

**REPORT RELATING TO SPECIAL USE
ZONING APPLICATION**

For the construction of a

Solar Photovoltaic Array

Located at

**Skunk Hill Road
Hopkinton, Rhode Island**

PREPARED FOR

S. Paul Ryan, Esq
201 Washington Rd.
Barrington, RI 02806

PREPARED BY

James A. Houle
Rhode Island Certified General Appraiser
License #CGA.0A00769
198 Union Street,
Portsmouth, Rhode Island 02871
(401) 662-1543

Report Date
5 October 2021

JAMES A. HOULE & ASSOCIATES
198 UNION STREET, PORTSMOUTH, RHODE ISLAND 02871 (401) 662-1543

S. Paul Ryan, Esq
201 Washington Rd.
Barrington, RI 02806

5 October 2021

Re: Skunk Hill Road Solar Farm, Hopkinton

Dear Mr. Ryan:

Pursuant to your request, I have reviewed the plans for the installation of a 20-megawatt solar photovoltaic and electrical interconnection system, located at 0 Arcadia Road, 0 Lisa Lane, and 145 Skunk Hill Road, in Hopkinton, RI. The three parcels are also identified as Map 18, lots 8, 13, and 14. The parcels are a total of approximately 169 acres. I have carefully reviewed the plan, visited the proposed site and reviewed the Hopkinton Comprehensive Community Plan and the Hopkinton Zoning Code in relation to the request.

This review and analysis was performed in order for me to form an opinion as to the suitability and impact of the proposal. After completing my data gathering and analysis, I have concluded that the proposed solar farm project will adversely affect property values in two ways: first, the solar array will negatively impact the value of the immediately surrounding properties because of its visual effect on the area; and second, the solar array will negatively impact property values within the Hopkinton community as a whole because of its adverse effect on residents' enjoyment of their community.

These issues are both addressed in turn below.

1. Direct visual impact on surrounding properties

Although there is limited information available about the impact of solar arrays on property values, there is substantial information available showing diminution of value based on proximity to other industrial or power-generating uses. For example, there are significant amounts of published data which show an average 10% diminution of value to residential properties from close proximity to overhead power lines. Further, there are substantial published data to show that more traditional electrical substations and production facilities can generate impacts to value of up to 35-40%. Location next to cell towers can impact value 15-20%. In practice, we find that houses located next to loading bays of supermarkets or locations next to industrial buildings see reductions of 15-20%. Although there is conflicting data, wind turbines have also been viewed as having a negative impact on proximate property values, primarily related to visual impact. (See, for example, McCann Appraisal, LLC, "Property Value Impact & Zoning Evaluation," Freeman's Way Municipal Wind Project, Brewster, MA, January 6, 2011, available at: https://www.dropbox.com/s/4kg3dc1pohtfwx3/Brewster%2C%20MA_Property%20Value%20Impact.pdf?dl=0.)

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Despite a lack of data related to the effects of solar arrays on property value, the conclusion that proximity to a large-scale industrial use will visually impact surrounding properties is strongly supported by the precedent of other municipalities' favoring locations for solar arrays in areas away from residential areas.

* ***Typical placement of solar arrays is not in residential areas:***

The proposed solar array is located in a district that was zoned residential, while the proposed use is, in effect, an industrial/ manufacturing use. The applicants petitioned for a zoning change to accommodate their proposed project, and the zoning change was granted. The fact remains, however, that the proposed array would still be located in a rural residential area.

Solar arrays are almost never placed within a residential setting. There are well over 1,000 significant solar arrays already in operation in Massachusetts and Rhode Island. Virtually all of them are placed in settings of very low impact.

It is important to note that Massachusetts has 70% of all the solar power generation of New England. If any municipal body would have an awareness of impact, it would be the leader of the field.

Low impact settings include:

- a) roof tops of commercial/ industrial/public buildings;
- b) on top of impacted sites, such as landfills;
- c) in commercial/ industrial zones;
- d) along highways, rail beds;
- e) former industrial sites

A review of several dozen sites in Rhode Island and Massachusetts shows all sites surveyed to be from one of the categories above. A partial list is below. The sites were randomly selected, not targeted for any reason. The short list is very typical of the whole.

