



Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

PA State Historic Preservation Office (PA SHPO)

Guidelines for Projects with Potential Visual Effects

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Guidelines for Projects with Potential Visual Effects in Pennsylvania

NOTE: This document was updated in July 2021 to align with how the PA SHPO is conducting consultation using PA-SHARE.

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Guidelines for Projects with Potential Visual Effects in Pennsylvania

Introduction

The Pennsylvania State Historic Preservation Office (PA SHPO) has developed guidance for the identification and assessment of effects of proposed transmission towers, cell towers, wind turbines, highways, solar farms, and other new construction on historic buildings, structures, and landscapes.

Under Section 106 and the Pennsylvania History Code, it is the role of our office to provide comments on the effects a project may have on historic properties. Some effects, such as demolition of a historic property or disturbance of an archaeological site, can be easily evaluated and determined to be adverse. However, assessing the impact of visual changes is often more subjective and may require more in-depth evaluation and discussion.

The purpose of this document is to outline the process necessary for the identification of those resources where the introduction of new visual elements would diminish integrity, thereby significance and a property's National Register eligibility. Guidelines for the assessment of adverse visual effects are also included.

Avoidance of adverse visual effects on historic properties is the recommended course of action for projects. If adverse effects cannot be avoided, then it is necessary to work to minimize adverse visual effects through changes to the project's location, scale, or design. If the adverse visual effects cannot be avoided or minimized, then it may be necessary to mitigate to compensate for the loss of integrity.

Initiation of Consultation with the PA SHPO

Consultation on the project begins with an Environmental Review submission to the PA SHPO using PA-SHARE, the SHPO's online system for consultation.

More information on how to submit a project in PA-SHARE is found on the [Environmental Review website](#).

Identification of Historic Properties

This step of the review process begins with field work (survey) and background research to delineate the refined Area of Potential Effect (APE) and identify resources previously evaluated for National Register eligibility as well as those that are more than 45 years of age and not previously evaluated for National Register eligibility within the APE. A survey proposal and refined APE will then be submitted in PA-SHARE.

PA SHPO above ground review staff will respond to the Environmental Review initial submission in PA-SHARE requesting a survey proposal to outline the methodology for the Identification of Historic Properties step and the refined APE, as discussed below. The survey proposal and refined APE should be developed by cultural resources staff that meet the Secretary of the Interior's Professional Qualifications for Architectural History or History. The cultural resource staff person will need to be included as a contact on the Environmental Review project in PA-SHARE.

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Integrity and Significance

Integrity is critical to the ability of a property to convey its historic significance. Therefore, when developing a survey, properties in the APE should be considered in light of the criteria for significance and aspects of integrity for which they are significant. Evaluation of whether the introduction of a new feature will adversely affect a property's aspects of integrity is critical.

Questions to be asked include:

- Is setting a character defining feature of the resource?
- Will the project introduce new features into the setting?
- Will the project remove existing features from the setting?
- Would the introduction of new features or the removal of old features in the setting of this property affect its integrity? If so, which aspects?
- Would changes to the identified aspects of integrity affect the ability of the property to convey its significance?

In assessing visual effects for historic properties, the criteria for significance and the aspects of integrity provide a qualitative method for determining visual effects on historic properties.

For example, integrity of setting is critical to a farm's (farm complex and associated lands) ability to convey its agricultural significance. The introduction of a tower or a field of solar panels in the view shed of the farmstead or the removal of associated landscape features, such as tree lines, woodlots, or field patterns, could alter integrity of setting and feeling. However, if the setting of a property is not critical to understanding its significance (resources significant for architecture alone), then the introduction of a new visual feature or removal of surrounding features may not diminish the integrity of the property.

Delineation of APE

The delineation of the initial and refined APE should take into account the view shed or those areas from which the project may be visible. For example, a tower, solar farm, or power line may not be located on a property, but it could introduce new features into the landscape. This could potentially affect an adjacent historic property's relationship to its setting, which may include surrounding features as well as view sheds.

The initial APE will be provided as part of the Environmental Review initial submission in PA-SHARE.

The refined APE will be submitted in response to a More Information Survey Proposal Request in PA-SHARE. It is critical that the survey proposal include a well-developed project description with sufficient illustrations from multiple vantage points and a written description to justify the APE that is delineated. The APE should be refined based on site conditions, as outlined below.

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Initial APE

When delineating the initial APE, consider the extent of the potential visual effects these types of new construction would have on above ground resources, consulting the guidance provided below.

Transmission Lines

If the proposed line will be constructed within the *existing* right-of-way (ROW) and there are no new areas of vegetation proposed for clearing outside of the existing maintained ROW and there will be no substantial increase in tower height (<10% or 20' increase, whichever is greater), the initial APE will include those resources that are within and adjacent to the existing ROW.

If the proposed line will be constructed within the *existing* ROW and new areas of vegetation will be cleared outside the existing maintained ROW, the initial APE will consist of all resources that are within 0.5 miles on either side of the existing ROW.

If the proposed line will be constructed within a *new* ROW, the initial APE will consist of all resources that are within 0.5 miles on either side of the existing ROW.

