

**GUIDELINE OF USING TRAFFIC CLUSTER AND
MATERIAL CATALOG FOR PAVEMENT M-E
DESIGN IN NEW JERSEY**

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CENTER FOR ADVANCED INFRASTRUCTURE AND TRANSPORTATION (CAIT)

RUTGERS UNIVERSITY

1. **Select the road classification based on NJDOT information from the following link**
<http://www.state.nj.us/transportation/refdata/roadway/fcmaps.shtm>



STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
 Chris Christie, Governor | Kim Guadagno, Lieutenant Governor

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Functional Classification Maps

Functional Classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service that they are intended to provide.

Urban and Rural areas have fundamentally different characteristics as to density and types of land use, density of street and highway networks, nature of travel patterns, and the way in which all these elements are related in the definitions of highway function.

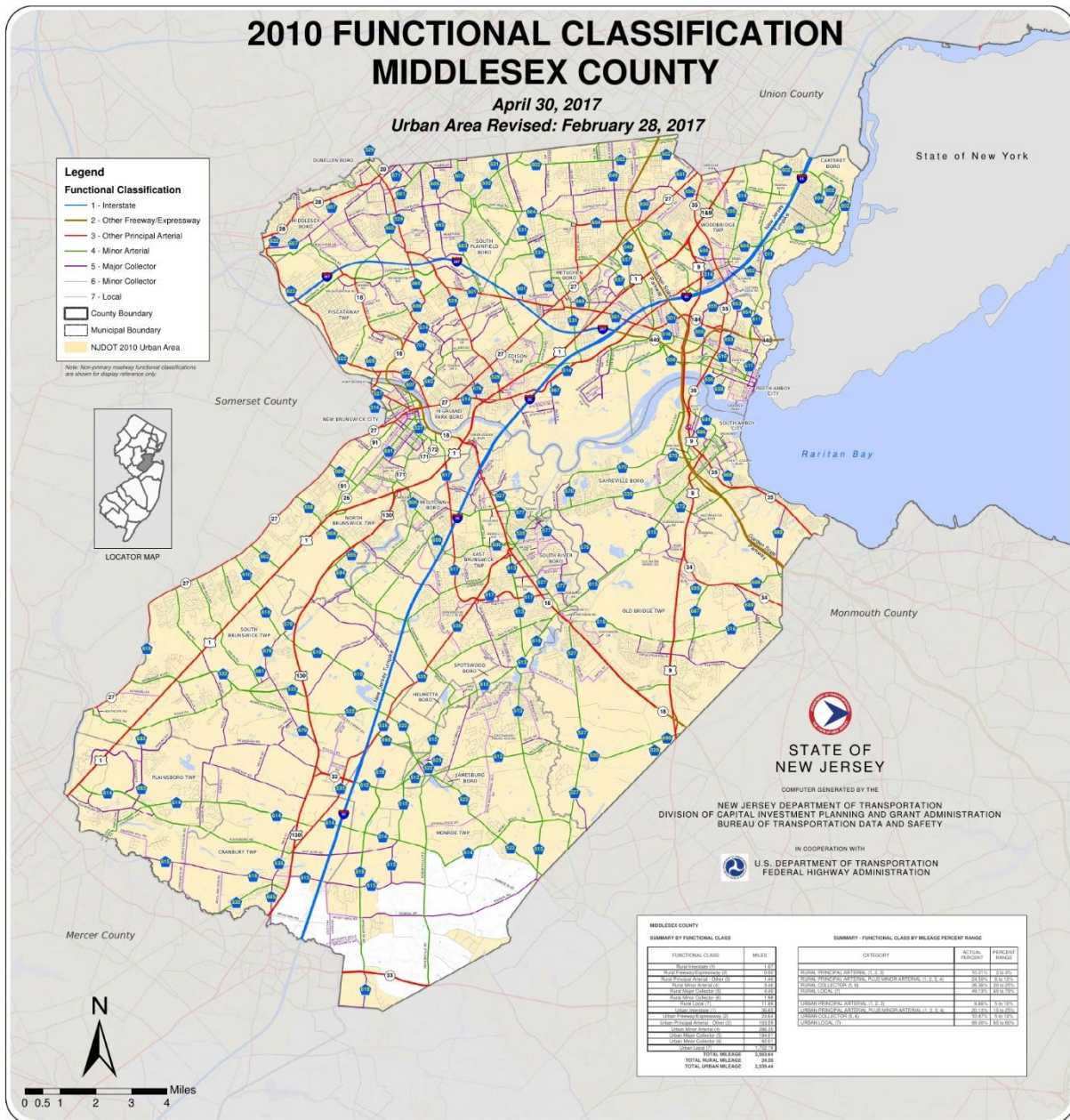
To access functional classification map files, select a county on the image map with your mouse. The map files are in Adobe Acrobat format (average size of 800k, allow 30-40 sec to download with the dial-up connection). You will need Adobe Acrobat Reader to view the PDF files, which is available free from our [state Adobe access page](#).

