



Day/Night Noise Level Assessment Tool Users Guide

Department of Housing and Urban Development
Community Planning and Development
Office of Environment and Energy
Environmental Planning Division

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PROVIDING FEEDBACK & CORRECTIONS

After using the DNL Assessment Tool following the directions in this User Guide, users are encouraged to provide feedback on how the DNL Assessment Tool may be improved. Users are also encouraged to send comments or corrections for the improvement of the tool.

Please send your comments or other input to
ATEC@HUD.gov

Overview of the Day/Night Noise Level Assessment Tool

The Day/Night Noise Level Assessment tool is a web-based application of the existing Noise Assessment Guidelines (NAG). It is a component of the Assessment Tools for Environmental Compliance (ATEC). Derivations of the basic noise equation from the noise regulation, 24 CFR Part 51 Subpart B, were applied to a new application of the NAG. The resulting calculations automate the paper process by “filling in the blanks” and negating the need for the graphed curves and charts. The data requirements are interactive. Users only supply data to active input boxes, and those boxes are activated by the answers to questions about the site conditions. If it does not apply, users are not asked. If it should apply and a box is not active, answers to previous questions should be revisited.

NOTE: The Day/Night Noise Level Assessment tool calculates roadway and railway noise only.

Future developments will include barrier components. Noise from aircraft and loud impulse sounds are not addressed through this tool. Aircraft noise data are available from the neighboring airports. Loud impulse sounds should be evaluated through the source of the noise to determine their impact and HUD’s response.

Assessment Approach - Roadway

The computerized noise assessment process very closely mimics the paper worksheets of the NAG. The same data must be gathered. Instead of blanks on the worksheet, boxes are filled in on a screen. The site characteristics and relationship of the road to the Noise Assessment Location (NAL) are the inputs for the noise calculation. The noise of each vehicle type is combined with other vehicle types to calculate a road noise. The roadway noise calculated is combined with noise from other community sources to determine the site exposure to environmental noise as described by the current NAG.

Assessment Approach – Railway

The computerized noise assessment process for railways similarly uses the paper worksheets of the NAG for its basic structure. The site characteristics and relationship of the railway to the NAL are the inputs for the noise calculation. The noise of each train is combined with other trains to calculate a railway noise. The railway noise calculated is combined with noise from other community sources to determine the site exposure to environmental noise.

Assessment Process – Roadway and railway noise sources

The process for using the Day/Night Noise Level Assessment tool is relatively simple. It is recommended that users fill out the data sheets in the NAG to organize the project information, but it is not necessary. Users can go directly to the Day/Night Noise Level Assessment tool.

1. Go to the Noise Assessment Guidelines in the HUD's *Noise Guidebook*.

- 1a. For either noise source (roadway or railway), fill out Worksheet A: Site Evaluation** in the Noise Assessment Guidelines to organize the project information. This is also where the findings of the noise assessment can be reported.

1b. Complete Worksheet C: For Roadway Noise if there is a major roadway within 1000 feet of the site.

1c. Complete Worksheet D: For Railway Noise if there is a rail line within 3000 feet of the site.

Worksheets A, C and D are the inputs for the electronic noise assessment tool

Worksheet A
Site Evaluation

Site Location _____
 Program _____
 Project Name _____
 County _____
 File Number _____
 District Name _____ Phone _____
 Street Address _____ City State _____

| Responsibility Category | URS | Responsible Operations or Year |
|-------------------------|-------|--------------------------------|
| 1. Roadway Noise | _____ | _____ |
| 2. Aircraft Noise | _____ | _____ |
| 3. Railway Noise | _____ | _____ |

Name of URS site assessment manager for this evaluation (print name) _____
 Please Site Evaluation (print name) _____
 Available _____
 Necessary Information _____
 Comments _____

Signature _____ Date _____

Use this worksheet to the input of knowledge concerning Worksheet B and Worksheet C. It is not to be used for evaluation.

1a. Noise Assessment Guidelines
Worksheet A: Site Evaluation

Worksheet C
Roadway Noise

Page 1

List of major roads within 1000 feet of the site:

- _____
- _____
- _____
- _____

| Necessary Information | Road 1 | Road 2 | Road 3 | Road 4 |
|--|--------|--------|--------|--------|
| 1. Distance in feet from the site to the edge of the road | _____ | _____ | _____ | _____ |
| a. Interstate | _____ | _____ | _____ | _____ |
| b. Federal Road | _____ | _____ | _____ | _____ |
| c. Average traffic volume | _____ | _____ | _____ | _____ |
| 2. Distance to other road | _____ | _____ | _____ | _____ |
| 3. Road width in feet | _____ | _____ | _____ | _____ |
| 4. Average speed in mph | _____ | _____ | _____ | _____ |
| a. Acceleration | _____ | _____ | _____ | _____ |
| b. Heavy Trucks (percent) | _____ | _____ | _____ | _____ |
| c. Heavy Trucks (count) | _____ | _____ | _____ | _____ |
| 5. 24-hour average number of automobiles and medium trucks (both directions) per day | _____ | _____ | _____ | _____ |
| a. Acceleration | _____ | _____ | _____ | _____ |
| b. Medium Trucks | _____ | _____ | _____ | _____ |
| c. Effective AADT (in 1000s) | _____ | _____ | _____ | _____ |
| 6. 24-hour average number of heavy trucks | _____ | _____ | _____ | _____ |
| a. AADT | _____ | _____ | _____ | _____ |
| b. Acceleration | _____ | _____ | _____ | _____ |
| c. Trucks | _____ | _____ | _____ | _____ |
| 7. Fraction of negative slope (10% or less) _____ | _____ | _____ | _____ | _____ |
| 8. Traffic unimpeded for what use? _____ | _____ | _____ | _____ | _____ |

