

**NOISE STUDY AND ANALYSIS
US 131
BIG RAPIDS NORTHERLY TO ASHTON**



MICHIGAN DEPARTMENT OF STATE HIGHWAYS

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US 131
BIG RAPIDS NORTHERLY TO ASHTON

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Research Laboratory Section
Testing and Research Division
Research Project 74 TI-215
Research Report No. R-922

Michigan State Highway and Transportation Commission
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Introduction

The section of proposed US 131 covered by this report extends from Big Rapids northerly to Ashton in northwestern Michigan, in western Mecosta and Osceola Counties. The project is expected to be opened to traffic in 1980. Figure 1 shows the generalized corridor location.

Traffic Data

The traffic data for the design year (1995) were selected from Transportation Survey and Analysis Report, T. A. R. 215, Supplement #2. Table 1 is a compilation of these data. Since vehicle speeds during the DHV were not available, peak hour speeds were used. Due to the low variability of traffic volumes, a single DHV was selected to characterize the entire length of the project.

TABLE 1
US 131 PREDICTED TRAFFIC DATA
FOR 1995 DESIGN YEAR
(Selected from T. A. R. 215; Supplement #2)

DHV (directional)	1700
Percent commercial at DHV	5
Passenger and commercial vehicle speeds	55

Geometric Data

Typical dimensions are shown in Figure 2.

Discussion

Land use categories in accordance with those of PPM 90-2 were determined for the areas along the route location. These determinations, in general, resulted from an examination of aerial photo mosaics found in Engineering Report No. 1847.

The majority of the route location area falls into land use category D, undeveloped land, with a few areas of category B, residential. There are also several oil and gas wells within the general route location area.

Ambient noise levels of 45 to 50 dbA are typical for rural settings which compose the entire area along the route location.

The L₁₀ noise levels were predicted for the design year (1995) by the method of MDSHT Research Report No. R-890, "Traffic Noise Level Predictor Computer Program." The L₁₀ levels at the R-O-W line and the distance from the center of the near lane (DN) at which the L₁₀ equals 70 dbA were calculated (Table 2).

TABLE 2
DESIGN NOISE LEVEL IDENTIFICATION
L₁₀ (dbA) NOISE LEVELS FOR DESIGN YEAR (1995) AT R-O-W
(Predictions from use of R-890)

Area Use	PPM 90-2 Design Level	L ₁₀ (dbA) (at R-O-W)	Distance (ft) to 70 dbA (DN)
Undeveloped Land	D(--)	72	188
Residential	B(70)	72	188

For the undeveloped land areas, the predicted design year noise level is 72 dbA at the R-O-W line. Although there is no specified design noise level for this land use category, the increase in the L₁₀ noise level would be about 22 dbA at the R-O-W line constituting a considerable impact. The local governmental units should be informed of the noise level for future land use planning.

The residential areas along the proposed route are at a sufficient distance from the R-O-W to ensure an L₁₀ noise level of 70 dbA or less. This is based upon the assumption that if Sub-Alternative 1-B is selected, then a property located on Grand Rd, Section 34, Lincoln Township, Osceola County would be purchased. This property includes several buildings and would no longer have an access to Grand Rd due to the R-O-W location.

