety-concepts-risk>

# Weather-Damaged Modules are a Safety Risk

- Glass shards blown across residences and preschool playground
- Hot spots and abraded wires cause fires
- Lead leaches
  - “Leaching experiments have demonstrated **severe leaching of Pb (lead)** from c-Si (silicon) modules.”

## Materials & Average Mass Fractions Of A Typical Module

Component	Materials	Material composition (examples)	Mass [%]	Approx. mass [g/m <sup>2</sup> ]
Frame	Metal	Aluminum	8 - 10	1,060
	Plastic	Polyurethane, polyamide		
Glass	Tempered glass, annealed glass	Glass (Si, Na, Ca, Mg)	74 - 76	8,850
	Front plate, LSG	Glass, PVB film		
Cells	Crystalline	Silicon	3.6	424
Cell stringing Connectors	Tin-plated copper bands	Copper, tin, silver, lead, bismuth <sup>2</sup> (only 10-30 μm thick)	0.8	94
Backsheet	Tedlar film	PET, PVF, PA	5	590
Embedding		EVA, acrylate	6	708
Seals, adhesives	Frame sealing tape	Rubber, silicone, acrylate, PE foam, polyurethane, ethylene-propylene-copolymers	1 - 2	177
Junction boxes	Plastics, metal	ABS, PET, aluminum	1 - 2	177

The EPA States  
 “Lead in the soil contributes to overall environmental lead exposure.”



# Weather-Damaged Modules are a Safety Risk

- Glass shards blown across residences and preschool playground
- Hot spots and abraded wires cause fires
- Lead leaches
  - American Academy of Pediatrics “**no safe level of lead** for children”
  - **Lead effects a child’s brain development** and is believed to be

## Does NOT Meet Criteria 1

The approval of the conditional use will be injurious to the public health, safety, and general welfare of the community.



# School Safety

---

JENNIFER PROBST



# St. Paul Lutheran Early Childhood Ministry (ECM)

– Jen Probst, director

---

## In Yellow

- Located on County Road 300 E south of State St. (St. Road 46)
- The school playground is directly south of the building
- St. Paul church and ECM has received no written communication from Carina



# St. Paul ECM and Criteria # 1



- Capacity **77** students
- Students range from age 3 to 6
- School and care 7:00 – 4:30
  
- School building is **255 feet** from the proposed fence --Carina's application, page 403
- The playground is **7 feet** from the road and will be **227 feet** from the proposed fence.



## County Road 300 East and Safety

- **Large equipment on 20 feet wide road, no shoulders**
- Children walk from school to the playground along 300 East
- Parent car lines use 300 East

**The safety of our children  
should be all of our # 1 Priority!**





- Historically, this area is called Clifty Hill and is known for its **west wind gusts**
- The solar leased farm is **west** of the playground

What will happen when construction starts?





## **What are industrial solar's long term affects on young children?**

- Children age 3-6 are in a critical stage in their mental, emotional, social, and physical development
- Families entrust our school with the safety and nurture of their children
- The parents and staff need long term research-based evidence that assures our children will not be negatively impacted by industrial solar arrays

**Criteria #1** The approval of the conditional use will not be injurious to the public health, safety and general welfare of the community. **What harm could come from approving the conditional use? Would it create any public safety issues? Why or why not?**

### Children and Construction concerns:

- Large equipment on a narrow road
- Children on playground can be **7 feet** from road
- Children walk daily along 300 East
- Flying construction debris

### Long term:

- Flying debris from damaged panels
- Lack of studies on the developmental affect of young children
- **Affecting St. Paul's ECM enrollment - not able to defend the safety of building solar arrays or defend the effects of long term industrial solar use on young children to the parents of our current and potential enrolling students**





# Fire Safety

---

SHAWN MCNEALY

# Fire Risk

Shawn McNealy

3788 N County Road 575 E

Hope, IN 47246



# CFD Firefighter for 23 years





# Risk of Failure and Fire Ignition



## Mitigating the risk of fire on utility scale solar facilities



Luke Magon

Managing Director of ScanPro, Drone Operations, Infrared Thermal Imaging and Electroluminescent inspection

Published Feb 12, 2020

+ Follow

The importance of mitigating the risks associated with fire in Australia has never been more blatantly obvious than what we have all witnessed over the past 5 months. Dry, drought affected areas have suffered some of the worst fire events we have ever experienced as a nation, and for many rural communities the past three months has gone from bad to worse.