1b. Noise Assessment Guidelines
Worksheet C: Roadway Noise

Worksheet D
Railway Noise

Page 1

List of Railways within 3000 feet of the site:

- _____
- _____
- _____

| Necessary Information | Railway No. 1 | Railway No. 2 | Railway No. 3 |
|--|---------------|---------------|---------------|
| 1. Distance in feet from the site to the railway line _____ | _____ | _____ | _____ |
| 2. Number of trains per hour | _____ | _____ | _____ |
| a. Diesel | _____ | _____ | _____ |
| b. Electric | _____ | _____ | _____ |
| 3. Fraction of operations occurring at night (5 p.m. - 7 a.m.) _____ | _____ | _____ | _____ |
| 4. Number of diesel locomotives per train _____ | _____ | _____ | _____ |
| 5. Number of rail cars per train | _____ | _____ | _____ |
| a. Diesel Cars | _____ | _____ | _____ |
| b. Electric Cars | _____ | _____ | _____ |
| 6. Average train speed _____ | _____ | _____ | _____ |
| 7. Is track welded or bolted? _____ | _____ | _____ | _____ |
| 8. Are wheels or horns required for grade crossing? _____ | _____ | _____ | _____ |

1c. Noise Assessment Guidelines
Worksheet D: Railway Noise

For purposes of illustration and better legibility, Worksheets A,(Site Evaluation), Worksheet C (Roadway Noise) and Worksheet D (Railway Noise) of the NAG, are presented in full size view in pages 6 through 8.

| Worksheet A Site Evaluation | Noise Assessment Guidelines | | | | | | | | | | | | | | | | | | | | |
|---|--|-------|----------------------------------|-----|----------------------------------|------------------|-------|-------|-------|-------------------|-------|-------|-------|------------------|-------|-------|-------|--|--|-------|--|
| Site Location _____ | | | | | | | | | | | | | | | | | | | | | |
| Program _____ | | | | | | | | | | | | | | | | | | | | | |
| Project Name _____ | | | | | | | | | | | | | | | | | | | | | |
| Locality _____ | | | | | | | | | | | | | | | | | | | | | |
| File Number _____ | | | | | | | | | | | | | | | | | | | | | |
| Sponsor's Name _____ | Phone _____ | | | | | | | | | | | | | | | | | | | | |
| Street Address _____ | City, State _____ | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%;">Acceptability Category</th> <th style="width: 20%;">DNL</th> <th style="width: 30%;">Predicted for Operations in Year</th> </tr> </thead> <tbody> <tr> <td>1. Roadway Noise</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>2. Aircraft Noise</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>3. Railway Noise</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td colspan="2">Value of DNL for all noise sources: (see page 3 for combination procedure)</td> <td>_____</td> <td></td> </tr> </tbody> </table> | | Acceptability Category | DNL | Predicted for Operations in Year | 1. Roadway Noise | _____ | _____ | _____ | 2. Aircraft Noise | _____ | _____ | _____ | 3. Railway Noise | _____ | _____ | _____ | Value of DNL for all noise sources: (see page 3 for combination procedure) | | _____ | |
| | Acceptability Category | DNL | Predicted for Operations in Year | | | | | | | | | | | | | | | | | | |
| 1. Roadway Noise | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | |
| 2. Aircraft Noise | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | |
| 3. Railway Noise | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | |
| Value of DNL for all noise sources: (see page 3 for combination procedure) | | _____ | | | | | | | | | | | | | | | | | | | |
| Final Site Evaluation (circle one) Acceptable _____ Normally Unacceptable _____ Unacceptable _____ | | | | | | | | | | | | | | | | | | | | | |
| Signature _____ | Date _____ | | | | | | | | | | | | | | | | | | | | |
| <small>Clip this worksheet to the top of a package containing Worksheets B-E and Workcharts 1-7 that are used in the site evaluations</small> | | | | | | | | | | | | | | | | | | | | | |

List all major roads within 1000 feet of the site:

1. _____
2. _____
3. _____
4. _____

| Necessary information | Road 1 | Road 2 | Road 3 | Road 4 |
|---|--------|--------|--------|--------|
| 1. Distance in feet from the NAL to the edge of the road | | | | |
| a. nearest lane | _____ | _____ | _____ | _____ |
| b. farthest lane | _____ | _____ | _____ | _____ |
| c. average (effective distance) | _____ | _____ | _____ | _____ |
| 2. Distance to stop sign | _____ | _____ | _____ | _____ |
| 3. Road gradient in percent | _____ | _____ | _____ | _____ |
| 4. Average speed in mph | | | | |
| a. Automobiles | _____ | _____ | _____ | _____ |
| b. heavy trucks - uphill | _____ | _____ | _____ | _____ |
| c. heavy trucks - downhill | _____ | _____ | _____ | _____ |
| 5. 24 hour average number of automobiles and medium trucks in both directions (ADT) | | | | |
| a. automobiles | _____ | _____ | _____ | _____ |
| b. medium trucks | _____ | _____ | _____ | _____ |
| c. effective ADT (a + (10x)b) | _____ | _____ | _____ | _____ |
| 6. 24 hour average number of heavy trucks | | | | |
| a. uphill | _____ | _____ | _____ | _____ |
| b. downhill | _____ | _____ | _____ | _____ |
| c. total | _____ | _____ | _____ | _____ |
| 7. Fraction of nighttime traffic (10 p.m. to 7 a.m.) | _____ | _____ | _____ | _____ |
| 8. Traffic projected for what year? | _____ | _____ | _____ | _____ |

List All Railways within 3000 feet of the site:

- 1. _____
- 2. _____
- 3. _____

Necessary Information: Railway No. 1 Railway No. 2 Railway No. 3

- 1. Distance in feet from the NAL to the railway track: _____
- 2. Number of trains in 24 hours:
 - a. diesel _____
 - b. electrified _____
- 3. Fraction of operations occurring at night (10 p.m. – 7 a.m.): _____
- 4. Number of diesel locomotives per train: _____
- 5. Number of rail cars per train:
 - a. diesel trains _____
 - b. electrified trains _____
- 6. Average train speed: _____
- 7. Is track welded or bolted? _____
- 8. Are whistles or horns required for grade crossings? _____

2. Roadway DNL Assessment Procedures

Users can get access to the Day/Night Noise Level Assessment Tool by going to the following URL:
<http://www.hud.gov/offices/cpd/environment/dnlcalculator.cfm>. This is the Welcome Screen.

The screenshot shows the HUD website interface for the Day/Night Noise Level Electronic Assessment Tool. The page is titled "Day/Night Noise Level Electronic Assessment Tool" and includes a navigation menu on the left. The main content area contains introductory text about the tool, a "Site Acceptability Standards" section, and a "Site DNL Calculator" section. The calculator section includes three input fields: "Site ID", "Record Date", and "User's Name". Below these fields are buttons for "Add Road Source", "Add Rail Source", "Calculate Site DNL", "Mitigation", and "Refresh". Annotations with arrows point to the input fields and buttons, labeling them as "Site Identification Data fields" and "DNL calculator buttons".

2a. Enter the following information (from Worksheet A) into the Site Identification Data fields for the site being assessed:

- Site ID – Project Site’s unique identifier – must be numeric
- Record Date - Date the assessment was created
- User’s Name – User who added this record

2b. Click on the appropriate DNL calculator button (for roadway assessments use the button labeled as “Add Road Source”, for railway assessments use the button labeled as “Add Rail Source”).

Note: If your site is exposed to both rails and roads, pick one to begin. You will be given an opportunity to add the other source at the end of each assessment.

The screenshot shows the 'Site DNL Calculator' web application. The interface includes a navigation menu on the left, a header with 'Site Acceptability Standards', and a main form area. The form contains fields for 'Project number', 'Record Date', and 'User's Name'. Below these is a table for 'Road # 1' with columns for 'Vehicle Type' (Cars, Medium Trucks, Heavy Trucks) and rows for various assessment parameters like 'Effective Distance', 'Distance to Stop Sign', 'Average Speed', 'Average Daily Trips (ADT)', 'Night Fraction of ADT', and 'Road Gradient (%)'. At the bottom of the table are 'Calculate Road #1 DNL' and 'Reset' buttons. Below the table are buttons for 'Add Road Source', 'Add Rail Source', 'Calculate Site DNL', 'Mitigation', and 'Refresh'. Callout boxes with arrows point to: 'Roadway Identification Data fields' (Project number, Record Date, User's Name), 'Checkboxes to Activate Vehicle Input' (Cars, Medium Trucks, Heavy Trucks), 'Roadway Assessment Data fields' (the rows of the table), and 'DNL Calculation Result Fields' (the 'Calculate Road #1 DNL' and 'Calculate Site DNL' buttons).

To calculate the noise from a Noise Assessment Location (NAL) near a road involving any combination of vehicle types (cars, medium trucks and heavy trucks), the user is required to perform the following steps:

Note: Definitions for each Roadway Assessment Data field could be determined by locating the cursor to the pertinent field.

Step 1. Enter the Road Name (Name of the road being assessed – must be unique)

Step 2. Transfer the input data from Worksheet C (effective distance, distance to stop sign, road average speed, Average Daily Trips (ADT), nighttime fraction of ADT, and road gradient) into the Roadway Assessment Data fields. To enter that data, first,

check the boxes located next to the vehicle type for the road being assessed, and then enter the data.

Step 3. Click on the “Calculate Road # DNL” button to determine the Day-Night Noise Level (DNL) for the road and vehicles being assessed.