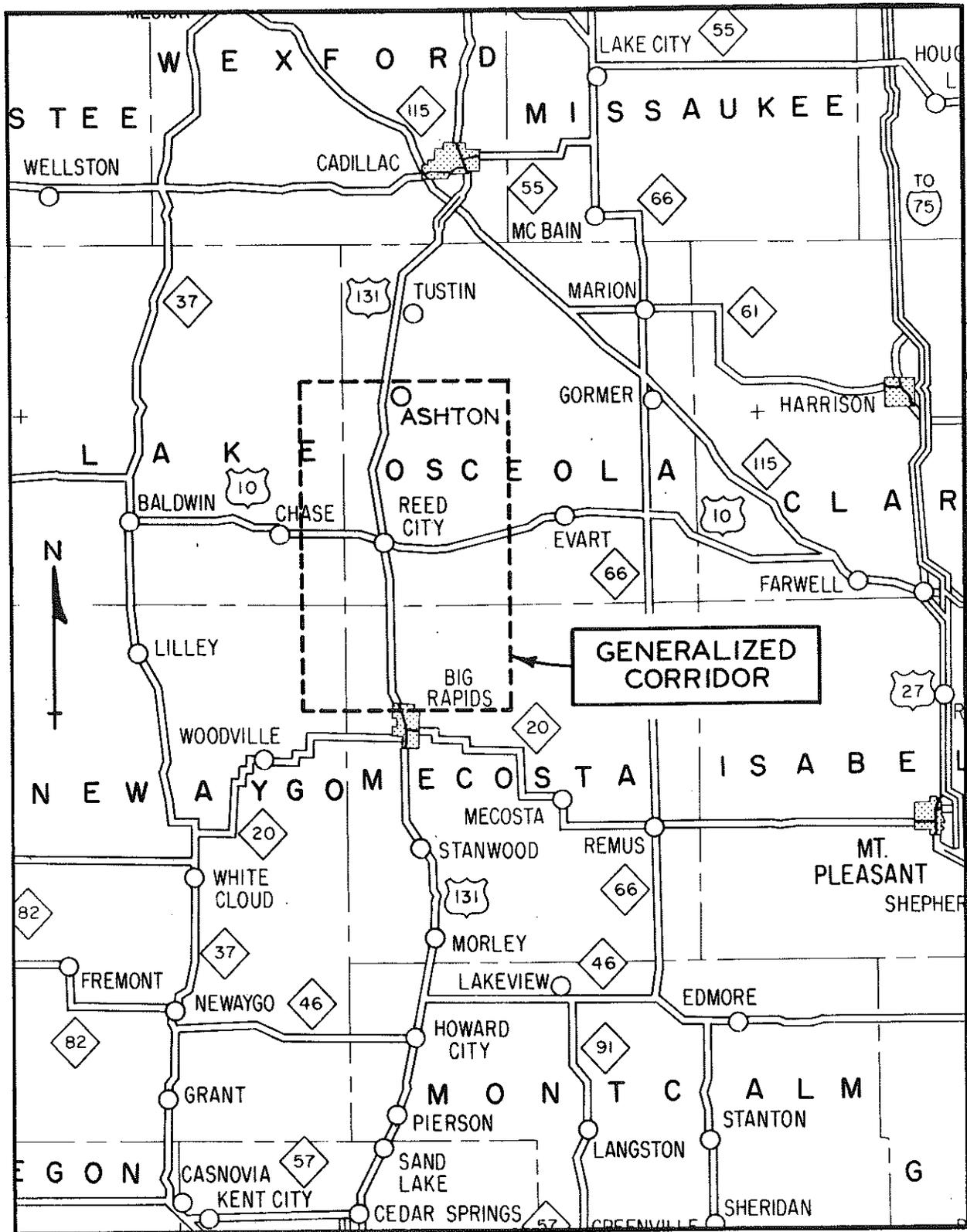


Figure 1. Generalized corridor location.

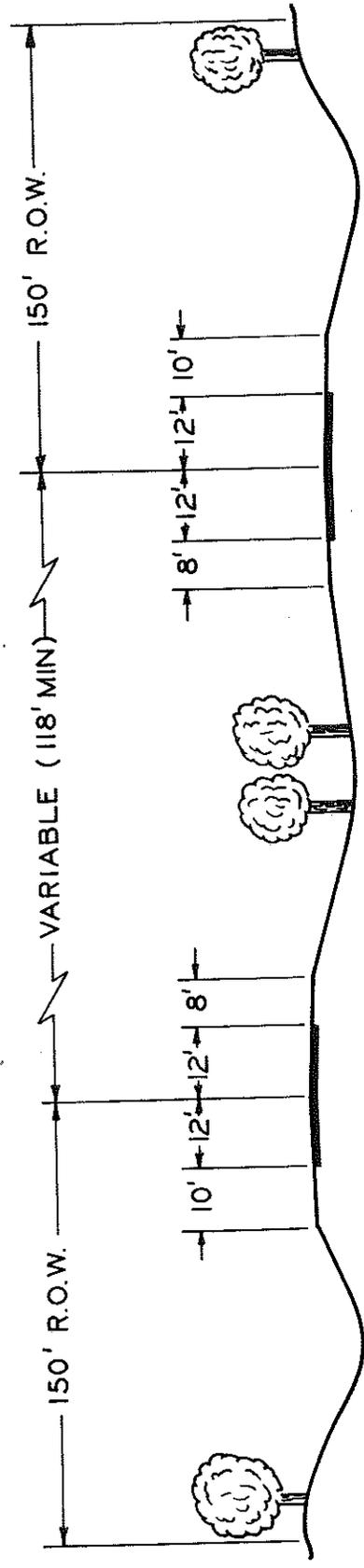


Figure 2. Typical geometric dimensions.