New Richmond

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Project Mission:

*Our goal is to diversify New Richmond's energy portfolio by providing **data**, **research**, potential energy **solutions,** and educational **material** regarding New Richmond energy options.*

Presentation Overview

- Current Conditions: What does New Richmond look like today?
- Solar Strategies
- New Richmond’s Resilient Vision
  - Green Building
  - Money Saving Initiatives
- Financing: How can we pay for this?

Current Conditions

What does New Richmond look like today?

- Population
- Household Income
- Families Below the Poverty Line
- Total Housing Units
- Median House Value
- Median Year Housing Built
- Vacancy Rates

Demographic Overview

Population	Median Household Income	Families Below Poverty Line
2,624	$46,118	13.4%

Source: American Community Survey, 2015

Built Form Overview

Total Housing Units

1,171

Median House Value

$142,100

Year Built

Median Year Structures were built:

1971

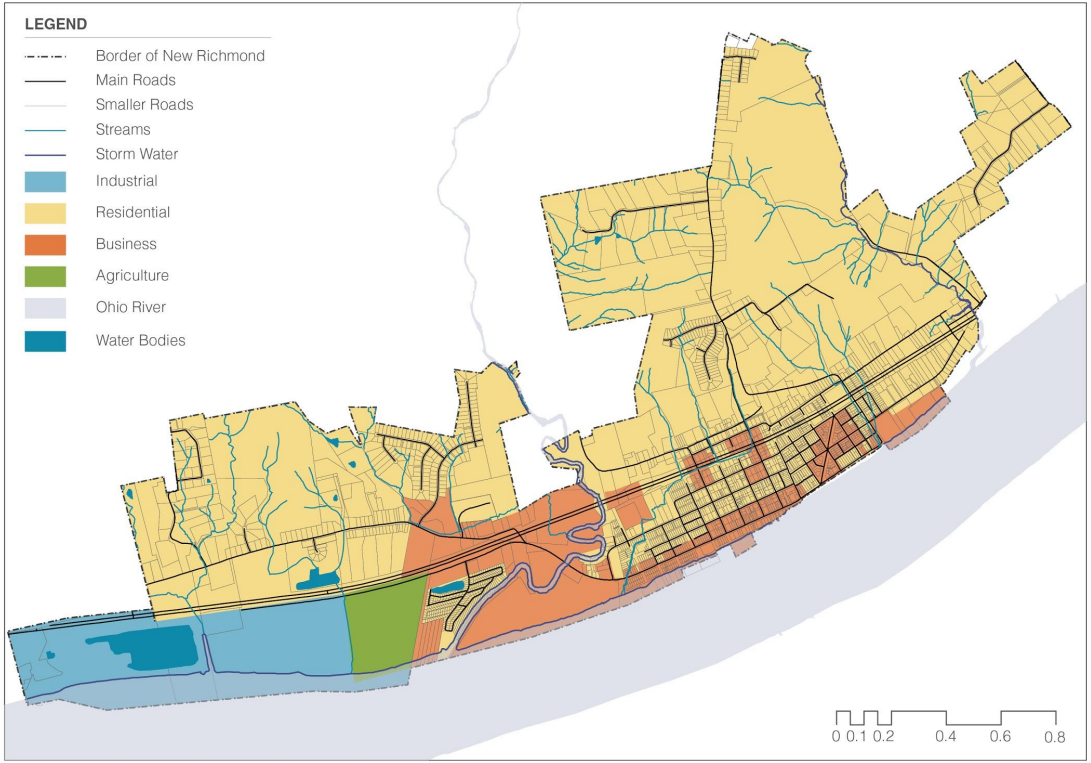