Note: If there is a requirement to re-enter data into the Roadway Assessment Data fields, click on the “Reset” button to clear all the data previously entered.

Step 4. If there are additional roads to be evaluated into the noise assessment , before the DNL result for the site is calculated, click on the “Add Road Source” button. If there is a railway to be evaluated into the noise assessment, before the DNL result for the site is calculated, click on the “Add Rail Source” button.

Note: If there are no additional roads or railways to be assessed for the noise assessment, or it is the last assessed road or railway in the site assessment, then click on the “Calculate Site DNL” button for a determination of the DNL of the site being assessed.

Step 5. Enter the name of the next road to be assessed, then follow **Steps 2, 3 and 4.**

Here are some tips to help with the data entry:

- Boxes that need input will be white and editable. A box next to the vehicle involved in the noise assessment (vehicle types include cars, medium trucks and heavy trucks) is required to be “checked” in order for the data from Worksheet C be entered into the Roadway Assessments Data fields. Boxes that report DNL calculation results are white and they are non-editable.
- To determine the Day-Night Noise Level (DNL) for the road and vehicles being assessed, click on the “Calculate Road # DNL” button.
- To add an additional road to be evaluated into the noise assessment, click on the “Add Road Source” button, or to add a railway to be evaluated into the noise assessment, click on the “Add Rail Source” button.
- To re-start calculation procedures after a noise assessment for a site has been completed , click the “Refresh” button located below the “Calculate Site DNL” button

- To clear the data from the Roadway Assessment Data fields, click on the “Reset” button.
- The button labeled as “Mitigation” is not functional. It is for noise barrier components to be available in the future.

3. Railway DNL Assessment Procedures

Environment - Energy and Environment - CPD - HUD - Microsoft Internet Explorer

Address: <http://hudstage.hud.gov/offices/cpd/environment/dnlcalculator.cfm>

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

1. To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
2. All Road and Rail input values must be positive non-decimal numbers.
3. All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: Record Date: User Name:

Railroad #1 Track Identifier:

| Train Type | Electric <input type="checkbox"/> | Diesel <input type="checkbox"/> |
|--------------------------------|--|--|
| Effective Distance | <input type="text"/> | <input type="text"/> |
| Average Train Speed | <input type="text"/> | <input type="text"/> |
| Engines per Train | <input type="text"/> | <input type="text"/> |
| Railway cars per Train | <input type="text"/> | <input type="text"/> |
| Average Train Operations (ATO) | <input type="text"/> | <input type="text"/> |
| Night Fraction of ATO | <input type="text"/> | <input type="text"/> |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | <input type="text"/> | |

Calculate Rail #1 DNL Reset

Add Road Source Add Rail Source

Calculate Site DNL

Mitigation

Refresh

Site Identification Data fields

Railway Assessment Data fields

DNL Calculation Result Fields

3a. To calculate the Day/Night Noise from a Noise Assessment Location (NAL) near a railway involving any combination of train types (electric or diesel), the user is required to perform the following steps:

Step 1. Enter the following information (from Worksheet A) into the Site Identification Data fields for the site being assessed:

- Site ID – Project Site's unique identifier – must be numeric
- Railroad # Track Identifier – Route name or destination for noise assessments for railways
- Record Date - Date the record was created
- User's Name - User who added this record

Step 2. Transfer the input data from Worksheet D (effective distance, average train speed, engines per train, railway cars per train, Average Train Operations (ATO), night fraction of ATO, train with or without whistles or horns and railway with or without bolted tracks) into the Railway Assessment Data fields. To enter that data, first, check the boxes located next to the train type for the railway being assessed, and then enter the data.

Note: Definitions for each Railway Assessment Data field could be determined by locating the cursor to the pertinent field.

Step 3. Click on the “Calculate Rail # DNL” button to determine the Day-Night Noise Level (DNL) for the railway and trains being assessed.

Note: If there is a requirement to re-enter data into the Railway Assessment Data fields, click on the “Reset” button to clear all the data previously entered.

Step 4. If there are additional railways to be evaluated into the noise assessment , before the DNL result for the site is calculated, click on the “Add Rail Source” button. If there is a roadway to be evaluated into the noise assessment, before the DNL result for the site is calculated, click on the “Add Road Source” button.

Note: If there are no additional roads or railways to be assessed for the noise assessment, or it is the last assessed road or railway in the site assessment, then click on the “Calculate Site DNL” button for a determination of the DNL of the site being assessed.

Step 5. Enter the name of the next railway to be assessed, then follow **Steps 2, 3 and 4.**

Here are some tips to help with the data entry:

- Boxes that need input will be white and editable. A box next to the train involved in the noise assessment (train types include electric and diesel) is required to be “checked” in order for the data from Worksheet D be entered into the Railway Assessments Data fields. Boxes that report DNL calculation results are white and they are non-editable.
- To determine the Day-Night Noise Level (DNL) for the railway and trains being assessed, click on the “Calculate Rail # DNL” button.