Cell Towers

Two Nationwide Programmatic Agreements define the APE for visual effects for the construction of new cell towers and collocation of antennas on non-tower structures:

- Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission:
https://apps.fcc.gov/edocs_public/attachmatch/FCC-04-222A3.pdf
- Nationwide Programmatic Agreement for the Collocation of Wireless Antennas:
<http://wireless.fcc.gov/releases/da010691a.pdf>

For new cell tower construction:

- If the proposed new tower is 200 feet or less, the APE is 0.5 miles from the tower site.
- If the proposed new tower is more than 200 feet but less than 400 feet, the APE is 0.75 miles from the tower site.
- If the proposed new tower is more than 400 feet, the APE is 1.5 miles from the tower site.

For collocations on existing buildings or structures the APE is 250 feet from the tower location.

An alternative APE for densely built urban areas where towers may not be fully visible within the standard APE can be proposed as part of the Environmental Review initial submission and determined upon further discussion between the FCC applicant and the PA SHPO.

Wind Towers

The initial APE for wind turbine towers will be 5 miles in all directions from the tower site.

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Solar Farms

Solar farms are large-scale solar installations of ground-mounted panels installed across large areas as well as the associated infrastructure including transmission facilities, conduit, equipment pads, and substations.¹

The initial APE for solar farms will include the land area(s) where the solar farm and associated infrastructure is physically located and will extend within .25 mile in all directions from the outer edge of installation(s).

Refined APE

The initial APE can be refined through an examination of topography, changes in elevation and vegetative cover, and/or GIS based modeling, to include only the anticipated extent to which a project may be visible. The refined APE will be justified and documented in response to the More Information Survey Proposal Request in PA-SHARE.

The refined APE should be checked during the field survey. As vegetative cover can change, the report should include meta-data on the date of the vegetative cover information used for the GIS analysis.

1) Background Research

Once the APE has been established, it is necessary to conduct sufficient background research to determine the nature and extent of previously identified historic resources within the boundary. This includes an examination of Pennsylvania's online resource database, PA-SHARE

If the APE includes agricultural properties, the [Pennsylvania Agricultural Context](#) and its updates should be consulted to determine what types of properties can be anticipated within the APE. In addition, in those locations where the APE includes contiguous farmsteads and surrounding open space, current and historic aerials should be compared to determine if there is the potential for a historic agricultural district.

2) Identification/Reconnaissance Survey Proposal

a. Research Design

The survey proposal methodology provided in PA-SHARE should justify the APE boundary and outline the background research and field survey methods. Recommendations for future survey efforts should be based on the potential of the project to affect the significance or integrity of identified property types.

Typical examples of projects and resources that could be affected by associated changes in setting include:

- Historic farms with associated woodlots, hedgerows, stone walls, and/or field patterns that would be affected by clear cutting in order to provide a transmission line right of way.

¹ Solar farms are different than rooftop solar systems and commercial solar power systems that provide power to individual homes or businesses.

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- Rural historic districts that would be affected by the location of a transmission line through the associated landscape.
- A twentieth-century estate designed to take advantage of prominent view sheds of a ridge line on which a wind tower is proposed.
- A historic farm whose associated farmland would be impacted by the construction of a solar farm on the farmland and within the viewshed of the farm complex.

A table of properties in the APE should be included in the survey proposal submission in PA-SHARE. The table should include name of property, address, previous survey documentation (including determinations of eligibility), and surveyor recommendations for future survey work. If the resource is a farm, the surveyor recommendations section should note if it retains the basic registration requirements to qualify for eligibility as a farm or farmstead within the relevant agricultural region, as illustrated in the [Agricultural Property Assessment Worksheets](#).

b. Mapping and Illustrations

Mapping and illustrations should be included in the proposal submission in PA-SHARE. They should be of high quality and in color, of readable scale, and should include sources and dates. At a minimum, the following should be included to convey the project's potential to affect historic properties:

- Aerial mapping showing the location of the proposed above ground features including but not limited to proposed towers or solar arrays;
- Aerial mapping with all 45-year-old resources within the APE labeled, showing the tax parcel boundaries and relationship of the resources to the project;
- Photographs and mapping of previously identified resources including rural historic districts;
- Pictures of the APE showing viewsheds to and from National Register listed and eligible resources and those areas where changes in the landscape will occur (tree cutting, access roads, etc.); and
- Illustrations of the type, size, and scale of proposed above ground features.

The survey proposal submission will be reviewed by PA SHPO above ground review staff in PA-SHARE and must be approved prior to the actual survey or evaluation-level investigation.

Evaluation of Historic Properties

Identification Level Resource Documentation

Review staff will request a survey in PA-SHARE for those resources that require documentation and will recommend application of appropriate historic contexts.

For large scale surveys (10 or more resources), the PA SHPO's Surveyor application should be used to collect identification-level resource information. In PA-SHARE, as part of the survey request, identification-level

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documentation should be provided for those resources 45 years in age or older that would be potentially affected by the introduction of the project.