Source: American Community Survey, 2015

Vacancy Rates

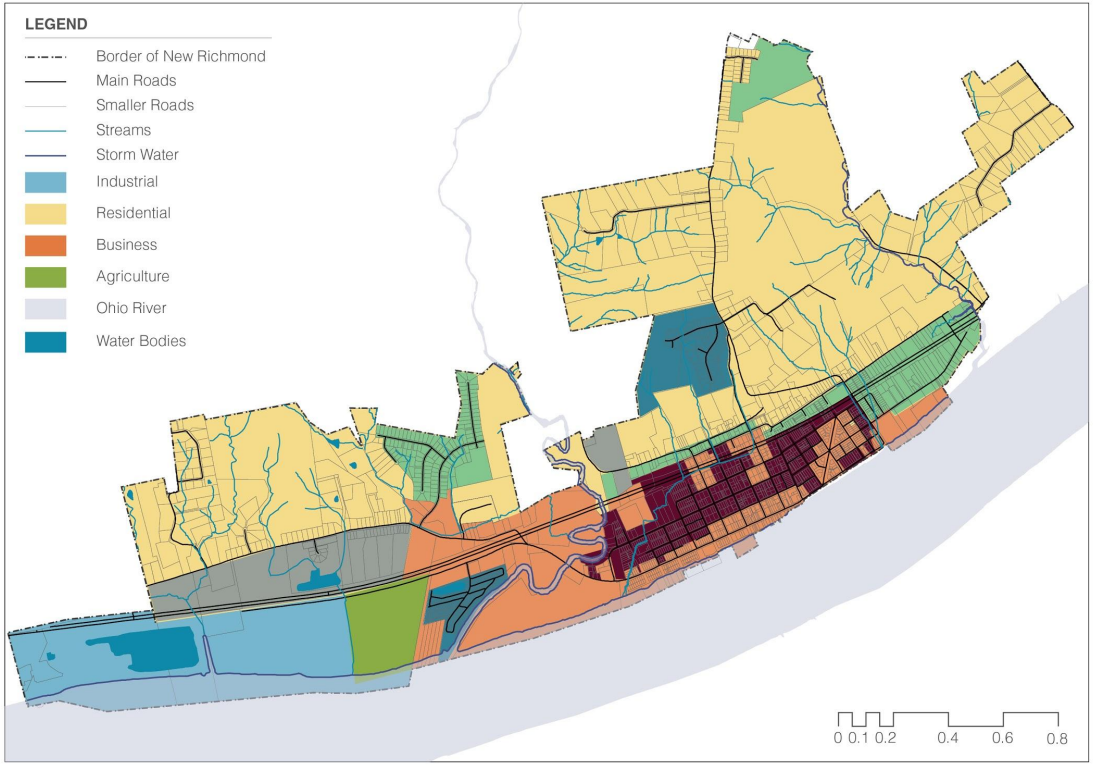
	United States	Ohio	New Richmond
Housing Units	133,351,840	5,140,902	**1,171**
Occupied	87.7% (116,926,305)	89.2% (4,585,084)	**82.6% (967)**
Vacant	12.3% (16,425,535)	10.8% (555,818)	**17.4% (204)**

Source: American Community Survey, 2015

Land Use Map


LEGEND
Border of New Richmond
Main Roads
Smaller Roads
Streams
Storm Water
Industrial
Residential
Business
Agriculture
Ohio River
Water Bodies
0 0.1 0.2 0.4 0.6 0.8

Zoning Map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Solar Power

The Best Option for Renewable Energy in New Richmond

Why?

1. Reduces Energy Bills
2. Saves schools money
3. Easy to get installed
4. Cleaner energy source
5. Improves sustainability

Why Solar Power

“In 15 minutes, the sun radiates as much energy as people use in all forms in an entire year” (National Geographics).

How Can You Get Solar?

There are over 1,800 solar installers in the Cincinnati Area (energysage.com)

Cost:

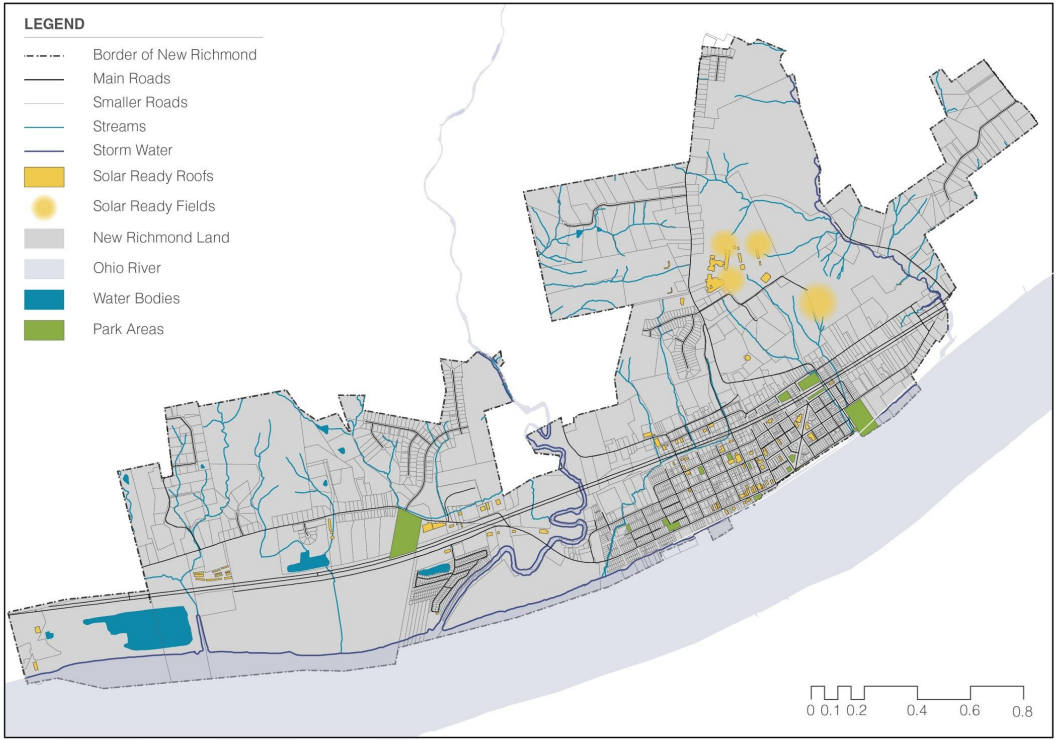
- Roughly $3.00 per watt (energysage.com)
- There are 1,000 Watts in a 1 kw
- Fundings such as **PACE** can help pay for development.

Solar Roof and Solar Field Potential Areas

Useable Solar Ready Roof in New Richmond:
286,555 sq ft

Solar Ready Output in New Richmond:
2,720,242 kWH/year Potential

Maximized Solar Rooftop <u>Annual</u> Revenue:
$249,174



Homeowners

Solar panels on homes in New Richmond has a small returns on investments citywide.

Reasoning

- There is too much tree cover
- Benefits some individuals, not all

City-Owned

Installing solar panels on the school has the highest return on investment for the village.