- To add an additional railway to be evaluated into the noise assessment, click on the “Add Rail Source” button, or to add a roadway to be evaluated into the noise assessment, click on the “Add Road Source” button.
- To re-start calculation procedures after a noise assessment for a site has been completed , click the “Refresh” button located below the “Calculate Site DNL” button
- To clear the data from the Railway Assessment Data fields, click on the “Reset” button.
- The button labeled as “Mitigation” is not functional. It is for noise barrier components to be available in the future.

4. Calculation Examples

4a. Roadway DNL Calculation Example:

Calculate Day/ Night Noise from:

A Noise Assessment Location (NAL) near two roads involving a combination of types of vehicles (cars, medium trucks and heavy trucks).

Step 1. Enter the following information (from Worksheet A) into the Site Identification Data fields:

Site ID – Project number 0001

Road #1 Name – Maury Street

Record Date – 7 January 2009

User's Name – Forrest Gump

The screen should look as follows:

The screenshot displays the 'Site DNL Calculator' web application. The interface includes a navigation menu on the left with links for 'About HUD', 'Homes', 'Communities', 'Working with HUD', and 'Resources'. The main content area features 'Site Acceptability Standards' and 'Additional guidance on how to calculate the DNL'. Below this is the 'Site DNL Calculator' section, which contains a 'Please note the following:' section with three instructions. The 'Site Identification Data' fields are highlighted with a callout box and include: Site ID (0001), Record Date (1/7/09), and User Name (Forrest Gump). The 'Road # 1 Name' field contains 'Maury Street'. A table for 'Road # 1' data is shown with columns for 'Vehicle Type' (Cars, Medium Trucks, Heavy Trucks) and rows for 'Effective Distance', 'Distance to Stop Sign', 'Average Speed', 'Average Daily Trips (ADT)', 'Night Fraction of ADT', and 'Road Gradient (%)'. Below the table are buttons for 'Calculate Road #1 DNL', 'Add Road Source', 'Add Rail Source', 'Calculate Site DNL', 'Mitigation', and 'Refresh'. The browser's address bar shows the URL 'http://hudstage.hud.gov/offices/cpd/environment/dnlcalculator.cfm'.

| Vehicle Type | Cars <input type="checkbox"/> | Medium Trucks <input type="checkbox"/> | Heavy Trucks <input type="checkbox"/> |
|---------------------------|-------------------------------|--|---------------------------------------|
| Effective Distance | | | |
| Distance to Stop Sign | | | |
| Average Speed | | | |
| Average Daily Trips (ADT) | | | |
| Night Fraction of ADT | | | |
| Road Gradient (%) | | | |

Step 2. Transfer the input data from Worksheet C (effective distance, distance to stop sign, road average speed, Average Daily Trips (ADT), nighttime fraction of ADT, and road gradient) into the Roadway Assessment Data fields. To enter that data, first, check the boxes located next to the vehicle for the road been assessed, and then enter the data.

The screen should look as follows:

Note: These are the boxes to be checked before entering the data

Note: Check the boxes next to the vehicle type for the road being assessed before entering the data

| Vehicle Type | Cars <input checked="" type="checkbox"/> | Medium Trucks <input checked="" type="checkbox"/> | Heavy Trucks <input checked="" type="checkbox"/> |
|---------------------------|--|---|--|
| Effective Distance | 49 | 49 | 49 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 8099 | 273 | 728 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 1 |
| Vehicle DNL | | | |

Step 3. Click on the “Calculate Road # DNL” button to determine the Day-Night Noise Level (DNL) for the road and vehicles being assessed

The screen should look as follows:

The screenshot shows the 'Site DNL Calculator' web application. The interface includes a navigation menu on the left, site acceptability standards, and a data entry table for 'Road # 1'. The table has columns for Vehicle Type (Cars, Medium Trucks, Heavy Trucks) and rows for various parameters like Effective Distance, Average Speed, and ADT. The 'Vehicle DNL' row shows values of 60.6009 for Cars, 65.8782 for Medium Trucks, and 73.079 for Heavy Trucks. Below the table is a 'Calculate Road #1 DNL' button which displays the result 73.4193. Callouts point to these results and the button.

Vehicle DNL results

Road DNL result

Click on this button to determine the DNL for the road and vehicles being assessed

| Vehicle Type | Cars <input checked="" type="checkbox"/> | Medium Trucks <input checked="" type="checkbox"/> | Heavy Trucks <input checked="" type="checkbox"/> |
|---------------------------|--|---|--|
| Effective Distance | 49 | 49 | 49 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 8099 | 273 | 28 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 1 |
| Vehicle DNL | 60.6009 | 65.8782 | 73.079 |

Calculate Road #1 DNL: 73.4193

Step 4. Since there is one additional road and no railways to be evaluated into the noise assessment for the site DNL calculation, the “Add Road Source” button is used for the calculation of the DNL for the additional road.

Note: If in this example, there was only one road to be assessed, or the last assessed road or railway in the site assessment, the DNL for the site could be determined by using the “Calculate Site DNL” button.

