

Portland, Maine
NOISE-CON 2001
2001 October 29-31

PLANNING TO AVOID LAND USE CONFLICTS AND POTENTIAL NOISE PROBLEMS

James D. Barnes and Jeffrey L. Fullerton

Acentech Incorporated
33 Moulton Street, Cambridge, MA 02138 USA

INTRODUCTION

Improved planning will not eliminate conflicts inherent to industrial development projects. However with improved planning, all parties can clearly anticipate, and potentially reduce the number and extent of the conflicts that relate directly to noise. This paper reviews historical calls for noise control planning; discusses potential conflicts on industrial projects; presents some of the authors' experiences on projects where better planning would have been helpful and projects where it has been quite useful; and suggests that acoustical consultants encourage better planning and communication by all parties.

HISTORICAL CALLS FOR PLANNING

The National Environmental Policy Act of 1969 (NEPA) and similar state statutes and administrative orders require environmental impact studies for projects that may significantly affect the human environment [1]. The original NEPA pertains to federal government-involved projects, which typically include road, rail, and air transportation systems, but not private industry. State statutes and administrative orders that followed the NEPA also address transportation projects, but require environmental impact studies on major private industry projects, such as power plants, which are subject to governmental review. Federal agencies that oversee transportation projects have adopted design criteria that balance what may be desirable with what may be technologically and economically feasible, even though lower noise levels may indeed be beneficial to the community [2]. Our personal belief is that the noise requirements currently imposed on private industry are typically more stringent than the design criteria employed for public transportation projects. This situation indicates a strong need to plan for sensible and realistic private industrial development as well as for public transportation projects.

In his distinguished lecture ten years ago at Noise-Con 91, I. L. Ver advanced the idea of government, industry, and the research community developing a long-range national noise control policy [3]. One of the five high priority policy goals listed in the lecture was "generation of improved information on noise aspects of city planning and zoning issues." The lecture also noted that "an adversarial spirit results in diverting available resources from helpful research to unproductive use." The fact that the Noise-Con 2001 theme is "Noise and Planning" implies that although progress may have been made in this area, continued improvements in planning are warranted to address community noise.

POTENTIAL CONFLICTS ON PROJECTS

A multitude of groups may be interested parties to a new industrial project. It is not uncommon for the following groups to be involved during the permitting phase of a major US project:

Industry

- Owner
- Developer
- Unions (construction, operation)
- Related business community

Government

- Local/County/Regional (zoning, development/planning, building, environmental/health)
- State (environmental, siting)
- Federal (FERC, EPA, National Park Service, Army Corps of Engineers)

Community

- Abutting community (i.e., neighbors)
- General local community (removed from site)
- Environmental/conservation groups

The above parties, and even subgroups within these parties, typically represent different views and priorities and their various interests will strongly influence the project's perceived impact and value during its permitting phase.

Groups that focus on regional economic activity, including job and revenue creation, will likely expect and tolerate, or even encourage, development of a new site for an industrial project. Groups that focus on the environment typically seek to minimize the adverse effects of a project, and actively seek significant commitments and expenditures from the private developer/owner for mitigation treatments. The two parties most directly affected by a project, the neighboring residents and the project's developers and owners, deserve an open permitting process that fairly evaluates and balances the project's economic impact with the community's expectations for the region and the specific site. A new industrial project may be proposed for one of the following types of sites:

“Greenfield” Sites

- Undeveloped, not zoned or agricultural
- Undeveloped, zoned for future industry (typically light, not heavy industry)

Existing Industrial Sites

- Developing industrial park
- Mature industrial park
- Historic industrial site

Conflicts in a community's expectations can occur for each type of site; however, the strongest conflicts usually occur over the undeveloped “greenfield” (i.e., virgin) sites, as one project has the potential to alter irreversibly the character and future of the area. Certain groups may prefer maintaining rural activities, while others, prefer attracting residential, commercial, or industrial development. The authors have also witnessed conflicts that occur in urban areas where industrial land is being reclaimed for residential use, and the new residents expect or wish the existing industry to leave. The changes in land use cause conflict; therefore, communities must plan for these land use changes in order to fulfill their needs and goals while minimizing conflicts. The following section presents several examples where the planning failures

contributed to community noise problems or added excessive time and expense to the project permitting process.

