

# Procedures For Evaluating Planned Development During The Noise Study Process

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The Federal Highway Administration's *Procedures for Abatement of Highway Traffic Noise and Construction Noise* requires that the New Jersey Department of Transportation (NJDOT) Bureau of Environmental Analysis (BEA) analyze expected noise impacts and abatement measures for undeveloped lands for which development is planned, designed, and programmed. To satisfy federal requirements to evaluate undeveloped land on which development is planned, while also minimizing disruptions in the roadway design process, a procedure was initiated to maintain thorough, early, and periodic coordination with affected municipalities during the noise study process. This procedure includes the identification of proposed residential developments during the preparation of the Final Noise Study (FNS) and before completion of roadway construction. Generally, early detection of proposed residential developments eliminates problems for NJDOT-Design Units and the NJDOT-BEA Noise Group caused by the recommendation of barriers for previously unknown housing developments after approval of the FNS. Detecting proposed residential developments late in the design study phase could possibly lead to delays in the approval of the FNS or to a significant redesign of the project.

The FHWA Federal Highway Program Manual, Volume 7, Chapter 7, Section 3 (FHPM 7-7-3) *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, requires that the New Jersey Department of Transportation (NJDOT) Bureau of Environmental Analysis (BEA) analyze expected noise impacts and abatement measures for undeveloped lands adjacent to proposed roadway improvements on which development is planned.

Specifically, FHPM 7-7-3 says the following:

"The traffic noise analysis shall include the following for each alternative under detailed study:

- 1) identification of existing activities, developed lands, and undeveloped lands for which development is planned, designed and programmed, which may be affected by noise from the highway
- 2) examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts."

The FHPM 7-7-3 also states:

"The plans and specifications will not be approved by the FHWA unless those noise abatement measures which are reasonable and feasible are incorporated into the plans and specifications to reduce or eliminate the noise impacts on existing activities, developed lands or undeveloped lands for which development is planned, designed and programmed."

This paper provides a detailed discussion of the need for New Jersey to implement the policy statement in FHPM 7-7-3 regarding impacts on undeveloped lands for which developments are "planned, designed and programmed." Also discussed are the procedures set forth to evaluate undeveloped lands adjacent to proposed roadway improvements on which development is planned. Finally, the effectiveness and limitations associated with the procedures will be examined.

## IMPLEMENTATION OF PROCEDURES TO EVALUATE UNDEVELOPED LAND DURING THE NOISE STUDY PROCESS

The procedures to evaluate undeveloped land during the noise study process were developed to maintain thorough, early, and periodic coordination with affected municipalities to identify proposed residential developments early in the noise study process. Generally, early detection of proposed residential developments eliminates problems for Design Units and the BEA Noise Group caused by the recommendation of barriers for previously unknown housing developments after the approval of the Final Noise Study (FNS). Detection of proposed residential developments late in the design study phase could possibly lead to a delay in the approval of the FNS or to a significant redesign of the project.

One such example of the detection of a proposed residential development late in the design process is West Park Estates in Ocean Township, Monmouth County, New Jersey. West Park Estates is a 495-unit townhouse development in which 75 units would be affected by the proposed extension of Rt. NJ 18. The Noise Group did not detect this proposed residential development until after a public meeting with Ocean Township was held in October 1986. The purpose of the public meeting was to recommend noise abatement to the mayor and council and request any necessary easements for developments previously detected. As a result of this late detection, submission of the FNS was delayed (1). The contract modification requesting the consultant to look at noise mitigation for West Park Estates, the preparation of the noise mitigation report, and the review by the BEA Noise Group all delayed the completion of the FNS by approximately 1 year.

Also related to the need for thorough, early and periodic coordination with affected municipalities is the dynamic of development presently occurring in New Jersey. This growth is exemplified by the increase in population and the number of building permits authorized between 1980 and 1986 (2, 3).

The State of New Jersey experienced a population increase of 254,989 persons (3.5 percent). This increase coincided with the authorization of 257,759 dwelling units during the same time period (see Figure 1).

An increase in the authorization of building permits is also apparent in municipalities where transportation improvements are proposed. The rapid development in these municipalities has prompted the BEA-Noise Group to investigate possible noise mitigation measures to reduce impacts resulting from these transportation improvement projects. A few municipalities undergoing rapid residential growth (authorized building permits) between 1980 and 1986 include: Mt. Laurel Township, Burlington County (+74.0 percent), Bernards Township, Somerset County (+68.0 percent), South Brunswick Township, Middlesex County (+55.0 percent) and Tinton Falls Borough, Monmouth County (+51.0 percent) (see Figure 1).