Evaluation-Level Resource Documentation

The PA SHPO above ground reviewer will examine the identification-level information provided in PA-SHARE. For those properties whose potential significance could be affected by the planned project, evaluation-level documentation will be requested via PA-SHARE to assess National Register eligibility.

The [Pennsylvania Agricultural Context](#) and its updates should be consulted in the assessment of eligibility of agricultural properties. Documentation should include a discussion of those landscape features or viewsheds that are critical to the ability of a property to convey its historic significance.

Assessment of Effect

For those resources identified as eligible for listing in the National Register, either previously or as part of the evaluation-level information submitted for the project, the impact of the project should be assessed. The assessment of effect documentation should be provided in PA-SHARE in response to a SHPO More Information Request for an effect report. If it is determined in consultation with PA SHPO that the proposed project will significantly and negatively impact a historic property, the agency should first propose measures for avoiding or minimizing the effect. Avoidance of adverse effects on historic properties is the recommended course of action for projects.

In assessing the potential effects of a project on historic properties, the criteria for significance and the aspects of integrity are factors that require evaluation. Assessments of effect should present the following information:

- Detailed project description.
- Property's historic significance. It is necessary to understand the property's historic significance and integrity in order to evaluate the project's effects on the property's eligibility for listing in the National Register of Historic Places. The focus of the analysis should be consideration of setting.
- Brief physical description of the property with a focus on natural topography, setting, and man-made or natural features that enhance a historic property's significance and integrity. This should also include a discussion of the nature and quality of the view to and from the historic property. For example, specific viewsheds that enable the property to convey its significance should be noted.
- Assessment of physical effects. This assessment should focus on how the project will affect those physical features that convey the significance and integrity of the historic property.
- Assessment of visual effects. The historic property's relationship to its setting, which may include surrounding features and open space, should be taken into account. This includes the view from the historic property as well as the view toward a historic property.



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Findings of effect should be justified through relevant illustrations, all of high quality and in color, with mapping at a scale that is readable and source data identified:

- For each identified historic property, aerial photographs showing the boundaries of the property, location of primary and secondary resources, and landscape features should be provided. The aerial photograph should also show the location and direction of ground photographs, a depiction of line of site and distance from the resource to the project. The date of the aerial photograph should be noted.
- Photographs should include views from the entire property, including secondary resources and historic landscape features, not just the primary resource. Panoramic photographs or photograph montages are especially useful to visual analysis.
- Plans of proposed and existing (if applicable) designs, including elevations.
- For those projects introducing new features or towers that will be substantially taller (>10% or 20' increase) within the view shed of a historic property, photo simulations of the new tower are warranted.

Minimization Measures

If visual effects to historic properties cannot be avoided, then it is necessary to consult with the PA SHPO and other consulting parties, as applicable, to minimize adverse effects through changes to the project's location, scale, or design. Recommended measures for minimizing visual effects are addressed below, including specific recommendations for cell towers, wind farms, power lines, and solar farms.²

General

- Site facilities outside of sensitive viewsheds or as far as possible from sensitive viewing locations as possible.
- Site facilities in previously developed landscapes.
- Use landforms, vegetation, or architectural screening.
- Color treat structures to reduce contrast with existing landscape.
- Preserve existing vegetation.
- Re-vegetate using native plants.

Cell Towers

- Use of camouflage and/or disguise strategies in highly sensitive viewsheds.

² The measures for minimizing visual effects outlined in this document are taken from the Visual Mitigation Measures Checklist included in the National Park Service's, [Guide to Evaluating Visual Impacts for Renewable Energy Projects](#). National Resource Report NPS/ARD/NRR-2014/836.

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- Collocation of towers on existing structures or buildings when the effect to historic properties will be lessened.

Wind Farms

- Consider topography when siting wind turbines.
- Cluster or group to break up overly long lines of turbines.

Power Lines

- Improvements to tower design to minimize visual effects.
- Removal of redundant poles.
- Burying lines underground.

Solar Farms

- Screening solar collectors to avoid off-site glare through the use of vegetative buffers and other less visually obtrusive means.
- Avoiding complete removal of vegetation around solar collectors.
- Locate and operate solar collectors to avoid off-site glare.
- Use color-treated solar collectors and support structures.

Adverse Visual Effects

In general, a project can be considered to have an adverse visual effect to a historic property if it diminishes the integrity of the resource to the point that it can no longer convey its historic significance. Examples of potential adverse effects include:

- Introduction of a visual element that is incompatible, out of scale, detracts, or is out of character with the setting of a property or district.
- Elimination of open space or a scenic view that is critical to the ability of a property to convey its historic significance.
- Elimination of a sufficient number of small-scale features (fence rows, tree lines, field patterns, etc.) that a property can no longer convey its historic use and significance.
- Blocking or intruding on a scenic view or blocking the view from one historic property to another.

If adverse effects cannot be avoided or minimized, then it may be necessary to mitigate to compensate for the loss of integrity, also in consultation with the PA SHPO and other consulting parties.

Projects subject to Section 106 of the NHPA review require execution of a Memorandum of Agreement by the Federal agency, PA SHPO, the project applicant, and any consulting parties in order to address the adverse effect of the project.