[E-mail your questions or comments](#) or call 609 526 8222



On the map, click the county where the designed pavement section is located.

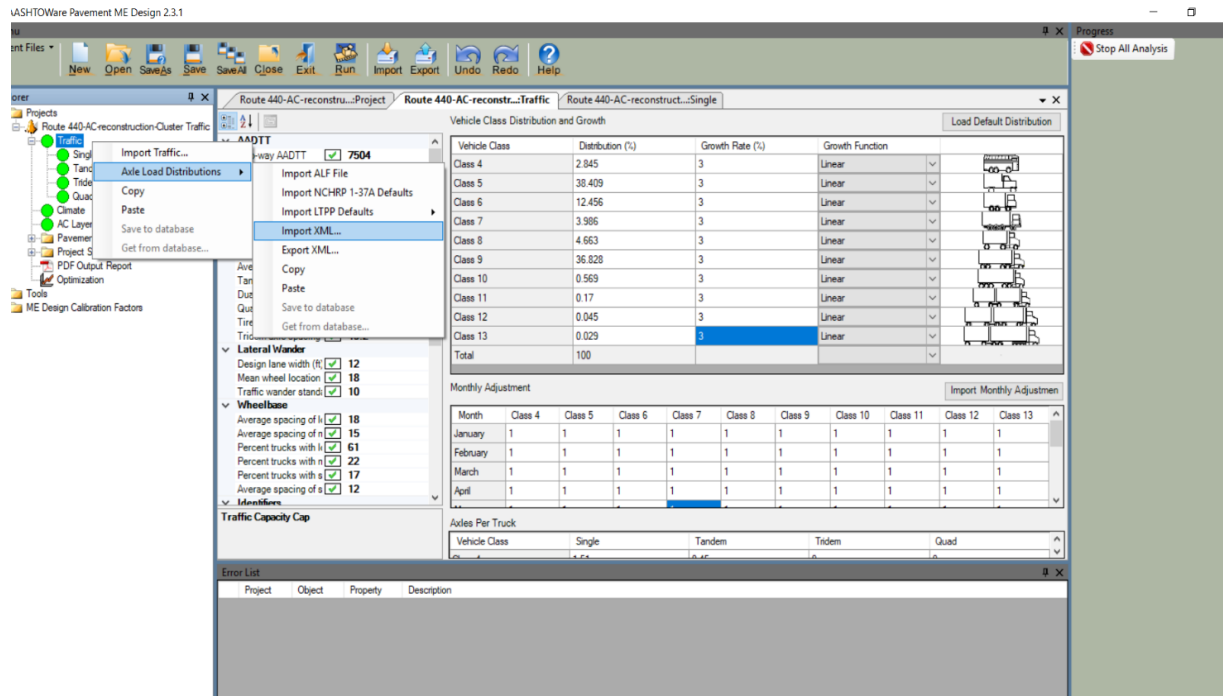
For example, click on Middlesex County. A road classification map will pop out as shown.