Growth in New Jersey can be attributed to a natural population increase, net positive migration, transformation from a predominantly blue-collar state to an office-employment, service-oriented, high-technology state, and an improved transportation network.

1. Natural population increase. Between 1980 and 1986 there was a net positive population increase (births exceeding deaths) of 196,000 persons.

2. Net positive migration. Spillover growth zones are encountered within New Jersey. The Meadowlands in the north of the state and the Cherry Hill area to the south share this characteristic because of the influence of New York and Philadelphia, respectively. They provide land, relatively lower tax rates, and most important, excellent highway access.

3. Transformation to an office-employment, service-oriented, high-technology state. New Jersey's population has shifted from a highly centralized industrial society to a dispersed, exurban post-industrial era.

4. Improved transportation network. These changes in New Jersey are largely the result of national highway development, and particularly, the development of circumferential highways (4). The rise of the regional highway system with major intersections creates a ring of industrial and commercial development in the metropolitan areas structured on the new high-

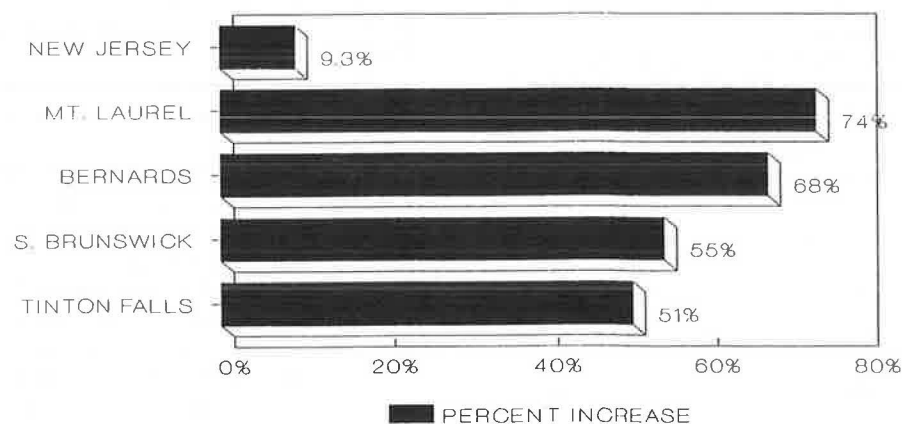
ways. Major highway development in New Jersey occurred late and is a direct cause of the state's lack of vitality in the 1970s. With the new matrix of transportation set in place, substantial growth in New Jersey is anticipated. This growth is expected to occur in various growth corridors throughout the state (5). Many of these parallel highway corridors include Rt.I-287 (Edison Township through Morristown); Rt.I-78 (from Berkeley Heights in Union County to Clinton Township in Hunterdon County); and Rt.I-80/280 Garden State Parkway nexus (from Parsippany-Troy Hills to Livingston and Saddle Brook).

#### MUNICIPAL LAND USE LAW OF NJ (MLUL) AND ITS RELATIONSHIP TO FHPM 7-7-3

The MLUL (Chapter 291, PL 1975) was the culmination of a more than decade-long effort to revise and streamline the unintegrated sections of law dealing with the various aspects of land use regulation—planning, zoning, and subdivision control in the State of New Jersey (6).

A few goals of the act are to

- Encourage municipal action to guide the appropriate use or development of all lands in this state, in a manner that will promote the public health, safety, morals, and general welfare,
- Ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county, and the state as a whole,
- Promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities, and regions and preservation of the environment,
- Promote the conservation of open space and valuable natural resources and prevent urban sprawl and degradation of the environment through improper use of land, and
- Encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land.



SOURCE: RESIDENTIAL BUILDING PERMITS

FIGURE 1 Growth in housing 1980–1986.

The MLUL has strengthened the role of municipal planning to ensure the prudent use of land and the protection of the environment. This law also provides municipal planning boards with the power to review and approve site plan or subdivision applications, or both.

Contained within the MLUL are the procedures for subdivision and site plan review and approval. A subdivision is the division of a lot, tract, or parcel of land into two or more lots, tracts, parcels, or other divisions of land for sale or development (e.g., residential single-family subdivisions containing individual lots). A site plan is a development of one or more lots (e.g., townhouse, apartment complexes, commercial, and industrial development).