The average sized 100MW solar farm hosting around 300,000 to +400,000 solar panels (modules) will generally have over 1,000,000 physical made electrical terminations. Each one of these terminations operates at around 1500 Volts and each termination could fail.

Electrical equipment failure is well known to be linked to situations where we can observe abnormally high temperatures. Fire, sparking, arcing or melting exposes electrical equipment to further damage and degradation exacerbated as moisture ingress occurs. Electrical failure can occur due to various factors and although the commonly seen issue will generally arise due to high resistive joints it is not uncommon to observe how the environment impacts equipment over time. Electrical termination temperatures can reach over 120° Celsius, under these conditions, equipment will begin to deteriorate, over time plastics will have already begun to deform or melt and visible signs or smells will be present.

Mismanagement, poor quality equipment and installation practices or lack of scheduled maintenance is generally what leads to these situations. Thorough and regular maintenance procedures can control these issues including addressing performance degradation, system dropouts, inverter failure/faults and lost yield.

The most common issues that will lead to a high resistive joint to form are:

- Poor connections and terminations
- Formation of Oxidation and Calcification around connections
- Product failure
- Environmental impacts
- Ingress or disturbance from Flora and Fauna



# Sharp Rise in Solar Fires

Reinsurance News

Advertise to our global re/insurance audience  
Over 200,000 individual readers every single month in 2023

HOME NEWS RENEWALS DATA INTERVIEWS CONFERENCES ABOUT ADVERTISE


## Reinsurance News

### "Sharp rise" being seen in solar farm fires: Firetrace International

11th August 2022 - Author: Jack Willard

A recent study by Firetrace International, a leading provider of fire suppression technology, indicates that solar farm fires are seeing a sharp rise.

The report, titled "*Hidden Danger – why solar farm fire risk could be greater than you think*," highlights that the industry could possibly be misjudging the threat of fire and that it urgently needs to address the issue, particularly as cumulative installed PV capacity increased by approximately one quarter in 2021. Unfortunately, the number of fires increased more quickly than growth of installations in some markets.



Statistics revealed by the Australian PV Institute showed that between 2018 and 2020 PV installations increased less than three-fold, the data from Fire and Rescue New South Wales (NSW), however, reveals that the number of solar fires attended by firefighters in the same period rose six-fold.

The report also looks at a study by the UK's BRE National Solar Centre –entitled "*Fire and Solar PV Systems – Investigations and Evidence*". The study provided a detailed investigation into a total of 80 potential PV-related fire incidents that led to the overall conclusion that researchers "strongly suspected a degree of under-reporting, especially amongst solar farms and domestic thermal events that were resolved by a solar installer/maintenance engineer."

Furthermore, it explores how this lack of transparency could prevent the industry from establishing an accurate baseline to continuously improve best practice.

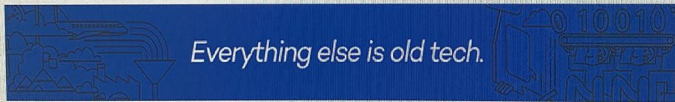
Reinsurance News

Advertise to our global re/insurance audience  
Over 200,000 individual readers every single month in 2023

HOME NEWS RENEWALS DATA INTERVIEWS CONFERENCES ABOUT ADVERTISE

The report also looks at a study by the UK's BRE National Solar Centre –entitled "*Fire and Solar PV Systems – Investigations and Evidence*". The study provided a detailed investigation into a total of 80 potential PV-related fire incidents that led to the overall conclusion that researchers "strongly suspected a degree of under-reporting, especially amongst solar farms and domestic thermal events that were resolved by a solar installer/maintenance engineer."