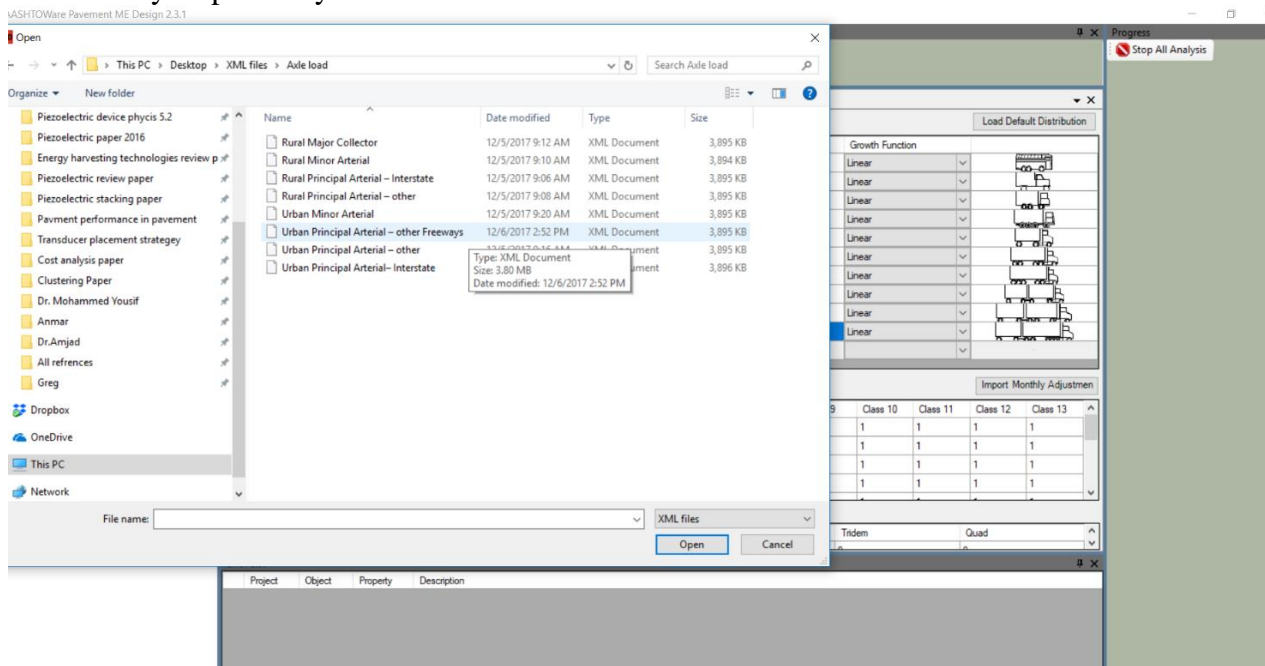
Use the legend to find the selected route classification. For example, Route 440 in Middlesex County is classified as Urban Other Freeway/Expressway. This classification is essential to select axle load spectra input. Pay attention to the yellow or white area when selecting the classification, which is referred to urban and rural areas.

2. Import XML files for axle load distribution (Single, Tandem, Tridem, and Quad)

The axle load spectra can be input into Pavement ME software through importing .XML files in the folder “Traffic XML > Axle Load XML”. The .XML files already include all axle load spectra for single, tandem, tridem and quad for each road classification. Right click on Traffic, then select Axle Load Distributions > Import XML... as shown below. After importing, check that all axle load inputs by clicking single, tandem, tridem and quad axles one by one.