The process involves three stages of approval, including: (a) Preapplication Sketch Plat-Concept Review, (b) Preliminary Plat Approval, and (c) Final Plat Approval. Below is a brief description of each stage of approval and any time limits associated with them.

### **Preapplication Sketch Plat Stage**

This is the initial plan for the development of a parcel of land. Although sketch plats are not specifically discussed in the act, many municipal planning boards will request them.

Notable information required for this stage includes:

1. Survey of the site on which the proposed development is proposed, with dimensions.
2. Significant horticultural or physical site characteristics, including streams, stands of trees, swampy or high water table areas, ravines, rocks, and so forth.
3. Location and use of existing structures on the site and on adjacent property within 200 ft of boundaries, with dimensions.
4. Existing and proposed vehicular and pedestrian circulation systems on the site including streets, parking areas, driveways, walks, and so on, with street names and dimensions.
5. Topography of the site (where slope of site is less than 5 percent use 2-ft contours, where greater use 10-ft intervals).

### **Preliminary Plat or Plan Stage (Site Plan or Major Subdivision, three or more lots)**

This is the first official stage of approval and contains more detailed information. Preliminary approval freezes the general terms and conditions for a 3-year period during which the applicant may file for final approval. The applicant may submit all or part of the preliminary plan for final approval within that time frame; however, an extension of up to 2 years may be granted.

Information required for this stage includes everything required at the preapplication stage plus information on all proposed setbacks.

### **Final Plat Approval (Site Plan or Major Subdivision)**

The final stage should almost be automatic, provided that the applicant has made the necessary changes required under pre-

liminary approval. No changes in zoning could occur for a period of 2 years after the date of final approval, as long as the applicant has recorded the plan within the time period provided in the local ordinance. An applicant may be granted a 1-year extension not to exceed three extensions prior to recording; or, as a condition of final plat approval, the planning board shall require the furnishing of a performance and maintenance guarantee for improvements, including streets, grading, paving, curbs, sidewalks, utilities, and so forth.

The final plat map should contain the following information: block and lot numbers, municipal boundary lines, natural and artificial watercourses, streams, shorelines, water boundaries and encroachment lines, monuments, name of map, municipality and county, date of survey, and so forth.

The MLUL does not address or regulate the events that occur following approval and recording of the final plat.

Two types of development approvals need to be considered:

1. **Site Plan.** The plan would include lot and buildings (e.g., apartments and some townhouse developments).
2. **Subdivision Plat.** If the subdivider is also the builder, the plan would include lots and buildings (e.g., single-family and some townhouse developments); if the subdivider is not the builder, the plan would show lots without buildings.

A development that is "planned, designed and programmed," as noted in FHPM 7-7-3, would appear to be equivalent to preliminary site plan/subdivision plat approval because a developer has expended much time and money in developing plans for this stage of municipal approval. Also, as stated previously, final plat approval is almost automatic pending resolution of preliminary plan review comments.

In some cases, however, the construction of houses may not occur immediately. In subdivisions with a residential cluster of less than 50 acres, or a conventional subdivision of less than 150 acres, no changes in zoning could occur for a 2-year period following final approval. Therefore, it is assumed that the developer would act to construct before the 2 years expire. However, on larger subdivisions, the municipality may grant rights longer than 2 years.

With regard to a subdivider who is not the builder, construction of homes may not occur for several years following final subdivision plat approval.

The BEA-Socioeconomic Group recently completed a survey to determine the typical time frame for a proposed development to advance from the preapplication sketch plat stage, through the preliminary site plan/subdivision approval stage to the final site plan/subdivision approval and then to construction. This survey was conducted for the 10 municipalities within the proposed Route NJ-92 corridor in central New Jersey (7). The Route NJ-92 project consists of constructing an approximately 13-mi-long interconnecting roadway link between US-206 north of Princeton and Route NJ-33 east of Hightstown. For the 10 municipalities surveyed, the average time for the development approval process to advance from the preapplication sketch plat approval to construction is 1 year (see Table 1). This time frame would be typical for a development with no unusual problems.

It is therefore critical to maintain close coordination with municipalities throughout the development of the FNS in order for developments receiving approvals to be addressed in the

TABLE 1 ROUTE NJ-92 CORRIDOR MUNICIPAL SURVEY: MUNICIPAL APPROVAL PROCESS

Municipality	Time from Preapplication to Construction
Cranbury Township	1 year
So. Brunswick Township	1 year
East Windsor Township	1 year
Franklin Township	1 year
Jamesburg Borough	2 months
Monroe Township	9–15 months
Plainsboro Township	8–10 months
West Windsor Township	8 months–1 year
Princeton Township	6–9 months
Montgomery Township	1 year

SOURCE: Municipal planning boards

FNS. A procedure needs to be developed to evaluate noise impacts on these developments.