<u>Solar installations</u>	<u>Setting</u>
Rustcraft Road Solar, Massachusetts	On industrial building rooftop
Willow Hill Road Solar, Massachusetts	Over top of paper mill landfill
440 and 480 McClellan Solar, Mass	Industrial Building rooftop
Mt. Tom, Holyoke, Mass	Site of former coal burning power plant
Landfill Solar, Dennis, Mass	Over top of landfill
361 Little Rest Rd, Warren, Mass	Along Massachusetts Turnpike
Agawam Landfill Solar, Mass	Over top of landfill
Peck Hill Road, Johnston, RI	Former manufacturing site
North Smithfield Solar, RI	On top of impacted land
Middletown Industrial Park, RI	In industrial park

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Kingston, Massachusetts	On top of former landfill
Framingham, Massachusetts	Along Massachusetts Turnpike
Pomfret Community School, Pomfret, CT	Rooftop, large array
Dartmouth Solar, Massachusetts:	Next to power generation plant
Avon Solar, Massachusetts	On Industrial building rooftop
Acton Landfill Solar	Landfill
Hill AFB	Military Base
Fall River	School roof
Fall River	Water Treatment Plant
Harwich, Mass	Landfill
Sudbury, Mass	Landfill
Pomfret Community School, Pomfret, CT	Rooftop, large array
Dartmouth Solar, Massachusetts:	Next to power generation plant
Avon Solar, Massachusetts	On Industrial building rooftop
Canton, Mass	Landfill
Canton, Mass	School roof
Forbes St, East Providence	Landfill
Plymouth, Mass	Along highway
Kingston, Mass	Landfill
Carver, Mass	Along highway
Carver, Mass	Landfill
Carver, Mass	Former cranberry bog along highway
Billerica, Mass	Superfund landfill site
Stockbridge, Mass	Along highway
Salisbury, Mass	Along highway
Framingham, Mass	Along highway cloverleaf, 4 separate farms

* ***Hopkinton has zones earmarked for this type of use:***

The majority of Hopkinton is zoned residential. The primary exception to this is the area directly along I-95. Hopkinton's Comprehensive Plan lists one of its Economic Development goals as to "create opportunities for new office, commercial, industrial and mixed uses at Exits 1 and 2 off of I-95 as well as in existing village areas." These areas near Exits 1 and 2 are the areas designated in the Comprehensive Plan for commercial and industrial growth.

* ***Any other municipality surveyed has restrictions regarding placement.***

No town could be found which lists large scale solar arrays as a by-right use within a residential zone. If mentioned, solar arrays are intended for industrial or commercial settings.

The Towns of Dartmouth and Cumberland, RI (among others) have enacted clear zoning codes specific to the installation of solar arrays. An array the size of the proposed array is designated for construction within commercial and industrial zones in both communities.

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Dartmouth, Massachusetts, which is a leader in total amount of solar arrays, has a restrictive zoning code which restricts placement of large arrays in residential districts.

The State of Massachusetts has issued suggested guidelines intended for municipalities for solar arrays. The guidelines clearly state a preference for inclusion in industrial and commercial zones.

Value analysis

My past studies for various solar related assignments have shown that, in general, solar photovoltaic arrays do have advantages. They are quiet, do not produce significant glare, are efficient, do not generate the dangers which one might find from the noise generation and the blades of a wind tower and require very low maintenance. Properly sited, these arrays can be of great benefit. However, in this report, we have already addressed factors which can generate notable negative impact at this site.

In this case, the solar arrays will have a direct, visual impact on surrounding properties. The full size of the solar installation will likely not be fully buffered from the residential uses in the area. Although the town council has required a 12-foot earthen berm to block the view of the solar array from the adjacent road, it is unlikely that this is high enough to block the view from neighboring properties' second-story windows. Additionally, the berm is not required to surround the entirety of the property. Therefore, it will likely not be possible to fully buffer the array. In fact, since the proposed berm is not a normally occurring feature in a residential neighborhood, it will raise the question as to what it shields, regardless of any overplanting, and the buffer itself will likely indicate some industrial/commercial activity. This generally is viewed as being somewhat negative by potential buyers of residential properties.