Reasoning

- Net metering v Virtual Net Metering
- Publicity for being a green city

Go Solar Ready- Interactive Map

GO SOLARready

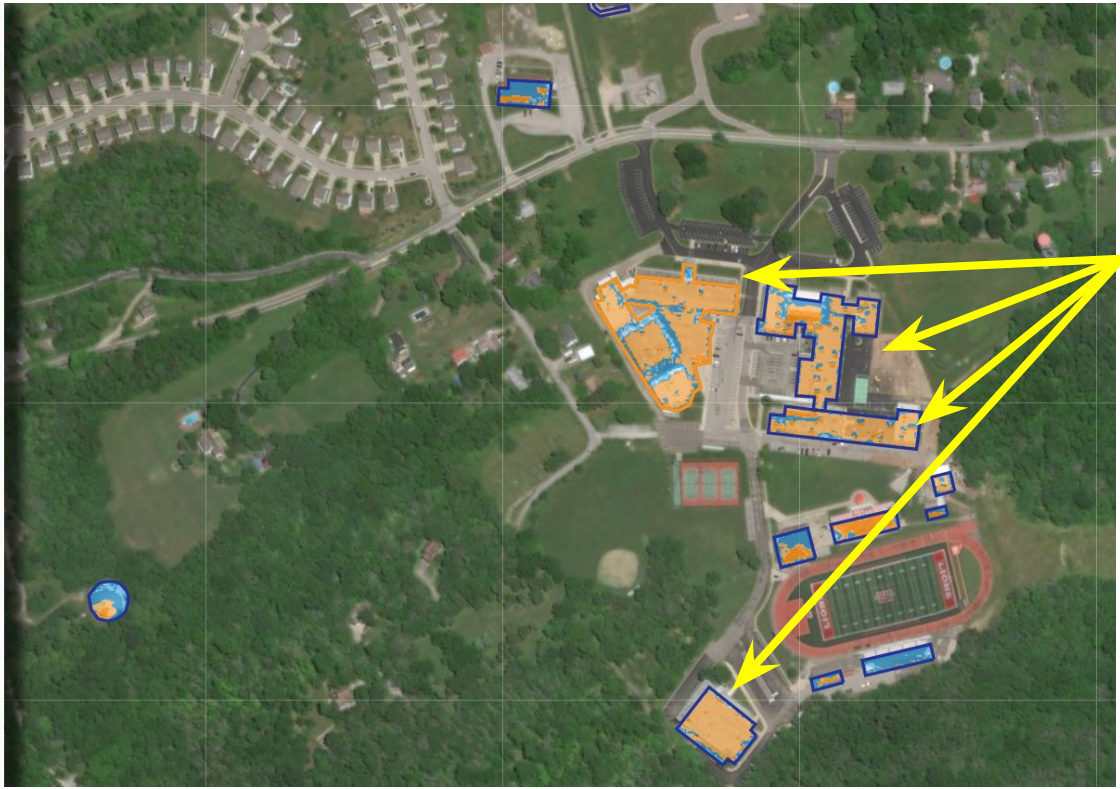
1135 Bethel New Richmond Rd

Roof good for solar, seek consult
Roof Type: Flat
Total Roof Area: 75,285 sq ft
Usable Roof Area: 47,647 sq ft
Percent Usable: 63 %
Electricity Generated: 458,283 kWh/year
System Size: 399.6 kW
Annual savings: $41,979
Annual Carbon Dioxide offset: 696,681 lbs
Optimal Array Placement:

Share

Draw a building

Draw Roof Outline



Combined Annual Savings at school:
$97,452

Combined Annual CO_2 offset:
1,616,832 lbs

System Size:
927.9 Kw
x $3,000 per kW
$2.78 million
(Rough Estimate)

Phase I
New Richmond Middle School

- 71% Usable Roof
- Approximately $396,600 to install
- $13,862 Annual Savings
- 230,055 lbs Annual CO_2 Offset

Phase II
New Richmond Elementary School (Southern Building)

- 67% Usable Roof
- Approximately $462,00 to install
- $16,159 Annual Savings
- 268,184 lbs Annual CO_2 Offset

Phase III
New Richmond Elementary School (Northern Building)

- 64% Usable Roof
- Approximately $726,300 to install
- $25,422 Annual Savings
- 421,912 lbs Annual CO_2 Offset

Phase IV
New Richmond High School

- 63% Usable Roof
- Approximately $1.2 million to install
- $41,979 Annual Savings
- 696,681 lbs Annual CO_2 Offset

Green Building

In order to achieve the type of sustainable building types New Richmond can create incentives to direct the type and style of development they would like to see within their boundaries.

New Richmond:

- More Sustainable Development
- Marketing opportunities
- Potential LEED certifications
- Municipal Financial savings

Developer:

- Development Priority
- Tax Incentive
- Height Bonus
- Parking flexibility

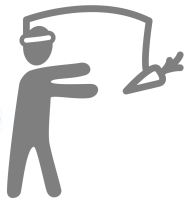
GREEN BUILDING INCENTIVE

Many cities have created land use incentives and density bonuses to encourage the type and style of development a city would like to see. What follows is a series of examples for planned developments from the state of Washington.

Land Use Incentives and Density Bonuses

Redmond has the most developed green building incentive program. Other jurisdictions provide bonuses for LEED-certified buildings as part of general flexible development incentives or for certified buildings in specific zones, often in planned developments.