### PROCEDURES TO EVALUATE NOISE IMPACTS ON DEVELOPMENTS THAT ARE PLANNED, DESIGNED AND PROGRAMMED

Concern over maintaining close coordination with municipalities arose during discussions between the BEA and the Design Units. These discussions focused on when to address noise impacts on undeveloped lands where development is planned, in order to minimize disruption in the design process. The concern of the Design Units is that new barriers might be recommended (because of new housing developments) after FNS approval, when the location and heights of noise barriers are known. These new developments cause problems for Design because they require modifications in design plans.

As a result of these discussions, a procedure was developed by the Noise Task Force (composed of Design and Environmental personnel) to alleviate such problems. The Noise Task Force proposed that the FNS be completed before Phase II of the design process and any noise barriers recommended in this study be included in the Phase II plans. (Phase II is the completion of graphical development of the 30 scale design plans.) This proposal assumes that BEA receives the critical cross-sections, plan sheets and profiles needed for the preparation of the FNS by this phase.

Assuming completion of the FNS by Phase II, Design has determined that an 18-month time frame is needed to advance the project through final design (Phases II, III and IV) and to submit Plans, Specifications and Estimates (PS&E) to FHWA for approval. It is thus possible that a residential development could go from the preapplication stage to construction within this 18-month time frame (based on BEA's survey, the approximate time frame to go from the preapplication stage to construction is 1 year).

A mechanism is needed to ensure that, during and at the completion of the FNS (Phase II), coordination with the municipalities regarding new developments continues periodically up to the PS&E stage.

Following discussions between NJDOT and FHWA, a procedure was developed for meeting the federal mandate to evaluate noise impacts on developments that are "planned, designed, and programmed," while minimizing disruptions in the design process. The FHWA concurred with the BEA's prior assessment

that preliminary site plan/subdivision approval would be equivalent to "planned, designed, and programmed" and that therefore those developments should be included in the proposed procedure (8).

The following procedure was proposed and implemented (9). Figure 2 also illustrates this process.

1. At the outset of the FNS, the BEA Socioeconomic Group will forward a letter to those municipalities affected by proposed highway improvement projects to determine which developments have received, or are about to receive, preliminary site plan/subdivision approval.

2. If a development receives such an approval and is affected by the proposed roadway improvement, the assumption would then be made that this development would go to construction within the next year (based on BEA's survey). This new development would then be evaluated on the basis of site plan/subdivision information available from the affected municipality, and the noise results and any barrier recommendations included in the FNS.

3. Just before the completion of the FNS, the BEA-Socioeconomic Group will check (via telephone call) with those municipalities to update the status of these and any new developments.

4. On completion of the FNS, a cover letter and a copy of the FNS would be sent to all municipalities affected by the proposed action. The FNS is sent to municipalities to inform them that future development located adjacent to the roadway may experience traffic noise if located within the areas delineated in the FNS.

The cover letter also indicates whether the use of abatement measures (noise barriers) would be cost-efficient and would effectively reduce noise. Finally, the cover letter requests that all municipalities affected by the proposed action exercise prudent planning regarding the approval of any new residential developments adjacent to the proposed improvements.

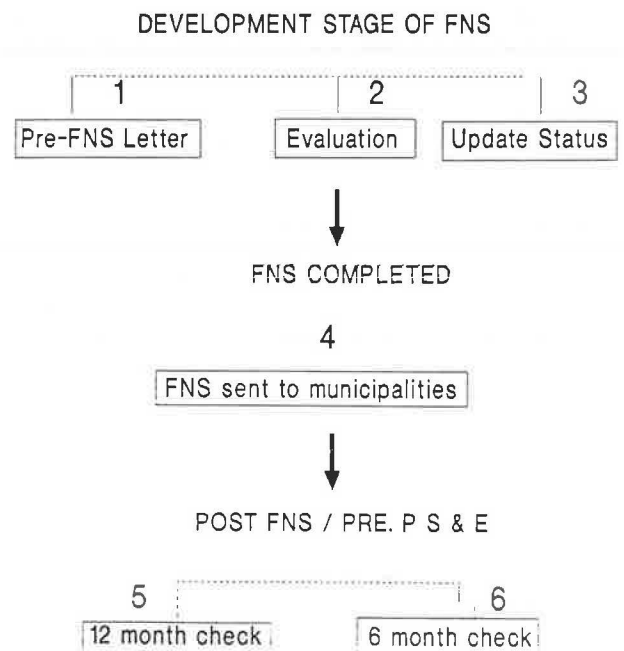


FIGURE 2 Procedures to evaluate planned developments.