The screen should look as follows:

Environment - Energy and Environment - CPD - HUD - Microsoft Internet Explorer

Address: <http://hudstage.hud.gov/offices/cpd/environment/dnlcalculator.cfm>

Library
Laws and Regulations
About HUD
Homes
Communities
Working with HUD
Resources

USA.gov
Government Made Easy

Site Acceptability Standards:

- Exterior noise levels – Proposed HUD-assisted projects with a day-night average sound level of below 65 decibels are acceptable (see Standards in 24 CFR Part 51.103).
- Interior noise levels – Proposed HUD-assisted projects with a day-night average sound level of below 45 decibels are acceptable.

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Road # 1 Name: Maury Street

| Vehicle Type | Cars <input checked="" type="checkbox"/> | Medium Trucks <input checked="" type="checkbox"/> | Heavy Trucks <input checked="" type="checkbox"/> |
|---------------------------|--|---|--|
| Effective Distance | 49 | 49 | 49 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 8099 | 273 | 728 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 1 |
| Vehicle DNL | 60.6009 | 55.8782 | 73.079 |
| Calculate Road #1 DNL | 73.4193 | Reset | |

Add Road Source Add Rail Source

Calculate Site DNL

Mitigation

Refresh

Click on this button to add one additional road to be evaluated into the noise assessment for the site DNL calculation

Error on page.

start Microsoft Office Com... Inbox - Microsoft Cu... My Documents E:\ User Guide DNL ROA... Environment - Energ... Local intranet 1:07 PM

Step 5. Enter the name of the next road to be assessed, then follow **Steps 2, 3 and 4.**

The screen should look as follows:

Environment - Energy and Environment - CPD - HUD - Microsoft Internet Explorer

Address: <http://hudstage.hud.gov/offices/cpd/environment/dnlcalculator.cfm>

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Road # 1 Name: Maury Street

| Vehicle Type | Cars <input checked="" type="checkbox"/> | Medium Trucks <input checked="" type="checkbox"/> | Heavy Trucks <input checked="" type="checkbox"/> |
|---------------------------|--|---|--|
| Effective Distance | 49 | 49 | 49 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 8099 | 273 | 728 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 1 |
| Vehicle DNL | 60.6009 | 55.8782 | 73.075 |
| Calculate Road #1 DNL | 73.4193 | Reset | |

Road # 2 Name: Jefferson Davis Highway

| Vehicle Type | Cars <input checked="" type="checkbox"/> | Medium Trucks <input checked="" type="checkbox"/> | Heavy Trucks <input checked="" type="checkbox"/> |
|---------------------------|--|---|--|
| Effective Distance | 226 | 226 | 226 |
| Distance to Stop Sign | | | |
| Average Speed | 25 | 25 | 25 |
| Average Daily Trips (ADT) | 16320 | 340 | 340 |
| Night Fraction of ADT | 15 | 15 | 15 |
| Road Gradient (%) | | | 1 |
| Vehicle DNL | 53.6851 | 46.8726 | 59.8135 |
| Calculate Road #2 DNL | 60.9553 | Reset | |

Add Road Source Add Rail Source

Calculate Site DNL 73.6961

Mitigation Refresh

Step 1- Enter the name of the next road to be assessed

Step 2- Enter the Roadway Assessment Data into the fields

Step 3- Click here for road and vehicle DNL results

Step 4- Click here for Site DNL result

4b. Railway DNL Calculation Example:

Calculate Day/ Night Noise from a Noise Assessment Location (NAL) near two roads involving a combination of types of trains (electric and diesel).

Step 1. Enter the following information (from Worksheet A) into the Site Identification Data fields:

Site ID – Project number 0001

Railroad #1 Track Identifier – From Jacksonville, FL to Lake City, FL

Record Date – 7 January 2009

User's Name – Forrest Gump

The screen should look as follows:

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

1. To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
2. All Road and Rail input values must be positive non-decimal numbers.
3. All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Railroad #1 Track Identifier: Jacksonville, FL to Lake City, FL

| Train Type | Electric <input type="checkbox"/> | Diesel <input type="checkbox"/> |
|--------------------------------|--|--|
| Effective Distance | | |
| Average Train Speed | | |
| Engines per Train | | |
| Railway cars per Train | | |
| Average Train Operations (ATO) | | |
| Night Fraction of ATO | | |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | | |

Calculate Rail #1 DNL Reset

Add Road Source Add Rail Source

Calculate Site DNL

Mitigation

Refresh

Step 2 Transfer the input data from Worksheet D (effective distance, average train speed, engines per train, railway cars per train, Average Train Operations (ATO), night fraction of ATO, train with or without whistles or horns and railway with or without bolted tracks) into the Railway Assessment Data fields. To enter that data, first, check the boxes located next to the train type for the railway being assessed, and then enter the data.