- Auburn Municipal Code Ch. 18.49 - Flexible Development Alternatives - LEED certification is a bonus feature; see Flexible Development Matrices for Residential and Mixed Use in Sec.18.49.020(C) and §18.49.030(C)
- Bellevue Land Use Code Part 20.30D - Planned Unit Development (see Section 20.30D.160(B) - Built Green certification a conservation design factor)
- Ellensburg Municipal Code Ch. 15.330 - Density Bonus Incentives - Energy efficient construction (LEED) or similar certification is a density bonus element
- Everett Zoning Code Sec. 22.020(E)(1)(i) - LEED silver rating is a bonus design element in the B-3 zone
- Newcastle Municipal Code Sec. 18.36.040(E)(1)(i) - Green Building floor area ratio incentive
- Redmond Zoning Code Ch. 21.67 - Green Building and Green Infrastructure Incentive Program (GBP)



EMPOWER SAVES

“Empower uses state of the art energy analytic software to analyze utility bills to find out how you can save money, improve the comfort of your home and reduce your environmental impact.”

Increasing Home Energy Efficiency

Creating a Land Bank	• Develop a land bank to address vacant buildings
Lead by Example	• Create policies that will garner community support • Start with government buildings
Energy-Efficiency Targets	• Set mandatory energy goals for city owned buildings
Measure and Track Performance	• Periodically audit energy use of government buildings to understand changes in usage

Energy Efficiency Strategies

“Would you rather invest in your home, or give Duke (and other utility companies your money?”

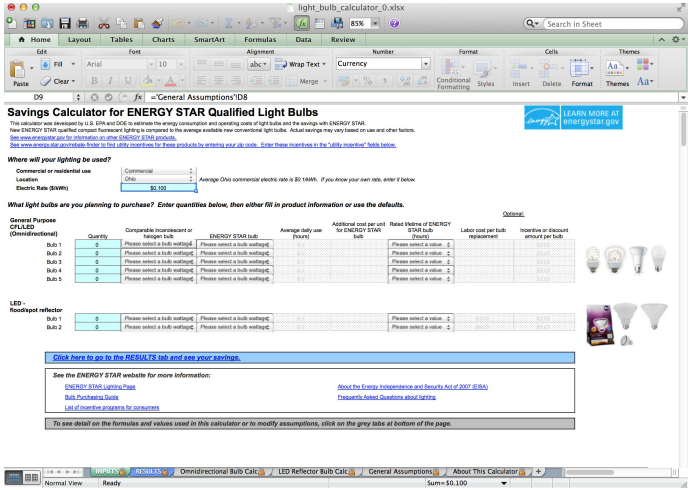
- LED lights
- Appliances
- Duke Energy rebates
- Energy Technology
- Generate Culture of Energy Conservation

LED LIGHTS

Benefits of switching to LEDS

- Use about 70-90% less energy than traditional incandescent bulbs
- Last at least 15 times longer and saves about $55 in electricity costs over its lifetime
- Produce about 70-90% less heat, so it's safer to operate and can cut energy costs associated with home cooling

ENERGY STAR light bulb savings calculator



Homeowners can use tools like this one to calculate how much money they can save by doing simple home adjustments!

APPLIANCES

ENERGY STAR offers information on new ways to save energy with a long list of products such as:

- Washers
- Dryers
- Refrigerator
- Dishwashers
- Water heaters
- Electronics
- Heating and Cooling appliances

Source: Energy Star

DUKE ENERGY REBATES

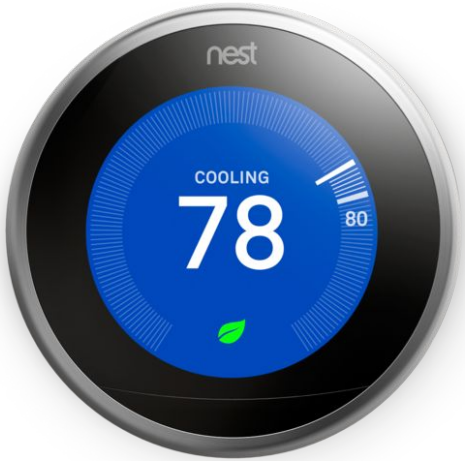
Duke Energy offers rebates for the following services:

- Heat Pump Water Heaters (up to $350)
- Free LED lights (residential)
- HVAC installation (up to $525)
- Insulate and seal attic (up to $425)
    - Attic must be over 1,000 square ft in space
    - Attic insulation must be improved from R-19 to at least R-30 (better resistance to heat flow)
    - Duke Energy residential service customer

NEST THERMOSTAT

WHAT DOES NEST DO?

- NEST Thermostat: $159.99-$249.99
- Installation: $99-$300
- Saved people an average of 10%-12% on heating bills and 15% of cooling bills.
    - Typical energy costs: Savings of $131-$145.
- NEST estimate for a 1000-1500 sq ft house in New Richmond could save homeowners $78-$223 (Gas) and $156-$473 (Electric).
- AEP offers a rebate for NEST



According to Nest, installing a thermostat will produce enough savings to pay for the device in just two years!

COMMUNITY OUTREACH

Create a culture of conservation in schools:

- Nighttime audit to see what can be turned
- Maintain thermal comfort during class time
- Inspire students with friendly energy competition

Distribute Flyers:

- Educate the community on ways to save money
- Provide information for webinars
- Share successful stories!

We have provided a flyer for you to use!

Financing

How can we pay for all of this?

- PACE Financing
- Smart $aver Program
- Energy Design Assistance

PACE FINANCING

Property Assessed Clean Energy (PACE)

- PACE Financing can be used to fund a variety of projects including residential, industrial, commercial, and non-profit projects
- In order to cover the $2.78 million worth of solar installations, PACE financing can be applied for, and if accepted can be a viable option for New Richmond

New Richmond is already established as a special improvement district!

SMART $AVER PROGRAM

Program allows individuals or businesses to make energy upgrades to their properties to their property and receive rebates to cover a potion of the cost of the improvements

- How it works (residential):
  - Step 1: Call a participating contractor
  - Step 2: Make improvements
  - Step 3: Get your money
- How it works (business):
  - Step 1: Make upgrades
  - Step 2: Complete Application
  - Step 3: Get rebates

ENERGY DESIGN ASSISTANCE

If new construction, an add on, or the renovation of an existing building were to occur in New Richmond, Duke Energy's Energy Design Assistance program could be a viable option

- Program offers:
  - Energy modeling
  - Design assistance
  - Financial incentives
- Works with architects, engineers, builders, and property owners
  - Goal of the program is to supplement the design services already being used by the company or municipality rather than replace any existing relationships

Design Assistance from Duke Energy

Energy efficiency from the ground up

Save over the lifetime of your building

A building is the face of any organization – and it makes an important impression. We can help you design and construct energy-efficient buildings that are better for the environment, are less expensive to operate and positively reflect your organization's values and vision. Energy efficiency is a smart business decision. And the best time to consider energy efficiency options is during the early stages of designing the building.

Our Design Assistance team can help you make your building more efficient. We offer:

- Energy consulting services and whole-building energy modeling
- Construction incentives for a package of whole-building energy opportunities – from building envelope, lighting and cooling to heat recovery and more
- Support for your project's sustainability goals
- Savings calculations

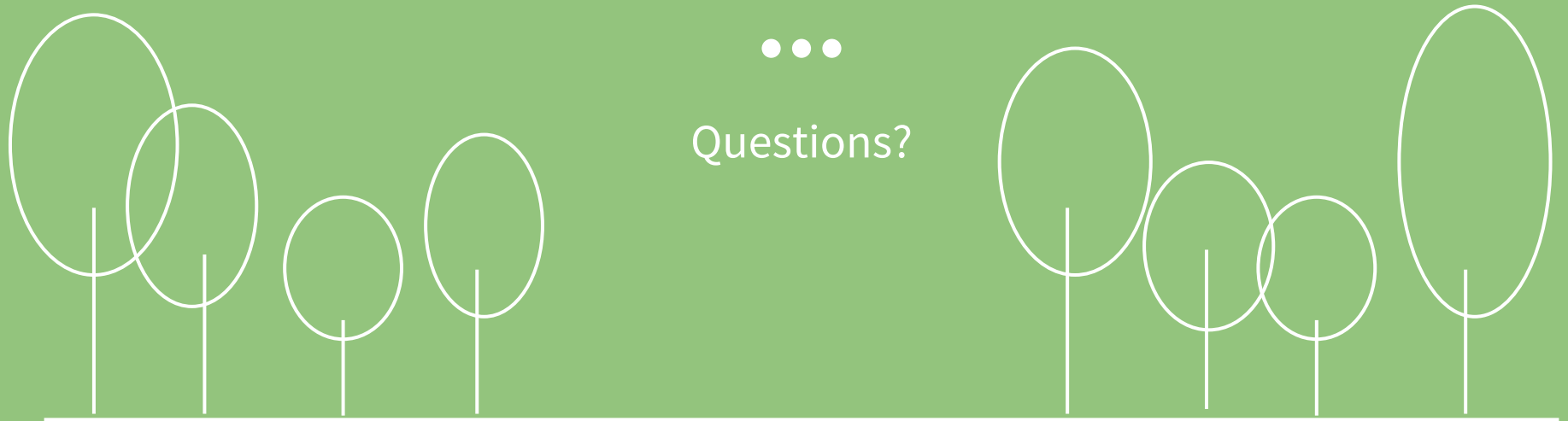
Does design assistance (DA) make sense for your construction project?

DA may be a good fit for you if you're:

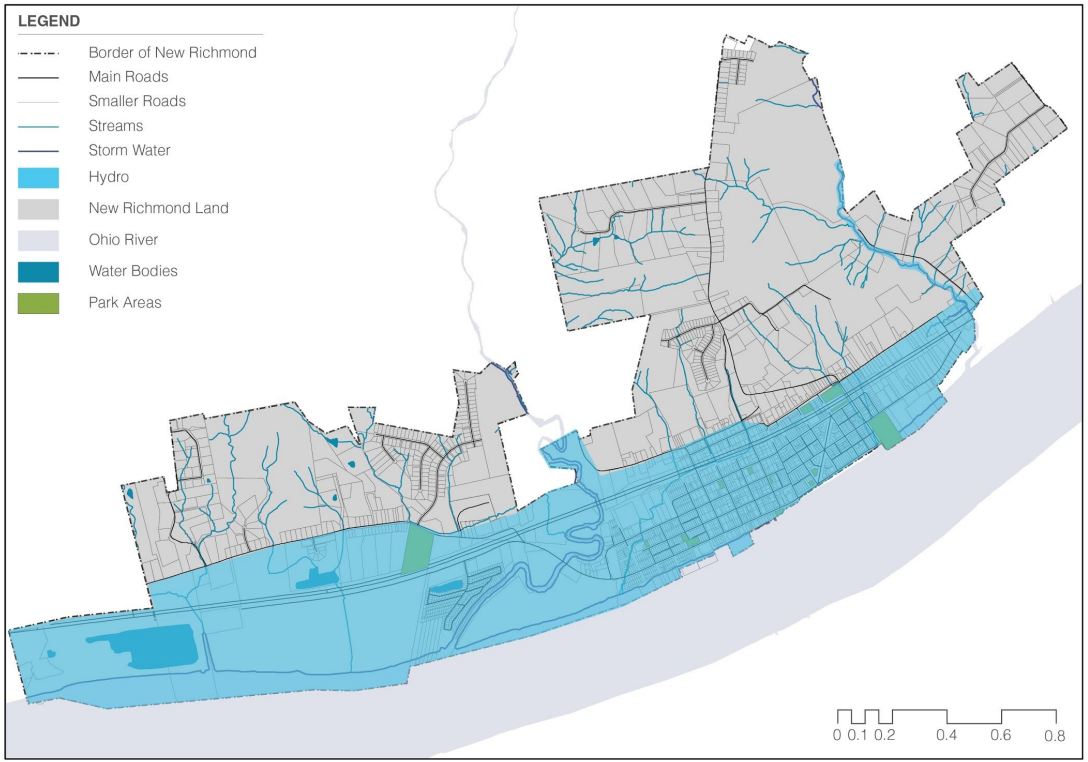
- Opted into or planning to opt into the energy efficiency rider
- Committed to energy efficiency by exceeding the applicable energy code
- Constructing a new building, adding to an existing building or renovating an existing space
- In the schematic or design development stage of your project
- Interested in a detailed energy model in order to evaluate first costs, operating costs and savings

Thank You!

Questions?



Flood Map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Fly Ash Map


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