Furthermore, it explores how this lack of transparency could prevent the industry from establishing an accurate baseline to continuously improve best practice.



The report goes on to establish three root causes for photovoltaic fires, namely, error in the design system, a faulty product/s, or poor installation practice.

According to the report, the photovoltaic component that presents the greatest fire risk are DC isolators, which cause around a third of solar fire incidents. However, DC connectors and inverters can also pose significant risks.

The study also outlines a number of steps to minimize the risk including regular testing by independent third parties, incorporating additional safety components, such as fire suppression technology, and ensuring defective parts are replaced quickly.

Ross Paznokas, Global Business Development Manager – Clean Energy, Firetrace International, says: "With the number of PV installations dramatically increasing around the world, taking these steps will be vital in reducing fire risk, which is why we launched our best-in-class fire suppression technology into the solar industry earlier this year.

"We're drawing on our experience in the wind industry, where the technology has already been installed more than 23,000 times in turbines across the world, and are working hard to support the solar industry in understanding the causes of solar farm fires, and gaining confidence to share this data so that we can learn from fire events and establish best-practice."

Print PDF



# Product Safety Data Sheet

## PRODUCT SAFETY DATA SHEET



### 5. SECTION: FIRE-FIGHTING MEASURES

- Qcells solar PV modules are fire rated as Class C according to IEC and UL 1703/UL 61730 as well as Type 1 and 2 according to UL 1703/UL 61730.
- Qcells solar PV modules are extensively tested at the factory to ensure electrical safety of the product before shipment.
- In rare cases, solar PV modules – as any other electrical device – can cause fire due to worn electrical contacts which result in electrical arching.
- In case solar PV modules which are not part of an array are on fire, USE FIRE EXTINGUISHERS RATED FOR ELECTRICAL EQUIPMENT, Class C.
- IN CASE A SOLAR PV MODULE ARRAY IS PRESENT, ANY FIRE SHOULD ONLY BE FOUGHT BY PROFESSIONAL FIREFIGHTERS. FIREFIGHTERS NEED TO TAKE PRECAUTIONS FOR ELECTRICAL VOLTAGES UP TO 1,500 VOLTS (DC).
- Some components of the modules can burn. Potential combustion products include oxides of carbon, nitrogen and silicon.
- In case of prolonged fire, solar PV modules may lose their structural integrity.

#### General recommendations from the below-mentioned reports:

- Fire service personnel should follow their normal tactics and strategies at structure fires involving solar power systems, but do so with awareness and understanding of exposure to energized electrical equipment. Emergency response personnel should operate normally, and approach this subject area with awareness, caution, and understanding to assure that conditions are maintained as safely as possible.
- Care must be exercised during all operations, both interior and exterior.
- Responding personnel must stay back from the roofline in the event modules or sections of an array may slide off the roof.
- Contacting a local professional PV installation company should be considered to mitigate potential hazards.
- Turning off an array is not as simple as opening a disconnect switch. As long as the array is illuminated, parts of the system will remain energized.
- When illuminated by artificial light sources such as fire department light trucks or an exposure fire, PV systems are capable of producing electrical power sufficient to cause inability to let go from electricity as a result of stimulation of muscle tissue, also known as lock-on hazard.
- Firefighting foam should not be relied upon to block light.
- The electric shock hazard due to application of water is dependent on voltage, water conductivity, distance and spray pattern.
- It is recommendable to fight fire with water instead of foam if a PV system is present. Salt water should not be used.
- Firefighter's gloves and boots afford limited protection against electrical shock provided the insulating surface is intact and dry. They should not be considered equivalent to electrical personal protection equipment.

# LA Times



Los Angeles Times

LOG IN



BUSINESS

## How a bird started a fire at a California solar farm



A commercial solar project in San Bernardino County's Lucerne Valley. (Allen J. Schaben / Los Angeles Times)

BY BLOOMBERG

JUNE 24, 2019 5:15 PM PT