The screen should look as follows:

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

1. To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
2. All Road and Rail input values must be positive non-decimal numbers.
3. All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Railroad #1 Track Identifier: Jacksonville, FL to Lake City, FL

| Train Type | Electric <input type="checkbox"/> | Diesel <input checked="" type="checkbox"/> |
|--------------------------------|--|---|
| Effective Distance | | 150 |
| Average Train Speed | | 30 |
| Engines per Train | | 3 |
| Railway cars per Train | | 70 |
| Average Train Operations (ATO) | | 35 |
| Night Fraction of ATO | | 25 |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | | |

Buttons: Calculate Rail #1 DNL, Add Road Source, Add Rail Source, Calculate Site DNL, Mitigation, Refresh

Note: These are the boxes to be checked before entering the data

Note: Check the boxes next to the train type for the railway being assessed before entering the data

Step 3. Click on the “Calculate Rail # DNL” button to determine the Day-Night Noise Level (DNL) for the railway and trains being assessed

The screen should look as follows:

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Railroad #1 Track Identifier: Jacksonville, FL to Lake City, FL

| Train Type | Electric <input type="checkbox"/> | Diesel <input checked="" type="checkbox"/> |
|--------------------------------|--|---|
| Effective Distance | | 150 |
| Average Train Speed | | 30 |
| Engines per Train | | 3 |
| Railway cars per Train | | 70 |
| Average Train Operations (ATO) | | 35 |
| Night Fraction of ATO | | 25 |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | | 71.1609 |

Calculate Rail #1 DNL: 71.1609 Reset

Add Road Source Add Rail Source

Calculate Site DNL

Mitigation

Refresh

Train DNL results

Railway DNL result

Click on this button to determine the DNL for the railway and trains being assessed

Step 4. Since there is one additional railway and no roadways to be evaluated into the noise assessment for the site DNL calculation, the “Add Rail Source” button is used for the calculation of the DNL for the additional railway.

Note: If in this example, there was only one railway to be assessed, or the last assessed railway or roadway in the site assessment, the DNL for the site could be determined by using the “Calculate Site DNL” button.

The screen should look as follows:

Additional guidance on how to calculate the DNL for a proposed HUD-assisted project is available in the Department's guidebook "The Noise Guidebook" and the regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

Site DNL Calculator

Please note the following:

1. To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
2. All Road and Rail input values must be positive non-decimal numbers.
3. All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.

Site ID: 0001 Record Date: 1/7/09 User's Name: Forrest Gump

Railroad #1 Track Identifier: Jacksonville, FL to Lake City, FL

| Train Type | Electric <input type="checkbox"/> | Diesel <input checked="" type="checkbox"/> |
|--------------------------------|--|---|
| Effective Distance | | 150 |
| Average Train Speed | | 30 |
| Engines per Train | | 3 |
| Railway cars per Train | | 70 |
| Average Train Operations (ATO) | | 35 |
| Night Fraction of ATO | | 25 |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | | 71.1609 |

Buttons: Calculate Rail #1 DNL (71.1609), Reset, Add Road Source, Add Rail Source, Calculate Site DNL, Mitigation, Refresh

Callout: Click on this button to add one additional railway to be evaluated into the noise assessment for the site DNL calculation

Step 5. Enter the name of the next road to be assessed, then follow **Steps 2, 3 and 4.**

The screen should look as follows:

The screenshot shows a web browser window with the URL <http://hudstage.hud.gov/offices/cpd/environment/dnlcalculator.cfm>. The page displays two railroad assessment forms.

Railroad #1 Track Identifier: Jacksonville, Fl to Lake City, Fl

| Train Type | Electric <input type="checkbox"/> | Diesel <input checked="" type="checkbox"/> |
|--|--|---|
| Effective Distance | | 150 |
| Average Train Speed | | 30 |
| Engines per Train | | 3 |
| Railway cars per Train | | 70 |
| Average Train Operations (ATO) | | 35 |
| Night Fraction of ATO | | 25 |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |
| Bolted Tracks? | Yes: <input type="checkbox"/> No: <input type="checkbox"/> | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | | 71.1609 |
| <input type="button" value="Calculate Rail #1 DNL"/> | 71.1609 | <input type="button" value="Reset"/> |

Railroad #2 Track Identifier: Sanford, Fl to Lorton, Va

| Train Type | Electric <input checked="" type="checkbox"/> | Diesel <input checked="" type="checkbox"/> |
|--|---|---|
| Effective Distance | 310 | 310 |
| Average Train Speed | 40 | 40 |
| Engines per Train | 1 | 2 |
| Railway cars per Train | 15 | 45 |
| Average Train Operations (ATO) | 2 | 20 |
| Night Fraction of ATO | 15 | 15 |
| Railway whistles or horns? | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |
| Bolted Tracks? | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> | Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/> |
| Train DNL | 42.6859 | 60.5315 |
| <input type="button" value="Calculate Rail #2 DNL"/> | 60.5315 | <input type="button" value="Reset"/> |

At the bottom of the page, there are buttons for "Add Road Source", "Add Rail Source", and "Calculate Site DNL" with the value 71.52943.

Annotations:

- Enter the name of the next railway to be assessed:** Points to the "Railroad #2 Track Identifier" field.
- Step 2- Enter the Railway Assessment Data into the fields:** Points to the input fields for Effective Distance, Average Train Speed, Engines per Train, Railway cars per Train, Average Train Operations (ATO), and Night Fraction of ATO in the Rail #2 form.
- Step 3- Click here for railway and train DNL results:** Points to the "Calculate Rail #2 DNL" button.
- Step 4- Click here for Site DNL result:** Points to the "Calculate Site DNL" button.