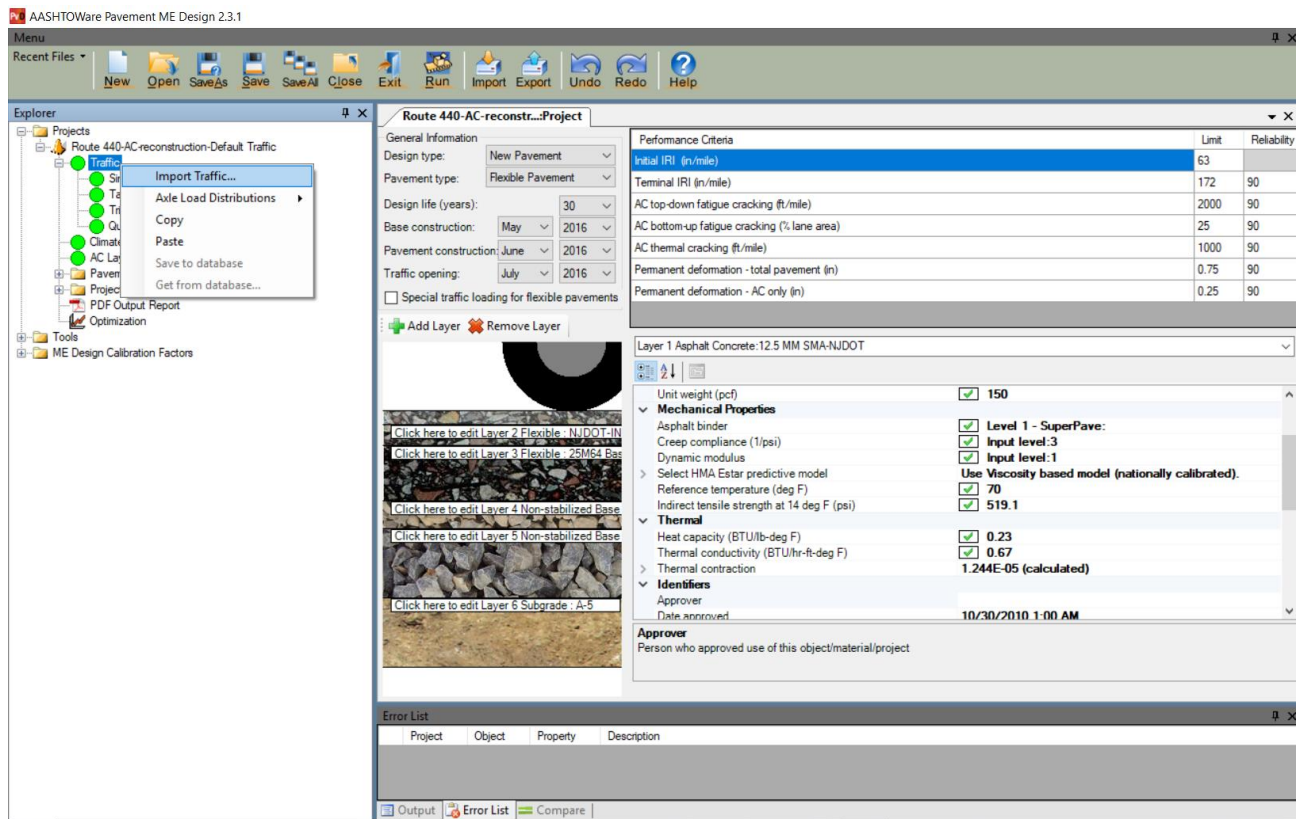


For example, for Route 440, select XML file with the name of “Urban other Freeway/Expressway”



3. Import XML files for Vehicle Class Distribution (VCD) and Axle /Truck Ratio

The VCD and Axle/Truck Ratio can be easily imported from .XML files using import file option. In explorer section, go to traffic button and select import traffic. Then go to folder “Traffic XML > VCD and Axle per Truck XML” to select the required data based on road classification.



For example, for Route 440, select XML file with the name of “Urban other Freeway/Expressway”

The screenshot shows the AASHTOWare Pavement ME Design 2.3.1 interface. An 'Open' dialog box is open, displaying a file explorer view of the 'ME software Training material > XML' directory. The file 'Material XML' is selected. The file name field contains '12.5M-SMA' and the file type is set to 'XML files'. In the background, a project tree on the left shows a hierarchy under 'Route 440-AC-reconstruction-Default Traffic', including 'Traffic', 'Single Axle Distribution', 'Tandem Axle Distribution', 'Tridem Axle Distribution', 'Quad Axle Distribution', 'Climate', 'AC Layer Properties', 'Pavement Structure', 'Project Specific Calibration Factors', 'PDF Output Report', and 'Optimization'. A table on the right side of the screen has columns for 'Limit' and 'Reliability' with the following data:

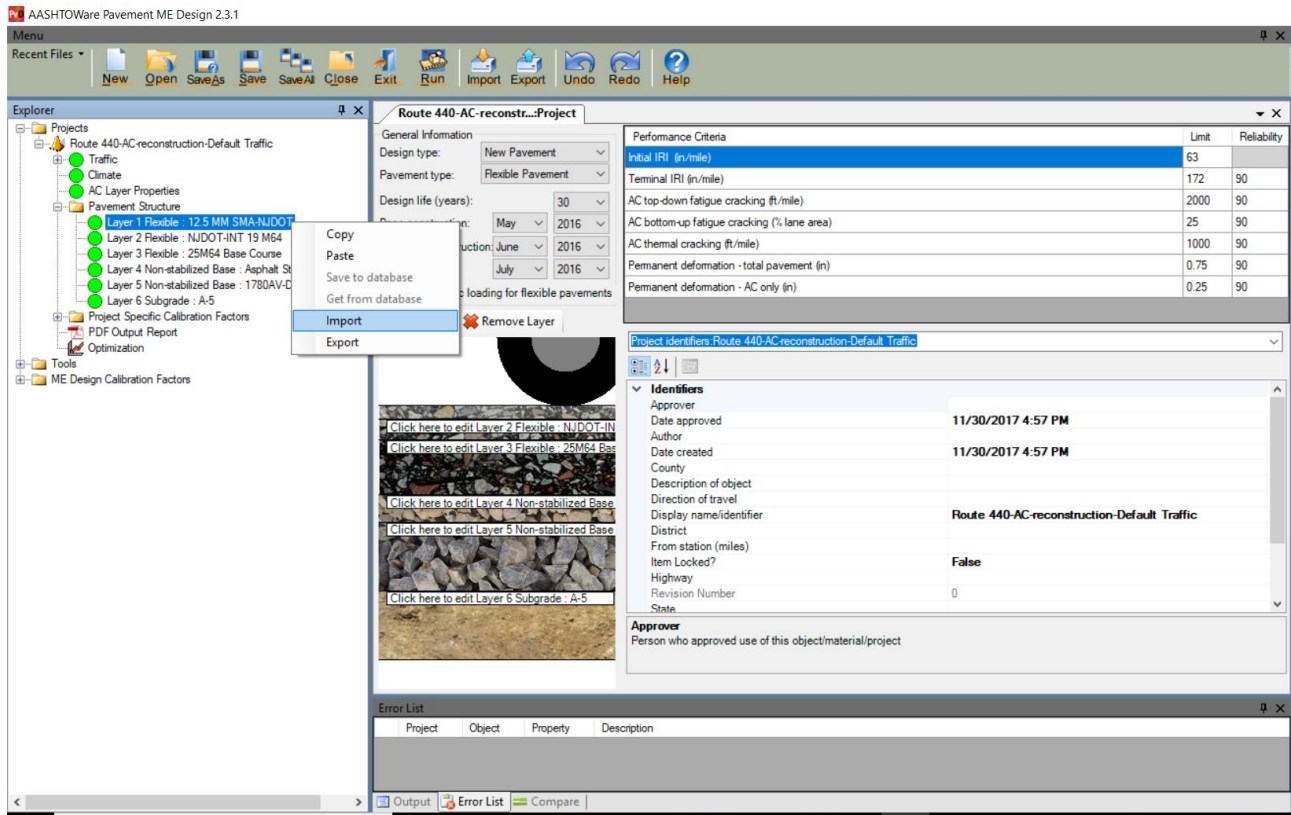
Limit	Reliability
63	90
172	90
2000	90
25	90
1000	90
0.75	90
0.25	90