PROJECTS IN NEED OF BETTER PLANNING

Trucking Facility. The town had planned for and encouraged development of an industrial park at a location with nearby highway access. This park location also abutted a residential area, which contained a local road with little evening and nighttime traffic; there were no other significant environmental noise sources, except the distant highway. Although the park was designated for light industry and hosted mostly distributor warehouse and light manufacturing operations, a refrigerated trucking (i.e., reefers) and warehouse operation was built on the outer perimeter of the park within direct line-of-sight of the adjacent residences. In addition to the sounds associated with truck loading and unloading activities in the late evening and early morning hours, the residences also heard the truck refrigeration units continuously operate since the trucks are stored next to the warehouse all night. The industrial park had significant land area, and with better planning, this operation and all similar nighttime operations could have located well away from the residences and benefited from shielding by other buildings in the park.

Proposed Power Facility in Industrial Park. Communities typically consider all stand-alone power facilities as heavy industry, although it is common for universities, hospitals, and other institutions to incorporate significant electric power generation within their central utility plants. The perception that power facilities are heavy industry negatively affects their acceptance by many communities, even communities that already have major highways, rail lines, landfills, and heavy and light industries, and that are seeking additional industrial development. A power facility applicant offered to provide significant noise control treatments to enable the plant sound to be well below State required levels, blend in with the existing soundscape, and not be a source of community noise complaints. After numerous local hearings that covered noise and all other project issues, the local authorities denied a permit (for power generation facility in an industrial park zoned for light industry) based on their opinion that the plant was not appropriate for the area. The authors understand that the decision was not based on technical concerns, such as potential adverse noise impacts, but primarily on concerns about future land values in the overall community. The authors agree that it's a community's right to plan its future. However to be fair, the plan should clearly follow the community's expectations for land use and include consistent zoning and sensible noise regulations that can guide project proponents during the early stages of their proposals. Lacking a clear plan, representatives and developers risk significant time and expense on project proposals that will not prove acceptable to the community. Several power projects that considered and addressed community expectations successfully are discussed in the next section.

PROJECTS EXHIBITING GOOD PLANNING

Proposed Power Facility in Town Industrial Park. A baseload cogeneration power plant has been permitted and is now under construction in a planned industrial park. Since a residential area is located in the vicinity of the industrial park, the project proponent incorporated significant noise mitigation measures to limit plant noise emissions. Acceptance of this plant by the overall community was based on several factors, including the town's clear plans for an industrial park development and desire for a cogeneration plant to serve the park's tenants; the town's expectation of overall development in the area, including major expansion of a nearby airport; and the strong endorsement of the project by a major environmental/conservation organization.

Although the soundscape outside the homes nearest to the industrial park will change with all of these developments, the community, through the town authorities, has planned for change through its zoning process.

Proposed Repowering and Expansion of Existing Plant. Following numerous meetings with community groups and government agencies and public hearings, the applicant received approval to repower and expand an existing power plant. Although the city did not encourage this project, it did remain neutral and objective as the project was being reviewed by various state agencies. The state and local noise requirements for the project are quite stringent and will necessitate substantial noise mitigation by the project developer. The public authorities believed that the project was appropriate for the site, and although several older industrial lots near the plant are being redeveloped into residential and commercial space, the stringent project noise requirements should adequately protect the community. The expectations of the community and the project proponents were clearly discussed and reviewed during the initial design and permitting phase of the project so that all parties understood each other's position.

SUMMARY

The authors' experiences have indicated that inadequate planning by a community can contribute to noise problems from industrial sources and can result in undue time and expense for project proponents, town officials, and other interested parties. We suggest that noise consultants look for opportunities to encourage better planning and communication among all parties. If a community adopts a plan that includes reasonable and consistent zoning and noise regulations reflective of the community's expectations, a project proponent will be able to focus its finite resources on addressing technical issues, such as noise, rather than on political and public relations efforts. To this end we recommend consultants seek to educate clients, including project developers, government agencies, and community groups, through clear reports and testimony that identify and display the value of clear planning by a community – planning that resolves or avoids conflicts in land use and expectations between industry and residences. And finally, consultants should think ahead about appropriate noise goals and regulations for industrial projects that balance a community's needs and expectations with the industry's technical and economic resources.

REFERENCES

1. C. M. Harris ed., *Handbook of Acoustical Measurements and Noise Control*, (McGraw-Hill, New York, 1991), pp. 54.1 – 54.21.
2. C. M. Harris ed., *Handbook of Noise Control*, (McGraw-Hill, New York, 1979), pp. 43-1 – 43-10.
3. "Proposal for a Long Range National Noise Control Policy Based on Cooperation among Government, Industry, and the Research Community," Ver, I. L., *Proceedings of Noise-Con 91*, pp. 51-58, July 1991.