For the most part, most of the larger photovoltaic arrays in the state, intended for similar municipal applications, are located in industrially or commercially zoned sites, intended to have very little possibility for impact to any residential properties.

There are some sites, such as the Middletown Aquidneck Corporate Park, where a solar voltaic facility abuts residential zones. However, those residential neighbors previously abutted an existing industrial/commercial zone. In general, the solar arrays are situated a distance from any residential uses. At the same time, if visible, they are compatible with the other industrial uses at site, so do not increase impact already felt.

Thus, based on the factors discussed earlier in the report, we feel that negative impact to residential properties in the area is unavoidable. We can state with assurance that there will be a diminution of value to surrounding properties.

2. Impact on quality of life in community as a whole

As previously stated, the direct, visual impact of the solar array is not the only factor that will affect property values. A broader impact is the array's potentially detrimental influence on quality of life in the Hopkinton community. This is due to the potential that this particular use will impact the character of a given community. A small, rural community with few existing industrial properties would likely be impacted by the introduction of a large, utility scale solar array, especially compared with a more urban community. This is not only because of the addition of an industrial-looking use in a rural area, but also because the project requires removing forested land in order to build the solar arrays, which is an active detriment to the natural landscape.

Quality of Life and Property Values

Quality of life in a community is directly correlated to property values. Myriad factors contribute to the desirability of living in a certain community. These factors will vary from one community to the next. Taken together, these are the factors that create the community's character on the whole. Community character will help determine how eager new residents will feel to move into a community and how inclined existing residents will be to remain. This will dictate demand for property, and consequently, property values in a given community.

Various studies have been done to explore the connection between quality of life in a community and its property values. For example, in his article, "Place Value: Place Quality and its Impact on Health, Social, Economic, and Environmental Outcomes," Matthew Carmona considers a large number of studies relating to how "place value" relates to the health of a community, as measured by physical health and personal happiness of its residents, as well as the strength of the economy and property values. He concludes that "better place quality adds value economically, socially, and with regard to health and environmental outcomes." Additionally, "value of different types flows from the quality of place, and feeds into a virtuous loop in which quality dictates value and value dictates quality." (*Journal of Urban Design*, Vol. 24 Issue 1, 12 June 2018. Available at: <https://www.tandfonline.com/doi/full/10.1080/13574809.2018.1472523>).

While "place quality" is certainly difficult to quantify, it is nonetheless inextricably tied to a community's property values. Any consideration of property values in light of a project as large as the one proposed must take into account the project's impact on the community's quality of life on a whole.

To consider quality of life factors in the town of Hopkinton, specifically, we look to the Comprehensive Community Plan for guidance.

Hopkinton's Comprehensive Community Plan

Hopkinton is a rural community. Hopkinton's Comprehensive Community Plan makes very clear that the town's priority is to maintain the residential nature of the community. The community's rural character is discussed throughout the Plan, incorporated into almost every topic section. The comp plan clearly treats the natural environment and accompanying rural atmosphere as a desirable, defining characteristic of the Hopkinton community as a whole.

The Comprehensive Plan's introduction describes that rural character as the community's primary asset for residents and for potential visitors:

...residents are strongly in favor of maintaining the rural character of Hopkinton. This reason, followed by scenic beauty, was identified as the primary reason why residents chose to live in Hopkinton. It is also a major factor in drawing visitors to the town's natural areas for recreation, such as camping, fishing, and hiking. The Town should adhere to resident support for continuing actions to protect open spaces, local rivers and watersheds.

The introduction further provides that:

New development and redevelopment should adhere to design standards that maintain the small town, rural character of Hopkinton.

This focus on maintaining rural character is then reflected in the Comprehensive Plan's goals, in particular several that are listed below:

Recreation, Conservation, and Open Space

Goal Con 2: To promote conservation of Hopkinton's major natural features and of its traditional rural character.

Policy Con 7: Concentrate major development and community facilities in the established villages within the environmental limitations of these areas...

Natural and Cultural Resources

Goal NR 1: To preserve, conserve, and protect the significant natural resources of Hopkinton as an endowment for the future of the town.

Circulation

“[residents] expressed an interest in developing a trail system that connects the Town's open spaces...”

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Objective C5: Preserve the rural character of scenic roads.

Economic Development

Introduction: “it is important for the Town to create a balance between new development for economic purposes and protecting the natural environment and historic and cultural resources. This means new industries must be compatible both environmentally and physically with the rural character of Hopkinton.”

While economic development is desirable, the Comprehensive Plan makes clear that development should be concentrated in specific areas:

Objective ED 2: Create opportunities for new office, commercial, industrial, and mixed uses at Exits 1 and 2 off I-95 as well as in existing village areas.

Objective ED 3: Target specific types of business based on Hopkinton’s quality of life and locational advantages, balanced with business requirements and impacts to the environment.

Goal ED 2: Expand and maintain the local tourism industry, including ecotourism.

Goal ED 3: To grow local agricultural operations.

Housing

Goal H 1: Hopkinton will be characterized by safe, secure, and attractive residential neighborhoods.

Objective H1: Promote controlled residential growth that serves the needs of the community while preserving Hopkinton’s environmental and historic assets and rural quality.

Policy H1: Screen new large-scale development for immediate as well as indirect environmental impacts.

Objective H4: Protect the integrity and character of Hopkinton’s residential villages.

Policy H2: Promote creative land planning for new large-scale residential development.

Recommendation 5: Use land controls, such as PUD and cluster development, to encourage creative land planning concepts that reduce development costs while preserving open space and environmentally sensitive areas not otherwise protected by local, state, and federal law.

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198 UNION STREET, PORTSMOUTH, RHODE ISLAND 02871 (401) 662-1543

Land Use

Introduction: “In Hopkinton, residents value rural character. Protecting open spaces and conserving natural landscapes help to maintain that character. Community growth is unavoidable, but it must be managed to preserve rural character, protect the taxpayers, and enhance the natural and built environments of the town.”

Value Analysis

As is made clear in Hopkinton’s Comprehensive Plan, quality of life for Hopkinton residents is dependent on maintenance of the Town’s primary asset, its natural environmental and rural character. The proposed solar farm would undoubtedly have a negative impact on both the town’s existing natural resources and its rural character. The proposal involves cutting down a large swath of trees within an unfragmented forest in order to put up thousands of solar panels on the 169-acre parcel. This is an immediate detriment to the scenic beauty of the natural environment. Although the plan anticipates reforestation in 30 years, that length of time is significant in terms of property turnover. Importantly, in addition, Linda Steere’s environmental impact findings clearly show long-ranging negative impacts on the natural environment that cannot be adequately mitigated. This predicts permanent future harm to the natural environment of Hopkinton.

Not only does the project present a detriment to the existing community character, but it adds very little in its place. The solar array is built for the profit of the developer; this is not power to be provided for the public good in Hopkinton. This use will likely generate few, if any, jobs for local residents. It will not entice recreational visitors to the area. And aside from a modest increase in tax revenue, the community as a whole will not gain anything from this project.

Overall, this project can only be seen to have a long-term negative impact on quality of life in the community. This would make the community a less desirable place to visit or live and will therefore cause an overall diminution in property value.

Conclusions:

Within the development of such an opinion of value impact, we look for as much specific sales data as are available. This allows us to draw well supported inferences, applicable to the assignment by making comparisons.

Occasionally, we find that such data cannot be readily identified. In terms of solar installations in previously non-impacted neighborhoods, we find such a situation. Until recently, we have found a paucity of data regarding negative impact within residential settings, since every solar array identified was not in a residential area, unless it was at a site in which a more intrusive negative use had been first located, or because the projects were too new to measure the impact.

JAMES A. HOULE & ASSOCIATES
198 UNION STREET, PORTSMOUTH, RHODE ISLAND 02871 (401) 662-1543

The research to identify such sites included extensive reviews of the web sites of many companies specializing in solar farm development, searches for individual solar farms, assessing offices of several towns known to have multiple solar farms, RI Office of Energy Resources, the RI PUC, studies addressing any solar farm impact to residential, etc. Data identified from within those sources which dealt with quantifiable impact to residential properties was insufficient to support a final opinion, pro or con.

However, very recently, Professor Corey Lang of the University of Rhode Island addressed the concept of negative impact to value to properties within one mile of a utility-level installation of a solar array. In a hedonic study completed in September 2020, he identifies that direct adverse impact to property values. See the full study here: https://www.heartland.org/template-assets/documents/publications/University_of_Rhode_Island_Property_Value_Impacts_Of_Solar.pdf

His conclusions were that within 1 mile of a large solar array, property values were shown to decrease an average of 1.7% and that within 0.1 miles, that impact increases to 7%. Clearly, there is a direct connection between the siting of a solar array and values.

There are 64 residential abutters located within 200 feet of the site of the proposed Skunk Hill solar project. All of these properties – and many more – fall within the 1/10 of a mile radius (528 feet) identified by Professor Lang as showing an *average* negative decline in value of 7%. This amounts to an *average* decline in value of \$21,000 for a \$300,000 home, with some individual homes incurring greater (or lesser) losses.

A new article reporting this study can be linked here: <https://www.uri.edu/news/2020/09/uri-researcher-housing-prices-decline-within-mile-of-solar-energy-arrays/>

Quoting from that news article:

“The biggest issue of contention between residents and solar developers is siting, according to Lang. The easiest and cheapest locations for installing solar arrays are on farmland and forested properties, and yet those are areas particularly prized by residents, who would prefer that the installations take place on previously developed properties.”

This statement dovetails exactly with our own findings regarding the importance of siting on previously developed land, not land yet unexposed to development. We have discussed this at length earlier in this analysis.

Since Professor Lang is not a certified appraiser, we prefer to strongly consider and weigh his findings, but not rely solely on his study for our final conclusions

But we are aware from our own in-depth research that there are three factors which strongly support the concept of negative impact:

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First, we see the vast majority of other solar arrays already installed are not in a residential setting which would be seen as similar or equal to the proposed site. Our studies and research were not limited or selective in any way. As many sites which could be found were studied as to residential placement. Any and all identified were in the low impact settings listed at the start of this report. It is clear that in practice, residential settings are avoided.

Second, we find that any municipality either directly, or indirectly, limits the placement within a residential zone. The state of Massachusetts and the Rhode Island Department of Environmental Manager solar siting guidelines both recommend that cities and towns should favor commercial and industrial zones for this use.

Third, we can rely upon overall appraisal experience, coupled with known studies relating to other items of impact, from which to draw our conclusions.

Based upon the data gathered and the careful analysis thereof, this appraiser has arrived at a final opinion that the subject proposal will cause diminution of value in surrounding properties in Hopkinton.

The depth of discussion contained in the report is specific to the needs of the client. Supporting documentation concerning the data, reasoning and analyses is retained in the appraiser's file. The appraiser is not responsible for unauthorized use of this report.

The analysis and conclusions within this letter are based upon review of the proposed solar panel array, including any proposed buffering between the array and the subject properties, field research and review of publicly available data collected by the appraiser. This report has been prepared in accordance with the Uniform Standards of Professional Appraisal Practice and is intended to comply with the reporting requirements set forth in Standards Rule 2-2(b) for a restricted use appraisal report.

Respectfully submitted,



James A. Houle
Certified General Appraiser
Certification #: CGA.0A00769
houleappr@gmail.com

JAMES A. HOULE & ASSOCIATES
198 UNION STREET, PORTSMOUTH, RHODE ISLAND 02871 (401) 662-1543

JAMES HOULE & ASSOCIATES
198 Union Street
Portsmouth, Rhode Island 02871

Voice: 401- 662-1543

Email: houleappr@gmail.com

Web: www.houleappr.com

QUALIFICATIONS OF APPRAISER

JAMES A. HOULE

LICENSING:

Rhode Island Appraisal Certification: #A00769 G

Rhode Island Real Estate Broker: #B09805

BUSINESS EXPERIENCE:

James Houle & Associates, Portsmouth, RI	1981- Present
Real Estate Appraisal, Consulting & Brokerage Services	
Deputy Tax Assessor, City of Newport, RI	1990- 1998
Appraisal and Mass Assessment Services	
Gold Star Group, Middletown, RI	1988-1989
Real Estate Education and Franchise Development	
Atlantic Properties, Middletown, RI	1985-1988
Principal Broker	
L.H. Houle Realty, Stafford Springs, Conn.	1975-1983
Consulting Broker	
Better Homes Realty, Middletown, RI	1978-1981
Principal Broker	
Heritage Realty, Newport, RI	1975-1978
Associate Broker	
Kennan Associates, Cumberland, RI	1973-1975
Associate Broker	

PROFESSIONAL QUALIFICATIONS AND RELATED BOARDS:

ACTIVE:

Licensed Real Estate Broker, Rhode Island

Certified Real Estate Appraiser, Rhode Island

Approved by State of Rhode Island, Office of Municipal Affairs, to perform city- wide mass appraisals and revaluations, as required by Rhode Island law

Board of Realtors, (Officer of Newport County Board, 1975)

JAMES A. HOULE & ASSOCIATES
198 UNION STREET, PORTSMOUTH, RHODE ISLAND 02871 (401) 662-1543

RELATED EDUCATION:

BA, Clark University, Worcester, Mass. 1973

Society of Real Estate Appraisers, course #101 Introduction to Appraisal
Society of Real Estate Appraisers, course #102 Small Income Property Appraisal
R.I. Tax Assessor's Administrative Course
Graduate Realtor Institute, Board of Realtors
Uniform Standards of Professional Practice, University of Rhode Island
Income Approach to Property Valuation, University of Rhode Island
Practical Application of Income Approach to Value, University of Rhode Island

Seminars:

Impact of Environmental Issues in Appraisals, RI Board of Realtors
Rhode Island Tax Law, NLI Institute
Performing an In House Revaluation, International Order of Assessing Officers
Lead Issues in Real Estate, RI Board of Realtors
Tax Issues in Real Estate, RI Board of Realtors
Appraiser as Expert Witness, RI Board of Realtors
Appraising FHA Today, McKissock
Report Writing, MBREA
Oddball Properties, McKissock
Environmental Issues for Appraisers, McKissock
The Cost Approach, McKissock
History of Zoning, Appraisal Institute

Seminars as Approved Instructor:

Real Estate Tax Assessment: How to Judge its Equity
Real Estate Financing: Conventional and Creative

APPRAISAL EXPERIENCE:

Active since 1976, performing appraisals of single and multi family housing and commercial/ industrial properties.
Experience in appraising impacted/ contaminated properties
Experience in appraising specialty/ partial interests
Experience in appraising water related utilities
Accepted as expert in Rhode Island Family Court
Accepted as expert in Rhode Island Superior Court
Accepted as expert in Rhode Island Bankruptcy Court
Accepted as expert before several Rhode Island community Boards of Tax Appeals
Accepted as expert before several Rhode Island Zoning Boards of Appeal

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SIGNIFICANT CLIENTS

Ford Motor Company
NYNEX (Bell Atlantic)
Stone Bridge Water District, Tiverton, RI
Church Community Housing Corporation, Newport, RI
City of New Shoreham, Rhode Island, Assessor's Office
City of Swampscott, Massachusetts, Assessor's Office
City of Newport, Rhode Island, Assessor's Office
City of Newport, Rhode Island Planning Office
City of Newport, Rhode Island, Public Utilities Department
Twin River Gaming Facility, Lincoln, RI
Appraisal Resource, East Greenwich, RI
National Grid