This screenshot shows the same AASHTOWare Pavement ME Design 2.3.1 interface. The 'Open' dialog box is now open to the 'XML > Traffic XML (VCD and Axle per Truck)' directory. It lists several XML files with their names and modification dates. The file name field still contains '12.5M-SMA' and the file type is 'XML files'. The background project tree and table are identical to the first screenshot.

Name	Date modified
<input type="checkbox"/> Rural and Urban Collector (Major and Minor)	12/11/2017 9:46 PM
<input type="checkbox"/> Rural Interstate	12/11/2017 8:34 PM
<input type="checkbox"/> Rural Minor Arterial	12/11/2017 8:37 PM
<input type="checkbox"/> Rural Other Principal Arterial other Freeway Expressway	12/11/2017 8:36 PM
<input type="checkbox"/> Urban Interstate	12/11/2017 8:41 PM
<input type="checkbox"/> Urban Minor Arterial	12/11/2017 8:38 PM
<input type="checkbox"/> Urban Other Freeway Expressway	12/11/2017 10:04 ...
<input type="checkbox"/> Urban Other Principal Arterial	12/11/2017 8:37 PM

4. Import XML files for material properties

In pavement structure section, go to the required layer and right click to see import option. For example, click on 12.5 SMA layer and select import.



Then go to the folder “Material XML” and select 12.5M-SMA.XML file to import material properties of that layer.

Note:

1. Change layer thickness and other information as needed based on your design requirements.
2. Select the region for I-3 and DGABC layers as needed since the typical modulus changes in different regions.
3. Follow the same procedure for all other layers.

The screenshot shows the AASHTOWare Pavement ME Design 2.3.1 interface. The Explorer pane on the left displays a project tree for 'Route 440-AC-reconstruction-Default Traffic', including folders for Traffic, Climate, AC Layer Properties, Pavement Structure, Project Specific Calibration Factors, Tools, and ME Design Calibration Factors. The Pavement Structure folder is expanded, showing layers from Layer 1 to Layer 6. An 'Open' dialog box is open, showing the path 'ME software Training material > XML'. The file list includes folders like 'Transducer placement strategy', 'Cost analysis paper', 'Clustering Paper', 'Dr. Mohammed Youusif', 'Anmar', 'Dr.Amjad', 'All references', and 'Greg'. The 'Material XML' folder is selected. The 'File name' field is empty, and the file type is set to 'XML files'. Below the dialog, there is a preview image of a road surface and a table with the following data:

Item Locked?	Highway	Revision Number	State	Approver
False		0		Person who approved use of this object/material/project

At the bottom, an 'Error List' table is visible with columns for Project, Object, Property, and Description.

This screenshot shows the same software interface as the first image, but the 'Open' dialog box is now open to the 'Material XML' folder. The file list shows several XML documents, with '12.5M-SMA' selected. The 'File name' field contains '12.5M-SMA'. The preview image and table below the dialog are identical to the first image. The 'Error List' table at the bottom is also visible.