These procedures are consistent with the goals of the Municipal Land Use Law "to encourage municipal action to guide the appropriate use or development of lands in this state, in a manner which will promote the public health, safety and general welfare." Municipalities, therefore, are given the responsibility to employ sound planning techniques through their subdivision and site plan review process. Approving residential developments adjacent to existing or proposed state highways without adequate buffers would not appear to be in the best interest of the public.

5. Twelve months before PS&E approval (approximately 6 months following FNS approval) the BEA-Socioeconomic Group would send another letter to the affected municipalities enquiring whether any developments have received preliminary or final site plan/subdivision approval. If such approval has been granted to a development, the BEA-Noise Group would begin a noise analysis, and any mitigation measures would have to be incorporated into the project plans before PS&E approval by FHWA.

6. A similar letter would be sent to the affected municipalities 6 months before PS&E; if needed, appropriate noise analysis and mitigation measures would need to be analyzed before PS&E approval. This 6-month check would be the final check by NJDOT on the status of proposed developments before PS&E approval by FHWA.

Throughout this period, extending from before the completion of the FNS to PS&E approval, the FHWA and the BEA-Noise Group would be kept updated with the information obtained from the affected municipalities through the use of the *Residential Development Check for Final Noise Studies Chart* prepared by the BEA-Socioeconomic Group (10) (see Figure 3.) This chart contains the status of all municipal correspondence regarding residential development checks for those projects requiring an FNS. It is updated monthly or as needed.

**EFFECTIVENESS AND LIMITATIONS ASSOCIATED WITH THE PROCEDURES TO EVALUATE NOISE IMPACTS ON DEVELOPMENTS**

Generally, the procedures implemented to detect proposed residential developments early in the design study phase have worked very well. The periodic checks with municipalities affected by proposed highway improvements have detected numerous developments, unknown previously to the NJDOT, that are in the early planning stages and that will require noise-mitigation assessments. It is this type of early detection that minimizes disruptions in the design process and prevents delays in and subsequent addendums to the FNS.

Limitations to implementing these procedures also exist, however. Many municipalities, for example, lack adequate staff and reply late or do not reply at all. Many municipal replies lack clear and concise information and do not contain all of the information requested, such as plans showing location of proposed buildings in relation to the proposed roadway improvements. Therefore, subsequent checks are required. Finally, it is often difficult to contact knowledgeable municipal officials when conducting periodic checks.

**A TYPICAL PROJECT**

PROJECT	LIMITS	MUNI./CO.
Rt. NJ 24 Sec. 9E, 10H	Rt. 1-287 to Columbia Tpk.	Hanover, Florham Pk. Morris Twp. Morris Co.
LAND USE	MILESTONES	PRE. FNS
2/87	BE - C FNS - 5/89 PH2 - C PH3 - 1/89 PH4 - 3/89	Notification 9/87 5/88 Replies Hanover 10/87, 5/88 Florham Pk. 12/87, 5/88 Morris 12/87, 5/88
POST FNS	PRE. P S & E	

**FIGURE 3 Residential check for final noise studies.**

**CONCLUSIONS**

This paper has addressed the issue, "How does the NJDOT satisfy the federal requirement to evaluate undeveloped land on which development is planned while also minimizing disruptions in the roadway design process?"

In addressing this question, the state's growth trends and land use powers were researched. New Jersey has undergone tremendous residential growth in certain areas, and a need existed to coordinate effectively with municipalities that have the power to approve development.

Also, discussions were held with involved FHWA and NJDOT personnel to arrive at a plan that would be compatible with both the federal program and NJDOT Design procedures. During these discussions it was determined that residential developments receiving preliminary site plan/subdivision approval fall within the federal mandate of "planned, designed and programmed" and therefore cannot be ignored in the noise study process.

The procedure for evaluating planned development during the noise study process is a workable and concise plan. It implements the federal requirement by maintaining close and continuous coordination with municipalities to track new developments. As a result, delays to the design process because of new noise wall analysis and design are minimized.

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