Browser requirements: Microsoft Internet Explorer 6.0

Printing and Saving:

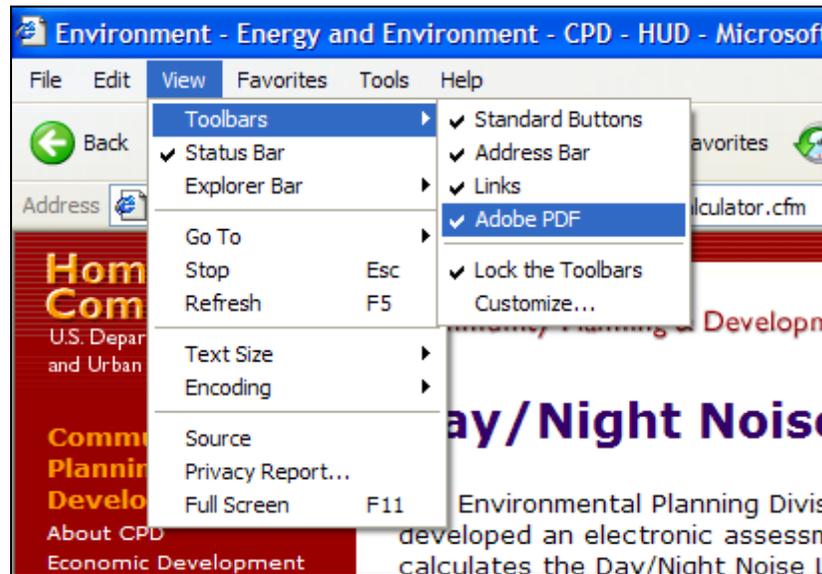
For either printing or saving the records from this tool it is required to display the Adobe PDF toolbar in the Browser. To accomplish that the following steps are required to be accomplished:

Step 1 From the menu bar click on View

Step 2 Click on Toolbars

Step 3 Click on Adobe PDF

The following is a visual representation of the procedure to display the Adobe PDF toolbar in the Browser:



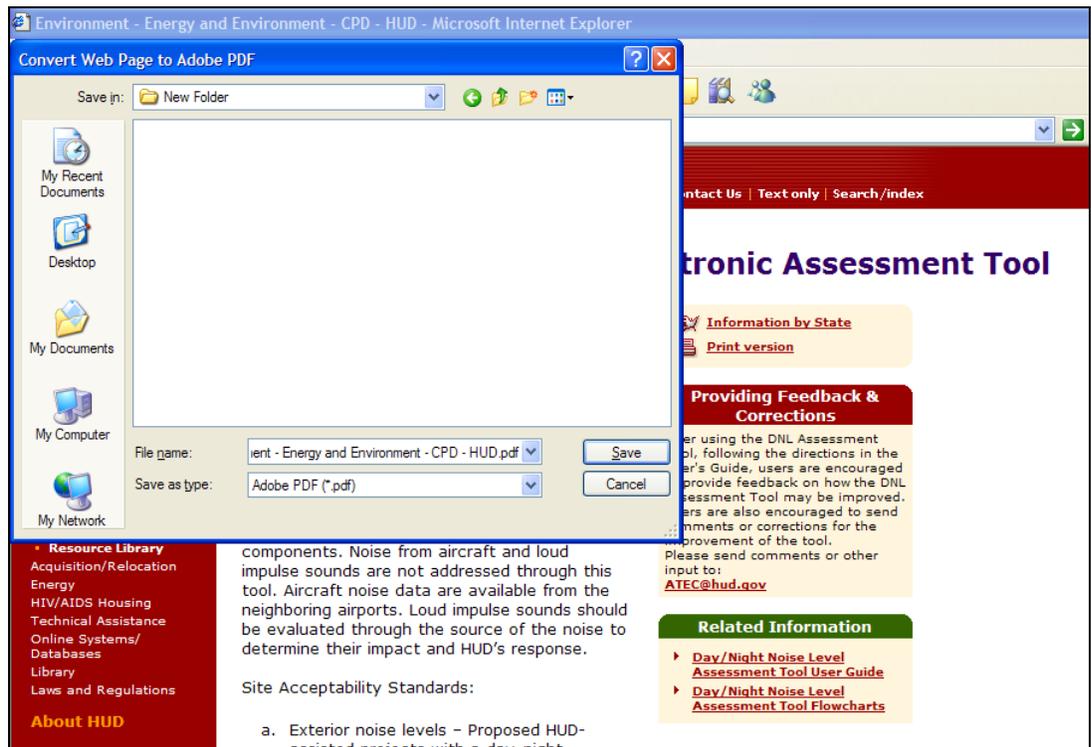
To save as a PDF document, perform the following steps:

Step 1 Click on the Adobe PDF icon in the browser. A “ Convert Web Page to Adobe PDF” window will appear.

Step 2 Choose the location and file name to save the web page in a PDF format.

Step 3 Click on Save.

The following is a visual representation of the procedure of saving a record:



To print as a PDF document, perform the following steps:

Step 1 Click on the arrow next to the Adobe PDF icon to see the PDF menu

Step 2 Click on “Print Web Page”

The following is a visual representation of the procedure of printing a record:

