Goals & Policies and Background Report

City of Dorris 2024 General Plan Noise Element Update

Dorris, California

September 2024

Prepared For:

City of Dorris
P.O. Box 768
307 S. Main Street
Dorris, CA 96023

Prepared By:

Bollard Acoustical Consultants, Inc.
P.O. Box 7968
Auburn, CA 95604
BAC Job # 2024-041

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Introduction

The City of Dorris (population 860) is a small community in northeastern Siskiyou County in Northern California along State Route 97 (SR 97) approximately 2 ½ miles south of the Oregon line. The City is located in the Butte Valley, a high desert plateau used for agriculture and for the management of natural resources. Despite the City's size and rural setting, Dorris experiences some of the noise related issues affecting larger and more centrally located communities, including a highway, Union Pacific Railroad rail line, and lumber mill.

Purpose of the Noise Element

Noise is usually defined as unwanted or harmful sound that is unpleasant, loud, or disruptive. It has been increasingly recognized that excessive noise levels can have adverse health effects on people. As such, the purpose of a general plan noise element is to:

1. Provide sufficient information concerning the community's noise environment so that noise can be effectively considered in the land use planning process;
2. Develop strategies for reducing excessive noise exposure through cost-effective mitigation and/or zoning;
3. Protect "noise-sensitive" uses and areas of the city where noise levels are acceptable; and
4. Ensure compliance with the State Noise Insulation Standards.[1]

There is a certain amount of background noise that is tolerable within a community. This is the result of human activities (e.g., traffic, other people's conversations, air conditioning, other machinery and other activities). This average background noise becomes intrusive somewhere in the upper 50 decibel[2] (dB) range. It is the intrusive noise with which the Noise Element is particularly concerned, although gradual increases in ambient noise resulting from urban development is also a concern.

[1] These standards require specified levels of outdoor to indoor noise reduction for new multifamily residential construction in areas where the outdoor noise exposure exceeds CNEL (or DNL) 60 dB.

[2] Definitions and acoustical terminology are provided in Appendix A of this report.

Noise Element Requirements

California Government Code Section 65302(f) defines the requirements of a general plan noise element, as follows:

1. A noise element which shall identify and appraise noise problems in the community. The noise element shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:
    A. Highways and freeways.
    B. Primary arterials and major local streets.
    C. Passenger and freight on-line railroad operations and ground rapid transit systems.
    D. Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engines test stands, and all other ground facilities and maintenance functions related to airport operation.
    E. Local industrial plants, including but not limited to, railroad classification yards.
    F. Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.
2. Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (A) to (F), inclusive.
3. The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.
4. The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

Fundamentals of Noise

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

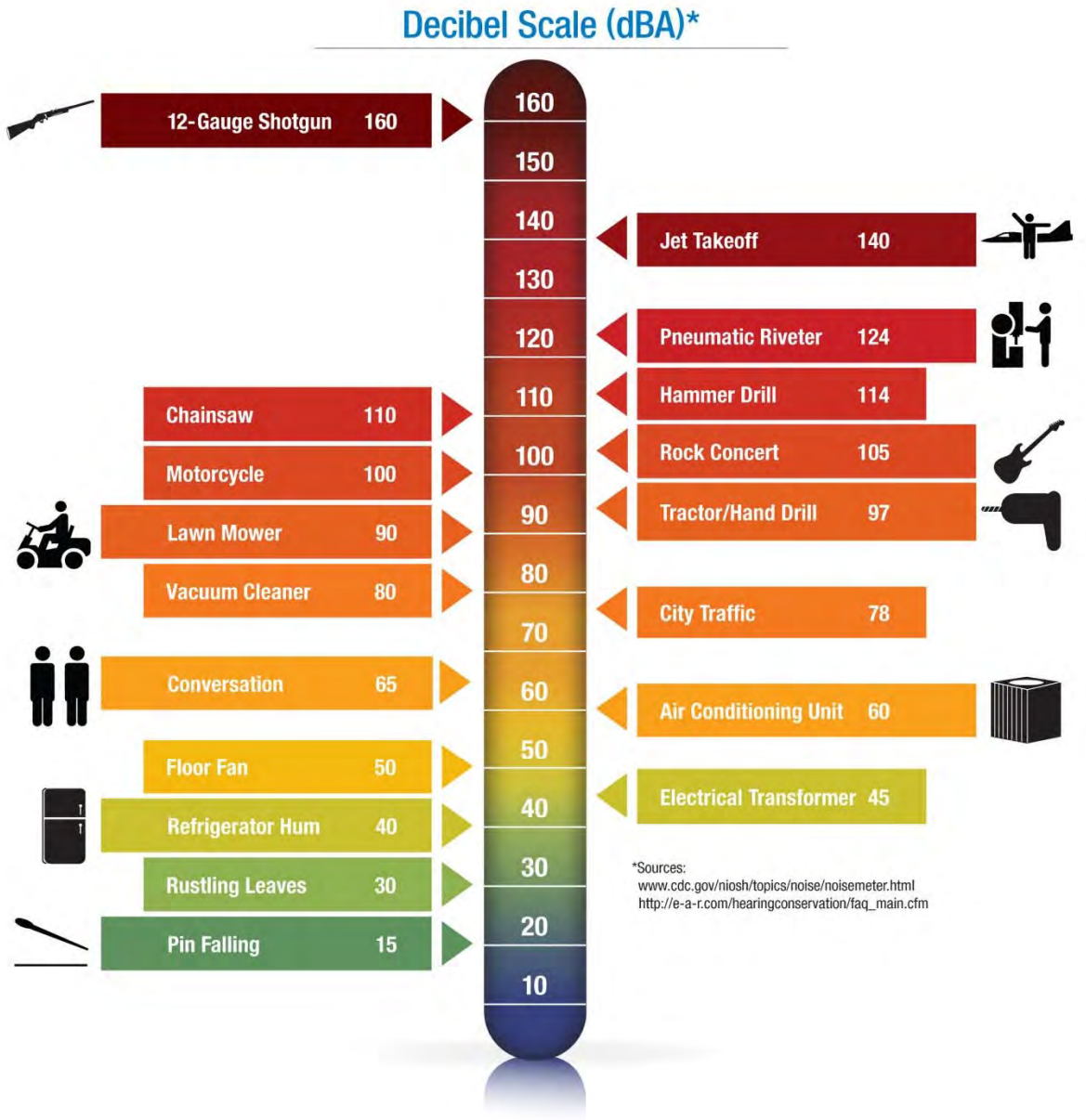
Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Figure 1 shows examples of noise levels for several common noise sources and environments.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, DNL, and shows very good correlation with community response to noise.

The Day-Night Average Level (DNL) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Figure 1
Common Noise Sources and Associated Noise Levels



Noise in the community has often been cited as being a health problem, not in terms of actual physiological damages such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the bases for land use planning policies preventing exposures to excessive community noise levels.

To control noise from fixed sources which have developed from processes other than zoning or land use planning, many jurisdictions have adopted community noise control ordinances. Such ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as performance standards to judge the creation of a potential nuisance, or potential encroachment of sensitive uses upon noise-producing facilities. Community noise control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

In addition to the A-weighted noise level, other factors should be considered in establishing criteria for noise-sensitive land uses. For example, sounds with noticeable tonal content such as whistles, horns, droning or high-pitched sounds may be more annoying than the A-weighted sound level alone suggests. Many noise standards apply a penalty, or correction, of 5 dBA to such sounds. The effects of unusual tonal content are generally more of a concern at nighttime, when residents may notice the sound in contrast to low levels of background noise.

Because many rural residential areas experience very low noise levels, residents may express concern about the loss of "peace and quiet" due to the introduction of a sound which was not audible previously. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the loss of "peace and quiet" is the inevitable result of land use or activity changes in such areas. Audibility of a new noise source and/or increases in noise levels within recognized acceptable limits are not usually considered to be significant noise impacts, but these concerns should be addressed and considered in the planning and environmental review processes.

Existing & Future Noise Environments in Dorris

This document presents background information on the existing and projected future noise environments in Dorris, California. The existing city limits and community noise survey locations are shown on Figure 2. Despite the City's size and rural setting, Dorris experiences some of the noise related issues affecting larger and more centrally located communities, including a highway, Union Pacific Railroad rail line, and lumber mill.

The ambient noise environment in Dorris is defined primarily by traffic noise from Highway 97 and city streets, and to a lesser extent by commercial activities, railroad operations, intermittent aircraft operations at the Butte Valley Airport to the south of town, typical neighborhood noise sources, and industrial activity in the southeast quadrant of the City (lumber mill). Activities at the local school and park also periodically affect the noise environment within Dorris, but to a much more localized extent. Noise sources associated with construction and property maintenance also contributed to the noise environment, typically on an intermittent and fairly temporary basis.

As Dorris grows, coupled with overall growth in the region, traffic volumes on local roadways will increase, resulting in higher traffic noise environments. Similarly, growth in tourism-related activities, and increased commercial activities in the City will all contribute to higher ambient noise levels over time.

This document presents background information on the various types of noise sources affecting the existing and future noise environments within Dorris. This information will be used in the development of Noise Element Goals and Policies to ensure land use compatibility within the City moving forward.

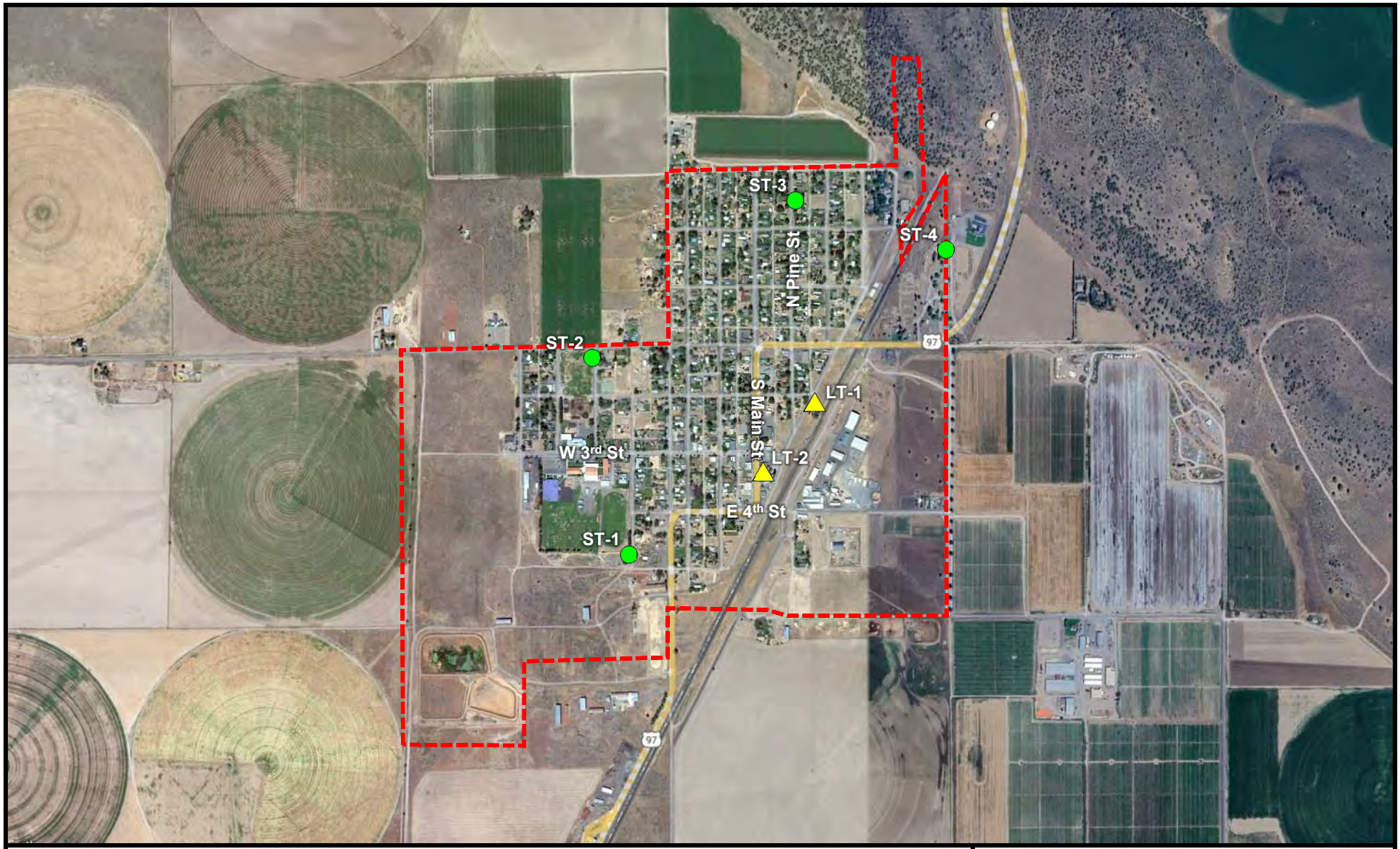
The following sections discuss the noise environment within Dorris.

Community Noise Survey

To quantify existing noise levels within Dorris, a community noise survey was performed. The community noise survey consisted of two 120-hour continuous noise measurement locations from Saturday, April 6th through Wednesday, April 10th, 2024. In addition to the long-term noise surveys, short-term surveys (15 minutes during daytime hours, 5 minutes during nighttime hours), were conducted during morning, afternoon, and evening hours at four locations within Dorris between April 9th and 10th, 2024. The locations of the community noise measurement sites are shown on Figure 2.

Larson-Davis Laboratories (LDL) precision integrating sound levels meters were used to complete the noise level measurement survey. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). Photographs of the noise survey locations are provided in Appendix B.

Tables 1 and 2 contain summaries of the long-term and short-term noise survey results, respectively. The long-term noise survey results are presented in tabular form in Appendix C and graphical form in Appendix D.



Legend

- City Limits (Approximate)
- Long-Term Noise Measurement Locations
- Community Ambient Noise Survey Locations

N

Scale (Feet)

0 600 1,200

Dorris City Limits and Community Noise Survey Locations

Dorris GP Noise Element Update

Figure 2

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Table 1
Long-term Community Noise Survey Results
Dorris, CA.

		Day [dB]		Night [dB]		
Site[1]	**Date**	**Leq**	**Lmax**	**Leq**	**Lmax**	**DNL [dB]**
LT-1	Saturday, April 6, 2024	65	76	68	74	74
	Sunday, April 7, 2024	65	74	66	76	73
	Monday, April 8, 2024	64	79	64	77	70
	Tuesday, April 9, 2024	66	78	67	84	73
	Wednesday, April 10, 2024	66	77	66	73	72
	Average	**65**	**77**	**66**	**77**	**72**
LT-2	Saturday, April 6, 2024	66	87	64	85	71
	Sunday, April 7, 2024	67	90	62	86	70
	Monday, April 8, 2024	68	89	62	85	70
	Tuesday, April 9, 2024	67	88	65	87	72
	Wednesday, April 10, 2024	68	88	63	85	71
	Average	**67**	**88**	**63**	**86**	**71**

1. Noise monitoring locations are shown on Figure 2.
Source: Bollard Acoustical Consultants, Inc (2024)

Table 2
Short-term Community Noise Survey Results
Dorris, CA.

Site[1]	Date	Time	Lmax	Leq	DNL (Est.)[2]
ST-1	Wednesday, April 10, 2024	10:41 AM	53	43	48
	Tuesday, April 9, 2024	1:18 PM	54	44	
	Tuesday, April 9, 2024	11:31 PM	51	42	
ST-2	Wednesday, April 10, 2024	11:01 AM	63	51	48
	Tuesday, April 9, 2024	1:41 PM	65	49	
	Tuesday, April 9, 2024	11:40 PM	48	36	
ST-3	Wednesday, April 10, 2024	11:20 AM	53	45	47
	Tuesday, April 9, 2024	2:07 PM	59	42	
	Tuesday, April 9, 2024	11:50 PM	57	41	
St-4	Wednesday, April 10, 2024	10:16 AM	66	56	57
	Tuesday, April 9, 2024	2:30 PM	62	49	
	Tuesday, April 9, 2024	11:20 PM	68	55	

1. Noise monitoring locations are shown on Figure 2.
2. DNL was estimated from the measured Leq values.
Source: Bollard Acoustical Consultants, Inc (2024)

As indicated in Table 1, noise levels measured at Sites LT-1 and LT-2 ranged from 70-73 dB DNL. These noise levels were most heavily influenced by traffic on Highway 97 and railroad operations, respectively.

At the short-term noise monitoring sites, Table 2 indicates that measured average noise levels varied by location and time of day, but were considerably lower than levels measured in closer proximity to Highway 97 and the UPRR. Noise sources observed to have affected the daytime short-term noise survey results included local and distant traffic, barking dogs, industry, and birds. Noise sources observed to have affected the nighttime short-term noise survey results included local and distant traffic, and frogs.

Overall, the community noise survey results indicate that the noise environment is elevated in close proximity to the local highway and railroad tracks, with lower noise levels occurring at areas removed from those noise sources. These results are as expected and will be used to develop appropriate noise policies for future development within Dorris.

Roadway Noise

Highway 97 is the main source of traffic noise within Dorris, although traffic on local surface streets also contributes to the overall ambient noise environment in town. The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to predict existing and future traffic noise levels for this roadway. The FHWA Model is based upon the CALVENO noise emission factors for automobiles, medium trucks, and heavy trucks.

Average Daily Traffic (ADT) volumes for existing (2022) conditions were obtained from published Caltrans traffic data. Future conditions were conservatively estimated by doubling the existing ADT volumes. The results of the traffic noise modelling process indicate that existing and future Highway 97 traffic noise levels are approximately 66 and 69 dB DNL at a reference distance of 100 feet. Figures 3 and 4 illustrate the existing and future traffic noise contours within the Noise Element Study Area. The complete FHWA Model results for the roadways are presented in Appendix E.

It is recognized that vehicle speeds, truck percentages, day/night distributions and topographic shielding vary on the roadways within Dorris. As a result, it is not feasible to precisely predict existing and future traffic noise levels at the General Plan level. The noise contours shown on Figures 3 and 4 are useful for performing screening analyses to determine if more detailed noise analyses may be warranted for future noise-sensitive development projects.

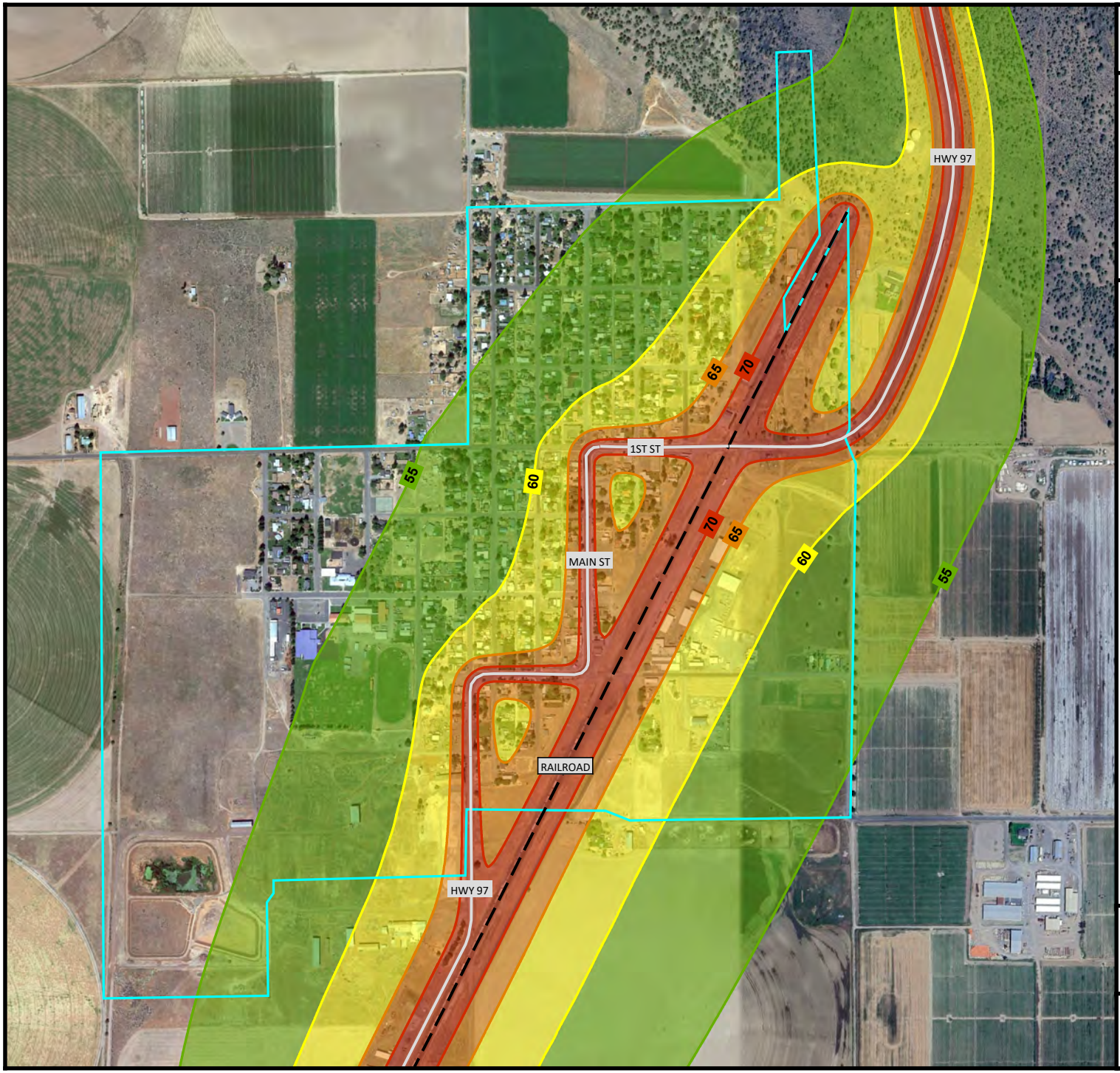

Figure 3

Existing Noise Contours

Dorris GP
Noise Element Update

Legend

Contour Scale, DNL [dBA]

>=	70
65 -	70
60 -	65
55 -	60

Objects

- City Limits
- Heavy Rail
- Major Roadway

Scale

N

0 300 600 1200 feet

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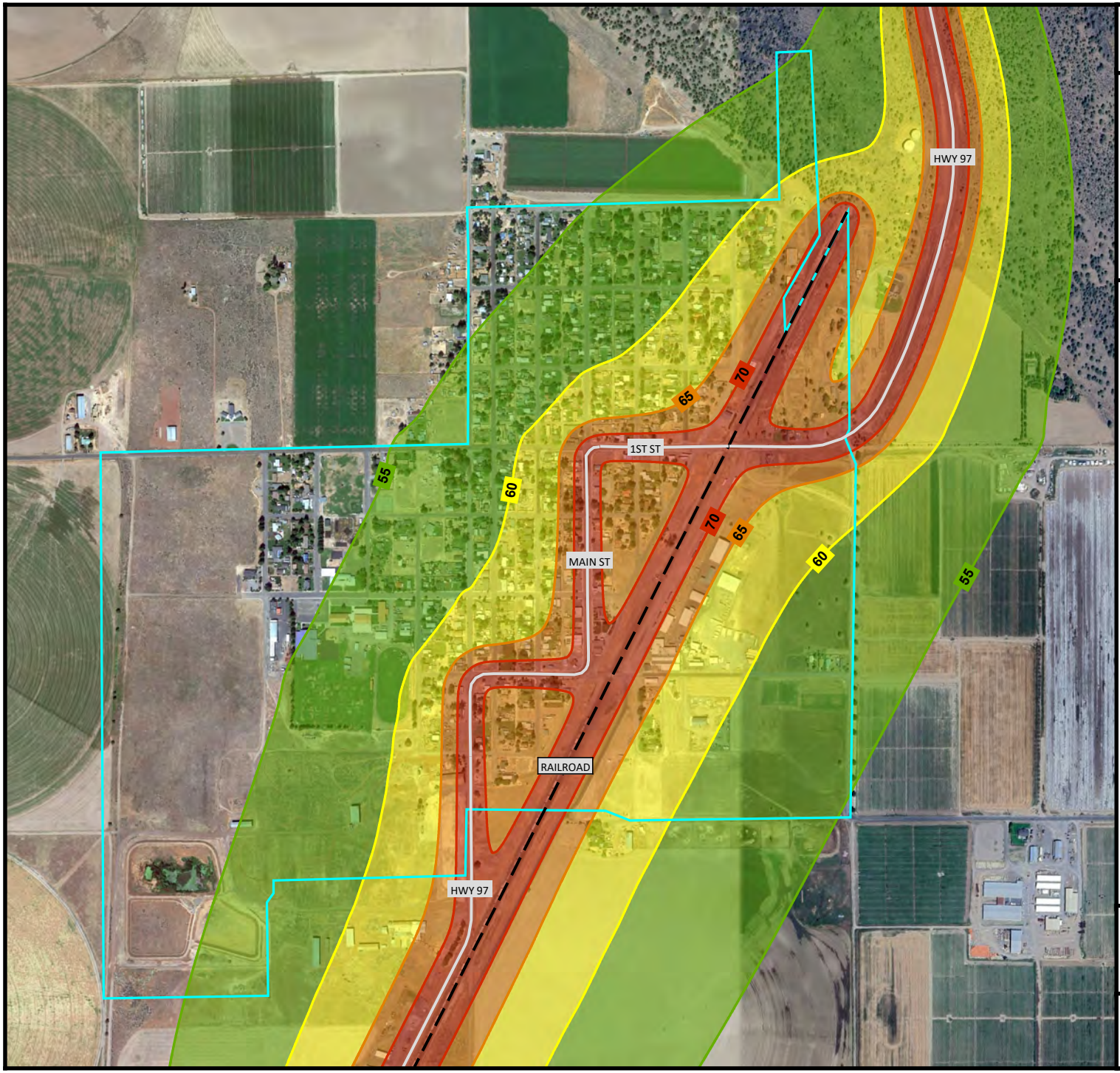

Figure 4

Future Noise Contours

Dorris GP
Noise Element Update

Legend

Contour Scale, DNL [dBA]

>=	70
65 -	70
60 -	65
55 -	60

Objects

- City Limits
- Heavy Rail
- Major Roadway

Scale

N

0 300 600 1200 feet

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Railroad Noise

Railroad operations in Dorris occur on the railroad tracks which generally run north-south through town. The location of the railroad tracks are shows on Figure 2. During the 120-hour ambient noise survey period, approximately 49 apparent railroad operations occurred in Dorris. Due to at-grade railroad crossings at city streets, railroad warning horns are used in town. Although the precise number of daily railroad operations in town is unknown, and is likely variable, the 49 apparent railroad operations which occurred over the 5-day noise monitoring period indicate a high level of railroad activity in town. Community noise survey Site LT-1 was approximately 120 feet from the railroad tracks, and measured ambient noise levels at that location registered 70-74 dB DNL. Because monitoring Site LT-1 was not appreciably affected by traffic noise on Highway 97, the actual noise from railroad operations in Dorris is predicted to be approximately 74 dB DNL at a reference distance of 100 feet from the railroad tracks. Existing and future railroad noise exposure contours are presented on Figures 3 and 4, respectively.

The City of Dorris is considering applying for Quiet Zone status from the Federal Railroad Administration (FRA). The FRA is committed to reducing the number of collisions at highway-rail grade crossings, while establishing a consistent standard for communities who opt to preserve or enhance quality of life for their residents by establishing quiet zones within which routine use of train horns at crossings is prohibited.

Federal regulation requires that locomotive horns begin sounding 15–20 seconds before entering public highway-rail grade crossings, no more than one-quarter mile in advance. Only a public authority, the governmental entity responsible for traffic control or law enforcement at the crossings, is permitted to create quiet zones.

A quiet zone is a section of a rail line at least one-half mile in length that contains one or more consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded when trains are approaching the crossings. The prohibited use of train horns at quiet zones only applies to trains when approaching and entering crossings and does not include train horn use within passenger stations or rail yards. Train horns may be sounded in emergency situations or to comply with other railroad or FRA rules even within a quiet zone. Quiet zone regulations also do not eliminate the use of locomotive bells at crossings. Therefore, a more appropriate description of a designated quiet zone would be a “reduced train horn area.”

BAC estimates that the establishment of a Quiet Zone in Dorris would result in a decrease in railroad noise of approximately 8 dB DNL, which is a substantial decrease. Figure 5 shows the future noise contours in Dorris with railroad noise decreased by 8 dB DNL following the implementation of a Quiet Zone.

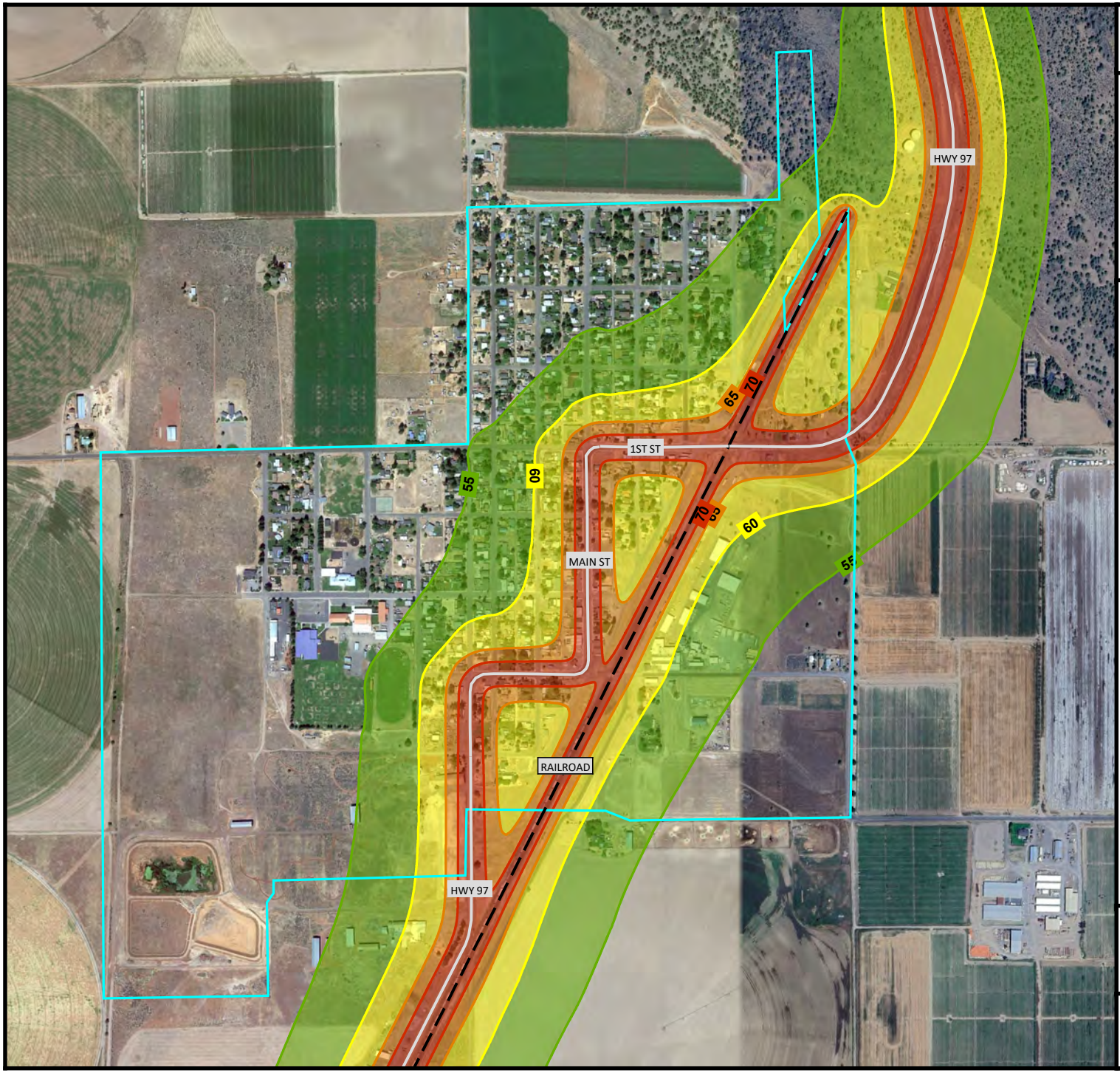

Figure 5

Future Noise Contours, QuietZone

Dorris GP
Noise Element Update

Legend

Contour Scale, DNL [dBA]

>=	70
65 -	70
60 -	65
55 -	60

Objects

- City Limits
- Heavy Rail
- Major Roadway

Scale

N

0 300 600 1200 feet

BOLLARD Acoustical Consultants

Parks, & School Playground Noise

Children playing on school playgrounds, at neighborhood parks or even in yard areas of residential daycares can generate sound levels which could be considered by some to be objectionable. Typical noise levels associated with groups of children playing at a distance of 50 feet can range from 50 to 60 dB L_{eq}, with maximum noise levels ranging from 65 to 75 dB L_{max}. Actual noise generation will depend on the orientation and proximity of the play areas to the proposed sensitive uses, the number of children using the play areas at a given time, and the types of activities the children are engaged in.

Butte Valley Airport Noise

The Butte Valley Airport is located approximately 5 miles southwest of Dorris, and does not appear to have a high volume of annual operations. The airport consists of one main runway (RWY 16-34), which is approximately 4,400 feet in length. There is no tower and no services are provided at this airport. Operations at the airport likely consist primarily of single and twin-engine general aviation propeller driven aircraft. Aircraft operations at this airport average approximately 20 per week (airnav.com), indicating that it is not a heavily used airport. Given this light usage and the considerable distance between the airport and Dorris, Dorris is not considered to be appreciably affected by elevated noise related to operations at this Airport.

Construction Noise

During the construction phases of projects, whether for new residential or commercial construction, or roadway improvement projects, noise from construction activities adds to the noise environment in the immediate project vicinity. Activities involved in typical construction would generate maximum noise levels, as indicated in Table 3, ranging from 76 to 90 dBA at a distance of 50 feet.

Table 3
Construction Equipment Reference Noise Levels

Equipment Description	Maximum Noise Level at 50 feet [dBA]
Air compressor	80
Backhoe	80
Ballast equalizer	82
Ballast tamper	83
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	82
Grader	85
Impact wrench	85
Loader	80
Paver	85
Pneumatic tool	85
Pump	77
Saw	76
Scarifier	83
Scraper	85
Shovel	82
Spike driver	77
Tie cutter	84
Tie handler	80
Tie inserter	85
Truck	84

Source: Federal Transit Administration Noise and Vibration Impact Assessment Manual, Table 7-1 (2018)

General Business and Light Industrial Use Noise

Existing or planned commercial/industrial operations may result in noise impacts when they are proposed near noise-sensitive land uses, or when noise-sensitive land uses are proposed near commercial or industrial noise sources.

Typical noise sources within Dorris include, but are not limited to, the following:

A. Dorris Lumber and Moulding on East 4th street (measured at 60 dB Leq at 150 feet)
B. Commercial uses on Main Street
C. School playing fields on West 3rd Street
D. Dorris Park and Playground activities
E. Agricultural activities near the city limits

The noise emissions of these types of uses are dependent on many factors, and are therefore, difficult to quantify precisely. Nonetheless, noise generated by these uses contribute to the ambient noise environment in the immediate vicinity of these uses, and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential or other noise-sensitive areas.

Summary of Existing and Projected Noise Conditions in Dorris

In general, at locations removed from Highway 97 and the railroad tracks, Dorris is a fairly quiet city. However, Highway 97, operations on the UPRR tracks, and operations at the lumber mill all generate elevated noise levels at locations in proximity to those sources. Significant increases in ambient noise levels within the City are not expected in the future, nor is substantial development of noise-generating or noise-sensitive land uses. Nonetheless, where new development is proposed near the existing noise sources in town, care should be taken by City Planning Department staff to identify areas of potential land-use incompatibility with respect to noise and apply the Noise Element policies accordingly.

Goals and Policies

Background on Criteria for Acceptable Noise Exposure

The State Office of Planning and Research (OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The OPR guidelines contain a land use compatibility table which describes the compatibility of different land uses with a range of environmental noise levels in terms of Ldn. A noise environment of 60 dB Ldn or less is considered to be normally acceptable for residential uses according to those guidelines.

The U.S. Environmental Protection Agency (EPA also offers guidelines for community noise exposure in the publication "Information on the Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety". These guidelines consider occupational noise exposure as well as noise exposure in the home. The "Levels Document" recognizes an exterior noise level of 55 dB Ldn as a goal to protect the public from hearing loss, activity interference, sleep disturbance and annoyance. The EPA notes, however, that this level is not a regulatory goal, but is a level defined by a negotiated scientific consensus without concern for economic and technological feasibility or the needs and desires of any particular community. The EPA and other Federal agencies have suggested land use compatibility guidelines which indicate that residential noise exposures of 55 to 65 dB L_{dn} are acceptable.

The U.S. Environmental Protection Agency has also prepared a Model Community Noise Control Ordinance, using L_{eq} as the means of defining allowable residential noise level limits. The EPA model contains no specific recommendations for local noise level standards, but reports a range of Leq values as adopted by various local jurisdictions. The mean daytime residential noise standard reported by the EPA is 57 dBA (L_{eq}), and the mean nighttime residential noise standard is 52 dBA (L_{eq}). Other state laws and regulations regarding noise control are directed towards aircraft, motor vehicles and noise in general.

The California Vehicle Code sets noise emission standards for new vehicles including autos, trucks, motorcycles and off-road vehicles. Performance standards also apply to all vehicles operated on public streets and roadways. Section 216 of the Streets and Highways Code regulates traffic noise received at schools near freeways.

Noise Element Goals

The Noise Element of the Dorris General Plan provides a basis for comprehensive local policies to control and abate environmental noise and to protect the citizens of Dorris and its economic base against land use incompatibilities. The specific goals of this Noise Element are as follows:

Goal 1 To protect the existing and future citizens of Dorris from the harmful effects of exposure to excessive noise.

Goal 2 To protect existing noise-sensitive land uses from encroachment by new uses that would generate noise levels which are incompatible with those uses, and to discourage new noise-sensitive land uses from being developed near sources of high noise levels.

Goal 3 To recognize that noise is an inherent by-product of many land uses and to protect the economic base of Dorris by preventing the encroachment of noise-sensitive land uses into areas affected by existing noise-producing uses.

Goal 4 To provide sufficient information regarding the community noise environment so that existing and potential future noise impacts may be effectively addressed in the land use planning and project review processes.

Goal 5 To develop strategies for abating excessive noise exposure through appropriate mitigation measures in combination with appropriate zoning to avoid incompatible land uses.

Noise Element Policies

Traffic, Railroad and Aircraft Noise

The following policies shall apply to new development proposals within the City of Dorris which are affected by either traffic, railroad or aircraft noise. These standards do not apply to existing noise-sensitive land uses which are currently exposed to traffic, railroad, or aircraft noise.

Policy 1 The noise level standards for noise-sensitive areas of new uses affected by traffic, aircraft, or railroad noise sources in Dorris are shown by Table 4.

Policy 2 Where the noise level standards of Table 4 are predicted to be exceeded at new uses proposed within Dorris which are affected by traffic, aircraft or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 4 standards at the noise-sensitive areas of the proposed uses.

Policy 3 For new developments proposed in areas exposed to railroad noise, the exterior noise level standards of Table 4 shall be increased by 5 dB DNL. This policy recognizes that railroad events, while loud, are short in duration and that, during railroad passbys, single-event noise at exterior spaces remains relatively high regardless of whether exterior noise mitigation has been implemented. As a result, the goal of this policy is to minimize the extent by which railroad noise barriers may be required near the railroad tracks in Dorris.

Policy 4 The City shall encourage local law-enforcement agencies to enforce the vehicle noise level limits specified within the California Motor Vehicle Code.

Policy 5 The City shall initiate steps to create Quiet Zones in Dorris to reduce railroad noise exposure in the City.

Table 4
Noise Standards for New Uses Affected by Traffic, Aircraft or Railroad Noise
Dorris Noise Element

Land Use	Noise Sensitive[1] Outdoor Area – DNL[7]	Noise Sensitive Interior Spaces[2,3]	
		DNL[7]	Leq[5,8]
Residential	65	45	---
Mixed Use Residential	---	45	---
Transient Lodging, Hospitals[4] & Nursing Homes	65	45	---
Theaters & Auditoriums	---	---	35
Churches, Meeting Halls, Libraries	65	---	40
Schools[6]	---	---	40
Office/Professional	65	---	45
Commercial/Retail Buildings	---	---	50
Playgrounds, Parks, etc.	70	---	---
Industrial	---	---	50

Notes:

1. Noise sensitive areas are defined in the acoustic terminology section. Where there are no sensitive exterior spaces proposed as part of the new use, only the interior noise level standards shall apply.
2. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
3. If the proposed use is exposed to railroad noise, in addition to the interior noise standards shown, a maximum (L_{max}) noise level standard of 70 dB shall be applied to all sleeping rooms to reduce the potential for sleep disturbance during nighttime train passages.
4. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5. As determined for a typical worst-case hour during periods of use.
6. Exterior areas of school uses are not typically noise-sensitive. As a result, the standards for schools are focused on the interior office and classroom spaces.
7. DNL = Day – Night Average Level (also denoted L_{dn}). Represents 24-hour average of noise with noise occurring during nighttime hours (10 pm to 7 am) penalized by 10 dB prior to averaging.
8. Leq = Average or "Equivalent" noise level. Represents the energy average of all noise occurring during a given period (typically 1-hour).

Fixed (Non-Transportation) Noise Sources

The following policies shall apply to new development proposals which are either affected by existing locally-regulated noise sources or proposed uses which would include noise sources which are regulated at the local level. Fixed noise sources do not include vehicles on public roadways but do include sources of noise originating from either a fixed or variable position on private property.

Policy 6 The interior and exterior noise level standards for noise-sensitive areas of new uses affected by existing fixed noise sources in Dorris are shown by Table 5. Where the noise level standards of Table 5 are predicted to be exceeded at a proposed noise-sensitive areas due to existing fixed noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 5 standards within the identified noise-sensitive areas of the proposed new development.

Policy 7 Where a project would result in the introduction of new fixed noise sources where such sources do not currently exist, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 5 at existing noise-sensitive areas in the project vicinity.

Policy 8 If a noise-generating use is proposed adjacent to vacant lands currently zoned for uses which may be developed with exterior noise sensitivity, the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the Table 5 standards using reasonable assumptions pertaining to both the likely sensitivity of the receiving land use and the noise generation of the project. At such time as that noise-sensitivity is introduced on the nearby vacant parcel(s, the proposed noise-generating use will be responsible for complying with the City's Noise Ordinance standards

Policy 9 Due to variations in types of both noise-generating and noise-sensitive land uses, as well as variations in ambient conditions in the City, the City shall have the ability to set noise standards which are up to 5 dB higher or lower than the Table 5 standards if determined appropriate by the City Council and/or City Planning department staff.

Table 5
Noise Standards for Locally Regulated (Non-Transportation) Noise Sources
Dorris Noise Element

Receiving Land Use	Period[3]	Exterior Areas[1]		Interior Spaces[2]	
		Lmax[4]	Leq[5]	Lmax[4]	Leq[5]
Residential	Day	75	55	60	45
	Night	65	50	45	35
Mixed Use Residential	Day	--	--	60	45
	Night	--	--	45	35
Transient Lodging, Hospitals[6] & Nursing Homes	Day	75	60	60	45
	Night	70	55	45	35
Theaters & Auditoriums	Day	75	55	40	35
	Night	--	--	--	--
Churches, Meeting Halls, Libraries	Day	75	55	55	45
	Night	70	50	55	40
Schools[7]	Day	--	--	55	40
	Night	--	--	55	40
Office/Professional	Day	80	60	60	45
	Night	--	--	--	--
Commercial/Retail Buildings	Day	80	60	60	50
	Night	--	--	--	--
Playgrounds, Parks, etc.	Day	75	60	--	--
	Night	--	--	--	--
Industrial	Day	80	60	60	50
	Night	--	--	--	--

Specific Notes:

1. Noise sensitive areas are defined acoustic terminology section.
2. Interior noise level standards are applied within noise-sensitive areas of the various land uses, as defined in the acoustic terminology section, with windows and doors closed.
3. Daytime hours = 7 am – 10 pm, Nighttime hours = 10 pm – 7 am.
4. Lmax = Highest measured sound level occurring during a given interval of time (Typically 1 hour).
5. Leq = Average or "Equivalent" noise level during the worst-case hour in which the building is in use.
6. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
7. Exterior areas of school uses are not typically noise-sensitive. As a result, the standards for schools are focused on the interior office and classroom spaces.

General Notes Applicable to All Noise Standards and Land Uses:

a. Where the noise source in question consists of speech or music, or is impulsive in nature, or contains a pure tone, the noise standards of this table are reduced by 5 dB.
b. Where ambient noise levels exceed the noise level standards shown above, the noise standards shall be increased in 5 dB increments to encompass the ambient.
c. Reductions in the noise standards for noise sources identified in general note "A" above shall be applied after any increases warranted by elevated ambient conditions prescribed in general note "B", subject to verification through a noise study.

Transportation Projects & Criteria for Determining Significant Increases in Traffic Noise

Policy 10 For capacity enhancing roadway or rail projects, the construction of new roadways or railways, or projects which will substantially increase traffic on the local roadway network, a noise analysis shall be prepared. If pre-project traffic noise levels already exceed the noise standards of Table 4 and the increase is significant as defined below, noise mitigation measures should be considered to reduce traffic and/or rail noise levels to a state of compliance with the Table 4 standards. A significant increase is defined as follows:

Pre-Project Noise Environment (DNL)	Significant Increase (dB)
Less than 60 dB	5+ dB
60 - 65 dB	3+ dB
Greater than 65 dB	1.5+ dB

Policy 11 If noise-reducing pavement is to be utilized in conjunction with a roadway improvement project, or if such paving exists adjacent to a proposed new noise-sensitive land use, the acoustical benefits of such pavement shall be included in the noise analysis prepared for the project.

General Noise Policies

Policy 12 All noise analyses prepared to determine compliance with the noise level standards contained within this Noise Element shall:

A. Be the responsibility of the applicant.

B. Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.

C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

D. Estimate projected future (20 year) noise levels in terms of the Standards of Tables 4 and 5, and compare those levels to the adopted policies of the Noise Element.

E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

F. Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented.

Policy 13 Noise analyses prepared for multifamily residential projects, townhomes, mixed-use, condominiums, or other residential projects where floor ceiling assemblies or party-walls shall be common to different owners/occupants, shall be consistent with the State of California Noise Insulation standards.

Policy 14 The City's General Plan Noise Element standards contained herein are applicable to proposed new uses. For resolving conflicts between existing uses, the City's Noise Ordinance shall be applicable.

Policy 15 Where exterior noise mitigation is required to achieve satisfaction with the noise standards of either Tables 4 or 5, the following priorities for mitigation shall be observed where feasible:

A. Use of setbacks or open space buffers.

B. Incorporate site planning to orient and/or shield sensitive exterior areas from view of the noise source in question.

C. If the noise source is fixed, utilize quieter equipment or implement noise control treatments at the source.

D. Solid walls should be considered a last resort for the mitigation of exterior noise levels and, if feasible, should be placed on earth berms to lessen their apparent height.

Policy 16 To provide a comprehensive approach to noise control, the City shall:

A. Develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the project review process and, as may be determined necessary, through the building permit process.

B. Develop and employ procedures to monitor compliance with the standards of the Noise Element after completion of projects where noise mitigation measures were required.

C. The Noise Ordinance shall be amended to provide that noise standards contained therein will be consistent with the noise standards of this Noise Element.

Vibration

Policy 17 To reduce impacts from groundborne vibration, all proposals for new uses which would include vibration-generating activities, or for new sensitive uses proposed in proximity to existing sources of vibration (i.e., railroad tracks), shall comply with the vibration standards established by the Federal Transit Administration Transit Noise and Vibration Impact Assessment guidelines (FTA-VA-90-1003-06).

Policy 18 A vibration analysis prepared by a qualified specialist shall accompany all proposals for sensitive land uses located within 100 feet of the railroad tracks in Dorris. The analysis shall quantify vibration levels and compare them against the FTA vibration standards. Railroad vibration studies for projects located beyond 100 feet from the tracks shall not be required.

Policy 19 All projects that propose to use heavy construction equipment that has the potential to create vibrations that could cause structural damage to sensitive structures within 100 feet shall be required to submit a pre-construction vibration study prior to the approval of a building permit. Projects shall be required to incorporate specified measures and monitoring identified to reduce impacts. Pile driving or blasting are illustrative of the type of equipment that could be subject to this policy.

Exemptions

Policy 20 The following sources of noise shall be exempt from the provisions of this Noise Element:

A. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and emergency generators which are activated during power outages. The routine testing of such warning devices and equipment, including generators, is also exempt provided such testing occurs during daytime hours.

B. All activities occurring at public schools and public school playgrounds and sporting fields, as such activities are not regulated at the local level.

C. Activities at private schools, parks or playgrounds, provided such activities occur during daytime hours (7 am – 10 pm).

D. Activities associated with temporary events for which a permit has been obtained from the City (i.e., parades, fireworks displays, etc.)

E. Construction and demolition activities located within 1,000 feet of noise-sensitive land uses provided they occur during normal daytime hours, excluding Sundays and Federal Holidays, subject to the conditions imposed by City permit. For construction activities, daytime hours are defined as 7 am to 7 pm. Construction activities occurring between the hours of 7 pm and 7 am must comply with the interior noise level standards identified in Table 2 unless an exception has been granted by the City Planning Department.

F. Construction and demolition activities located beyond 1,000 feet of noise-sensitive land uses, subject to the conditions imposed by City permit. For construction activities, daytime hours are defined as 7 am to 7 pm.

G. In the event of an emergency involving agricultural activities which requires prompt action to protect crops or equipment, the City can exempt noise generated by such action from the provisions of this Element.

References

1. General Plan Guidelines. State of California Office of Planning and Research (OPR). *https://opr.ca.gov/docs/OPR_Appendix_D_final.pdf*

2. United States Environmental Protection Agency (EPA). *Model Community Noise Control Ordinance, using L_{eq} as the means of defining allowable residential noise level limits. https://www.nonoise.org/library/epamodel/epamodel.pdf*

3. *California Vehicle Code. https://california.public.law/codes/ca_sts_and_high_code_section_216*

4. *Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108).*

5. State of California Department of Transportation (Caltrans), Annual Traffic Counts. *https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes*

6. FTA. 2018 (September) Federal Transit Administration Publication. *Transit Noise and Vibration Impact Assessment Manual.* https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Appendix A
Acoustical Terminology

Ambient Noise	The distinctive acoustical characteristics of a given area consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response. All noise level measurements and noise standards associated with this Health and Safety / Noise Element are provided in terms of A-weighted sound levels.
Capacity Enhancing	A roadway project which would increase roadway capacity. Examples include new roadway construction projects or widening projects. Projects which only re-stripe or otherwise alter roadway configuration without increasing capacity are not included in this definition.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Decibel or dB	Fundamental unit of sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
Fixed Noise Source	Fixed noise sources refer to sources of noise occurring on private property which are not regulated at the local level. They may be fixed in a certain position or mobile on the private property, but do not include mobile vehicles on public roadways or aircraft operations. For example, the City of Montague cannot regulate how much noise a car on a public roadway can generate, as such levels are regulated at the state level. However, the City can regulate the level of noise that is generated on private property as it affects other properties. Traffic on public roadways, and aircraft in flight cannot be regulated at the local level.
Frequency	The measure of the rapidity of alterations of a periodic acoustic signal, expressed in cycles per second or Hertz.
Infill Project	A project which is consistent with the General Plan Land Use Map designations, zoning, and community plan for the property in which at least 50% of the project site is bounded by similar uses and a project which would not expand the perimeter of the development area.
DNL (Ldn)	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{50}	Median noise level, or level exceeded 50% of time.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.

Appendix A (continued)
Acoustical Terminology

Noise Reducing Pavement	Pavement types for which local studies have identified noise-reducing benefits.
Sensitive Outdoor Areas	The primary outdoor activity area associated with any given land use at which noise-sensitivity exists and the location at which the City's exterior noise level standards are applied. Additional definitions of sensitive areas of various residential uses follow.
Sensitive Areas of Single-Family Residential uses	Normally considered to be backyards or distinct rear patio/deck areas. Front yard spaces may be identified as the sensitive exterior area if there are no other clearly identifiable private outdoor activity areas proposed as part of the residential property. Elevated balconies, front courtyards, front decks, side yards, etc., are not commonly considered to be sensitive outdoor activity areas. Where the location of outdoor activity areas for large lot residential properties cannot be determined, the City's exterior noise level standards shall be applied within 50 feet of the rear of the residence.
Sensitive Areas of Multi-family Residential Uses	Common outdoor recreation areas, such as pools, tot-lots, tennis courts, etc., of multi-family uses are considered to be the sensitive outdoor area. Individual patios and balconies of multi-family developments are not considered to be sensitive outdoor areas.
Sensitive Areas of Residential Component of Mixed-Use Developments	Mixed-use developments will commonly consist of residential units on elevated floors above office or commercial uses. As a result, such uses may not include a clearly delineated sensitive outdoor area, in which case satisfaction with the City's interior noise level standards will be considered adequate. The exterior noise standards for the residential component of mixed-use developments shall not be applied to patios or balconies facing the noise source (i.e. street).
Sensitive Areas of Non-Residential Uses	The noise-sensitive area of non-residential uses should be evaluated on a case by case basis. For example, the exterior areas surrounding hospitals, schools, and office buildings are not commonly considered to be noise-sensitive, whereas the interior spaces of such uses are noise-sensitive. The noise standards contained in Tables 1 and 2 should only be applied to locations within a proposed use where noise sensitivity can be demonstrated.

Legend

A Site LT-1 Facing West

B Site LT-2 Facing East

C Site LT-2 Facing West

D Dorris Lumber Reference Noise Measurement

Microphone Location

Noise Survey Photographs

City of Dorris General Plan
Noise Element Update

Appendix B-1

BOLLARD Acoustical Consultants

Legend

- A Site ST-1 Facing North
- B Site ST-2 Facing West
- C Site ST-3 Facing North
- D Site ST-4 Facing West

Noise Survey Photographs

City of Dorris General Plan
Noise Element Update

Appendix B-2

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Appendix C-1
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Saturday, April 6, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	43	52	42	33
1:00 AM	41	53	39	32
2:00 AM	40	54	38	31
3:00 AM	73	102	32	29
4:00 AM	68	97	35	30
5:00 AM	42	54	40	34
6:00 AM	42	57	40	35
7:00 AM	44	57	42	39
8:00 AM	59	90	41	38
9:00 AM	72	100	44	41
10:00 AM	66	93	46	41
11:00 AM	45	61	43	40
12:00 PM	51	83	42	39
1:00 PM	44	64	42	39
2:00 PM	65	90	42	38
3:00 PM	70	100	43	39
4:00 PM	43	61	42	39
5:00 PM	44	59	43	40
6:00 PM	44	56	43	39
7:00 PM	71	99	44	40
8:00 PM	46	69	43	39
9:00 PM	45	63	43	38
10:00 PM	69	101	44	39
11:00 PM	73	101	42	37

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	72	43	65	73	40	68
Lmax (Maximum)	100	56	76	102	52	74
L50 (Median)	46	41	43	44	32	39
L90 (Background)	41	38	39	39	29	33

Computed DNL, dB	74
% Daytime Energy	45%
% Nighttime Energy	55%

GPS Coordinates
41°57'55.55"N
121°54'58.57"W

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Appendix C-2
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Sunday, April 7, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	43	61	40	34
1:00 AM	47	67	39	34
2:00 AM	69	100	35	29
3:00 AM	34	47	31	27
4:00 AM	68	99	32	28
5:00 AM	39	51	33	28
6:00 AM	39	58	36	32
7:00 AM	64	96	38	34
8:00 AM	40	59	39	34
9:00 AM	67	96	42	38
10:00 AM	42	56	40	36
11:00 AM	43	56	40	36
12:00 PM	47	65	45	39
1:00 PM	44	60	42	38
2:00 PM	45	64	43	39
3:00 PM	44	69	41	37
4:00 PM	45	65	43	39
5:00 PM	74	102	43	39
6:00 PM	44	65	42	39
7:00 PM	45	60	43	39
8:00 PM	66	98	42	37
9:00 PM	70	101	42	37
10:00 PM	70	103	41	37
11:00 PM	72	102	39	34

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	74	40	65	72	34	66
Lmax (Maximum)	102	56	74	103	47	76
L50 (Median)	45	38	42	41	31	36
L90 (Background)	39	34	37	37	27	31

Computed DNL, dB	73
% Daytime Energy	54%
% Nighttime Energy	46%

GPS Coordinates
41°57'55.55"N
121°54'58.57"W

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Appendix C-3
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Monday, April 8, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	68	100	38	34
1:00 AM	42	61	38	35
2:00 AM	41	57	37	29
3:00 AM	70	101	43	35
4:00 AM	65	89	41	35
5:00 AM	46	60	44	39
6:00 AM	53	83	49	46
7:00 AM	67	100	49	47
8:00 AM	48	64	47	45
9:00 AM	67	95	46	43
10:00 AM	45	57	45	41
11:00 AM	46	60	45	43
12:00 PM	68	97	45	43
1:00 PM	62	89	46	44
2:00 PM	68	101	44	41
3:00 PM	44	61	42	38
4:00 PM	70	101	42	38
5:00 PM	45	63	43	40
6:00 PM	47	64	45	41
7:00 PM	46	63	44	40
8:00 PM	68	99	44	39
9:00 PM	46	69	41	36
10:00 PM	58	86	41	35
11:00 PM	43	56	41	33

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	44	64	70	41	64
Lmax (Maximum)	101	57	79	101	56	77
L50 (Median)	49	41	44	49	37	41
L90 (Background)	47	36	41	46	29	36

Computed DNL, dB	70
% Daytime Energy	67%
% Nighttime Energy	33%

GPS Coordinates
41°57'55.55"N
121°54'58.57"W

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Appendix C-4
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Tuesday, April 9, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	70	100	39	32
1:00 AM	72	99	40	31
2:00 AM	43	54	41	33
3:00 AM	70	101	42	36
4:00 AM	67	94	43	36
5:00 AM	47	63	45	39
6:00 AM	53	78	51	48
7:00 AM	66	96	51	48
8:00 AM	49	63	48	47
9:00 AM	49	62	47	45
10:00 AM	63	88	47	45
11:00 AM	49	66	48	46
12:00 PM	73	104	47	45
1:00 PM	47	63	47	45
2:00 PM	46	65	45	42
3:00 PM	71	100	44	40
4:00 PM	47	68	44	41
5:00 PM	47	70	45	41
6:00 PM	72	103	44	41
7:00 PM	46	65	44	40
8:00 PM	46	62	44	39
9:00 PM	68	98	42	36
10:00 PM	66	97	43	37
11:00 PM	45	72	41	35

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	73	46	66	72	43	67
Lmax (Maximum)	104	62	78	101	54	84
L50 (Median)	51	42	46	51	39	43
L90 (Background)	48	36	43	48	31	36

Computed DNL, dB	73
% Daytime Energy	57%
% Nighttime Energy	43%

GPS Coordinates
41°57'55.55"N
121°54'58.57"W

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Appendix C-5
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Wednesday, April 10, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	71	101	41	33
1:00 AM	45	60	41	33
2:00 AM	45	59	41	33
3:00 AM	44	56	40	33
4:00 AM	47	58	45	39
5:00 AM	51	66	49	46
6:00 AM	54	62	53	50
7:00 AM	69	99	54	50
8:00 AM	65	95	50	48
9:00 AM	50	64	50	48
10:00 AM	68	95	50	47
11:00 AM	49	59	49	47
12:00 PM	74	103	48	46
1:00 PM	47	61	46	43
2:00 PM	44	63	43	39
3:00 PM	44	65	41	36
4:00 PM	43	60	41	37
5:00 PM	68	98	44	40
6:00 PM	46	68	43	39
7:00 PM	48	66	45	42
8:00 PM	47	59	46	42
9:00 PM	68	97	47	40
10:00 PM	67	98	44	38
11:00 PM	72	100	46	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	74	43	66	72	44	66
Lmax (Maximum)	103	59	77	101	56	73
L50 (Median)	54	41	46	53	40	44
L90 (Background)	50	36	43	50	33	38

Computed DNL, dB	72
% Daytime Energy	62%
% Nighttime Energy	38%

GPS Coordinates
41°57'55.55"N
121°54'58.57"W

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Appendix C-6
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Saturday, April 6, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	60	77	43	38
1:00 AM	59	78	42	37
2:00 AM	58	77	41	36
3:00 AM	67	95	37	35
4:00 AM	67	96	39	36
5:00 AM	60	79	45	37
6:00 AM	60	79	46	38
7:00 AM	63	78	52	42
8:00 AM	65	90	53	41
9:00 AM	69	96	59	46
10:00 AM	67	87	59	46
11:00 AM	65	84	58	45
12:00 PM	69	100	59	46
1:00 PM	66	86	59	46
2:00 PM	66	87	59	45
3:00 PM	67	89	59	47
4:00 PM	65	84	57	46
5:00 PM	65	83	57	45
6:00 PM	64	83	54	44
7:00 PM	69	97	53	41
8:00 PM	63	86	47	40
9:00 PM	62	79	49	40
10:00 PM	63	88	45	38
11:00 PM	67	94	43	37

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	69	62	66	67	58	64
Lmax (Maximum)	100	78	87	96	77	85
L50 (Median)	59	47	55	46	37	42
L90 (Background)	47	40	44	38	35	37

Computed DNL, dB	71
% Daytime Energy	74%
% Nighttime Energy	26%

GPS Coordinates
41°57'48.58"N
121°55'5.19"W

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Appendix C-7
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Sunday, April 7, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	55	74	42	36
1:00 AM	62	87	41	37
2:00 AM	63	92	39	36
3:00 AM	56	80	36	35
4:00 AM	63	91	37	35
5:00 AM	59	84	38	36
6:00 AM	57	78	41	36
7:00 AM	62	89	43	38
8:00 AM	62	81	47	38
9:00 AM	67	91	55	42
10:00 AM	65	85	56	41
11:00 AM	69	100	55	41
12:00 PM	65	84	53	44
1:00 PM	66	83	60	46
2:00 PM	66	87	57	46
3:00 PM	70	100	57	46
4:00 PM	67	89	59	48
5:00 PM	72	98	54	43
6:00 PM	64	82	52	44
7:00 PM	65	88	51	43
8:00 PM	65	92	46	39
9:00 PM	67	96	47	39
10:00 PM	63	91	43	36
11:00 PM	67	95	40	36

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	72	62	67	67	55	62
Lmax (Maximum)	100	81	90	95	74	86
L50 (Median)	60	43	53	43	36	40
L90 (Background)	48	38	42	37	35	36

Computed DNL, dB	70
% Daytime Energy	83%
% Nighttime Energy	17%

GPS Coordinates
41°57'48.58"N
121°55'5.19"W

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Appendix C-8
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Monday, April 8, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	64	93	39	35
1:00 AM	56	76	40	36
2:00 AM	58	84	40	35
3:00 AM	63	91	46	36
4:00 AM	64	91	42	37
5:00 AM	61	82	47	40
6:00 AM	64	85	52	48
7:00 AM	67	93	57	50
8:00 AM	65	84	55	48
9:00 AM	67	92	53	45
10:00 AM	66	85	55	46
11:00 AM	65	81	54	46
12:00 PM	68	95	56	46
1:00 PM	75	90	64	48
2:00 PM	70	100	56	45
3:00 PM	66	87	55	43
4:00 PM	66	91	57	45
5:00 PM	66	82	57	46
6:00 PM	67	89	56	46
7:00 PM	64	85	52	45
8:00 PM	69	96	55	44
9:00 PM	63	87	47	40
10:00 PM	63	89	47	38
11:00 PM	61	77	46	38

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	75	63	68	64	56	62
Lmax (Maximum)	100	81	89	93	76	85
L50 (Median)	64	47	55	52	39	44
L90 (Background)	50	40	46	48	35	38

Computed DNL, dB	70
% Daytime Energy	86%
% Nighttime Energy	14%

GPS Coordinates
41°57'48.58"N
121°55'5.19"W

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Appendix C-9
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Tuesday, April 9, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	65	92	42	37
1:00 AM	67	89	44	36
2:00 AM	60	80	42	37
3:00 AM	70	99	45	40
4:00 AM	63	86	47	39
5:00 AM	61	79	48	41
6:00 AM	64	85	54	50
7:00 AM	68	93	59	53
8:00 AM	66	84	57	51
9:00 AM	65	82	58	51
10:00 AM	70	94	58	50
11:00 AM	66	82	58	50
12:00 PM	72	102	58	49
1:00 PM	66	82	59	49
2:00 PM	66	82	58	46
3:00 PM	68	94	58	47
4:00 PM	69	99	58	48
5:00 PM	66	82	60	49
6:00 PM	68	94	56	46
7:00 PM	64	80	53	45
8:00 PM	64	84	51	47
9:00 PM	65	88	47	39
10:00 PM	65	93	48	39
11:00 PM	62	80	48	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	72	64	67	70	60	65
Lmax (Maximum)	102	80	88	99	79	87
L50 (Median)	60	47	57	54	42	46
L90 (Background)	53	39	48	50	36	40

Computed DNL, dB	72
% Daytime Energy	74%
% Nighttime Energy	26%

GPS Coordinates
41°57'48.58"N
121°55'5.19"W

Appendix C-10
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Wednesday, April 10, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	66	93	45	37
1:00 AM	61	85	43	36
2:00 AM	59	82	43	37
3:00 AM	58	78	42	36
4:00 AM	61	81	48	41
5:00 AM	62	83	53	49
6:00 AM	65	83	57	54
7:00 AM	68	92	60	54
8:00 AM	68	92	58	51
9:00 AM	66	82	57	53
10:00 AM	71	99	58	53
11:00 AM	67	85	58	52
12:00 PM	71	97	58	51
1:00 PM	66	82	56	47
2:00 PM	67	95	56	43
3:00 PM	66	85	56	43
4:00 PM	66	81	57	44
5:00 PM	68	93	59	46
6:00 PM	65	81	55	45
7:00 PM	65	82	54	46
8:00 PM	65	83	54	45
9:00 PM	69	94	53	43
10:00 PM	62	86	46	39
11:00 PM	67	95	48	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	71	65	68	67	58	63
Lmax (Maximum)	99	81	88	95	78	85
L50 (Median)	60	53	57	57	42	47
L90 (Background)	54	43	48	54	36	41

Computed DNL, dB	71
% Daytime Energy	82%
% Nighttime Energy	18%

GPS Coordinates
41°57'48.58"N
121°55'5.19"W

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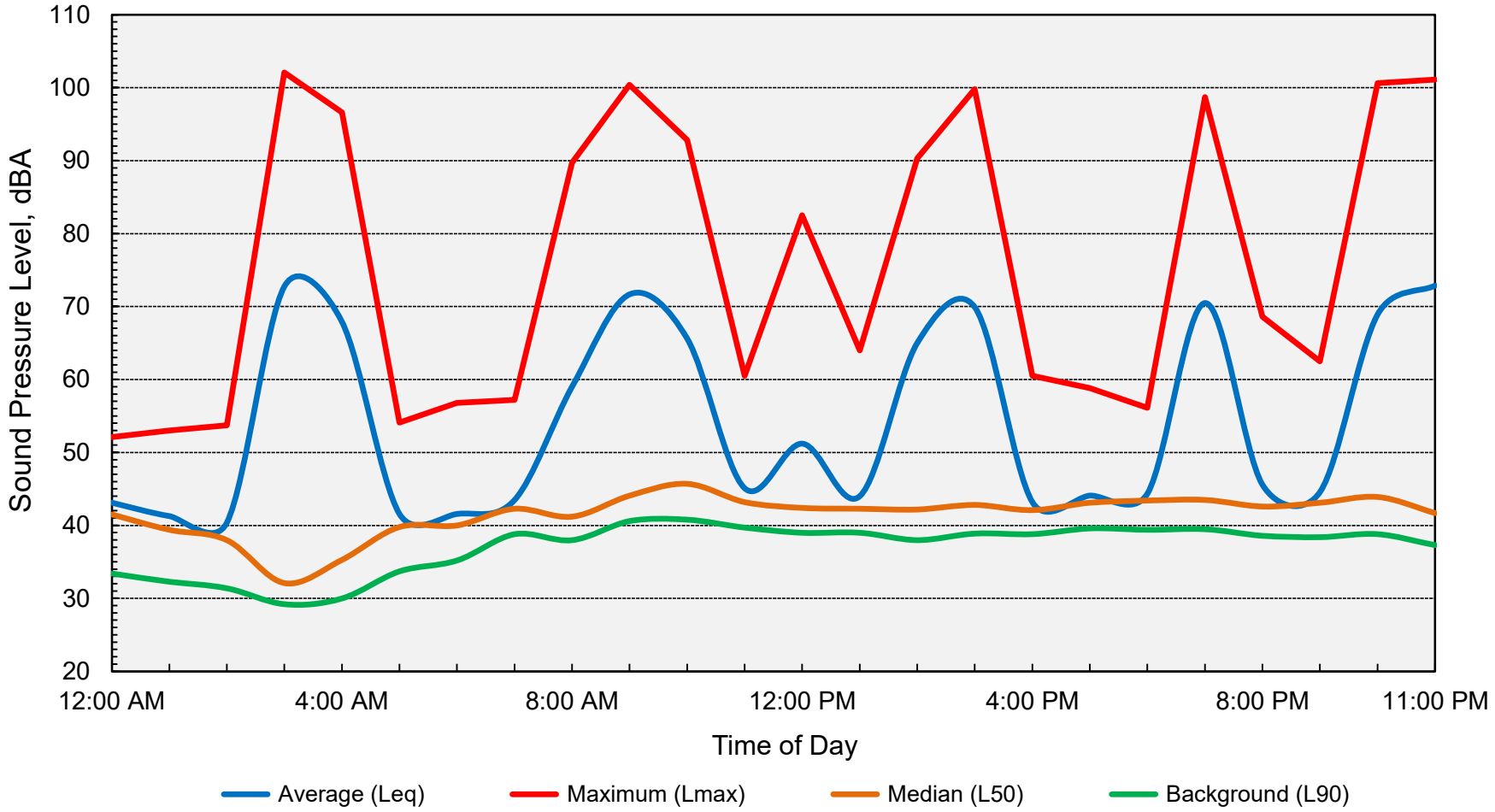
Appendix D-1
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Saturday, April 6, 2024



Computed DNL = 74 dB

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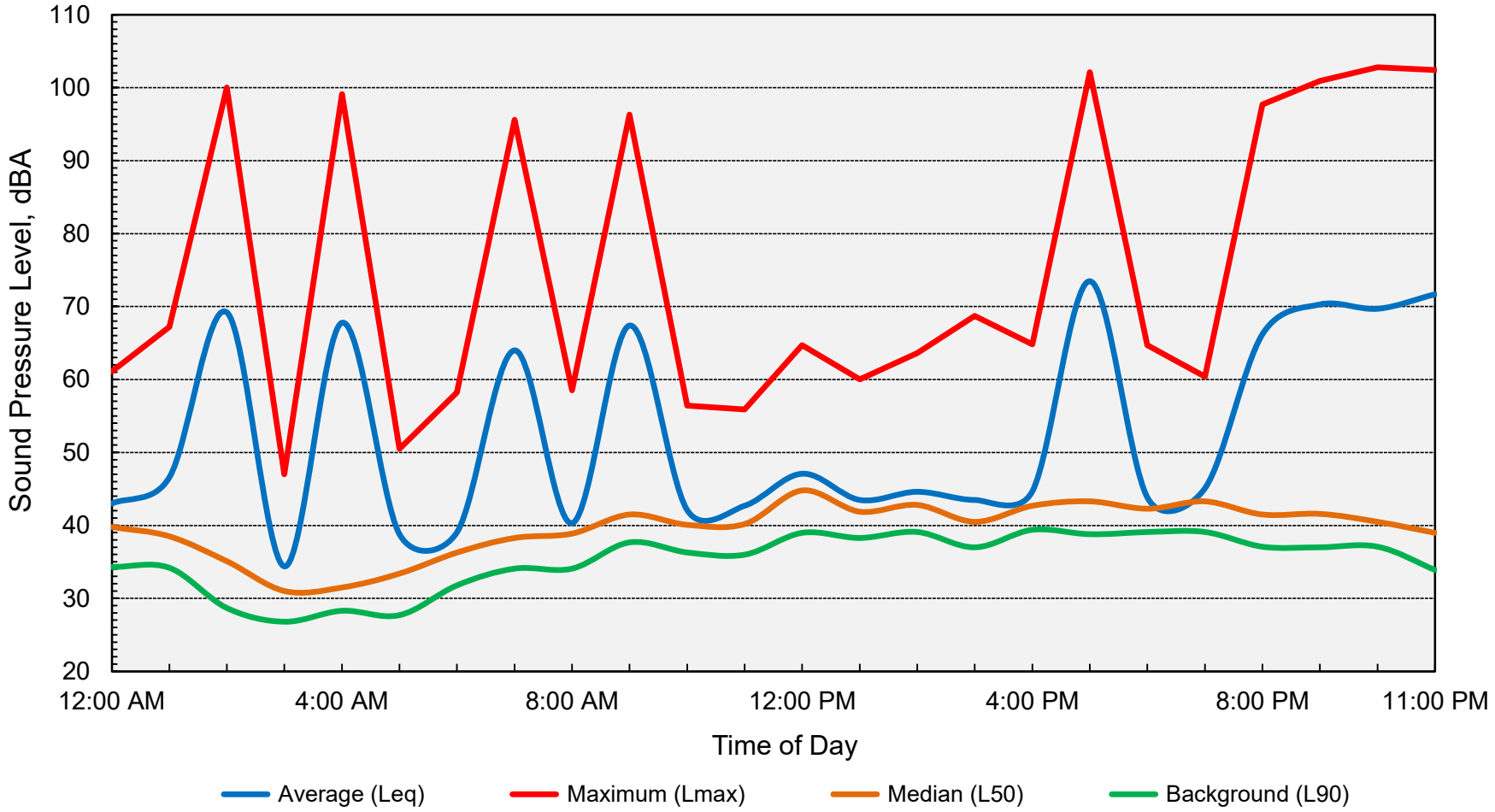
Appendix D-2
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Sunday, April 7, 2024



Computed DNL = 73 dB

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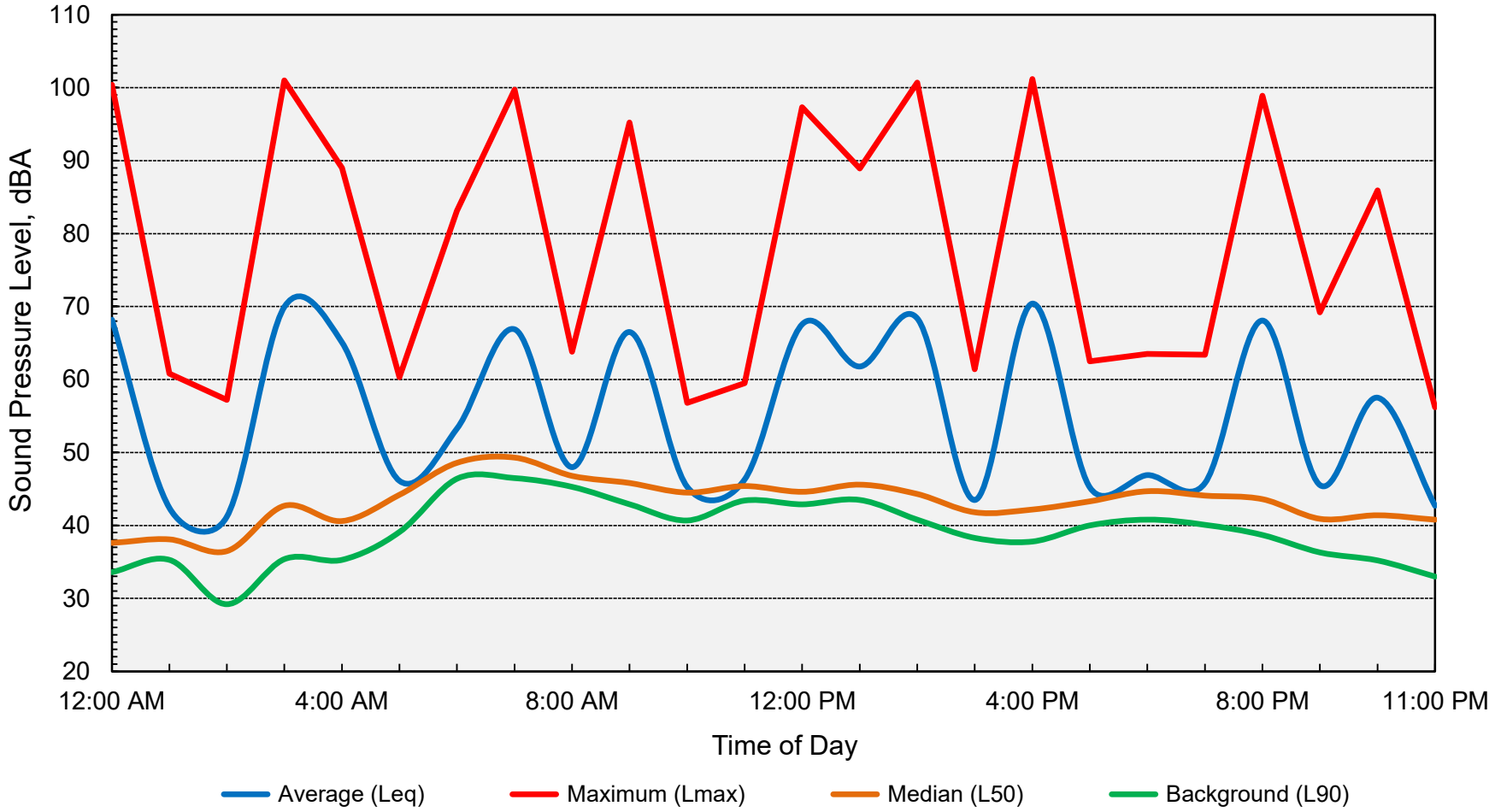
Appendix D-3
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Monday, April 8, 2024



Computed DNL = 70 dB

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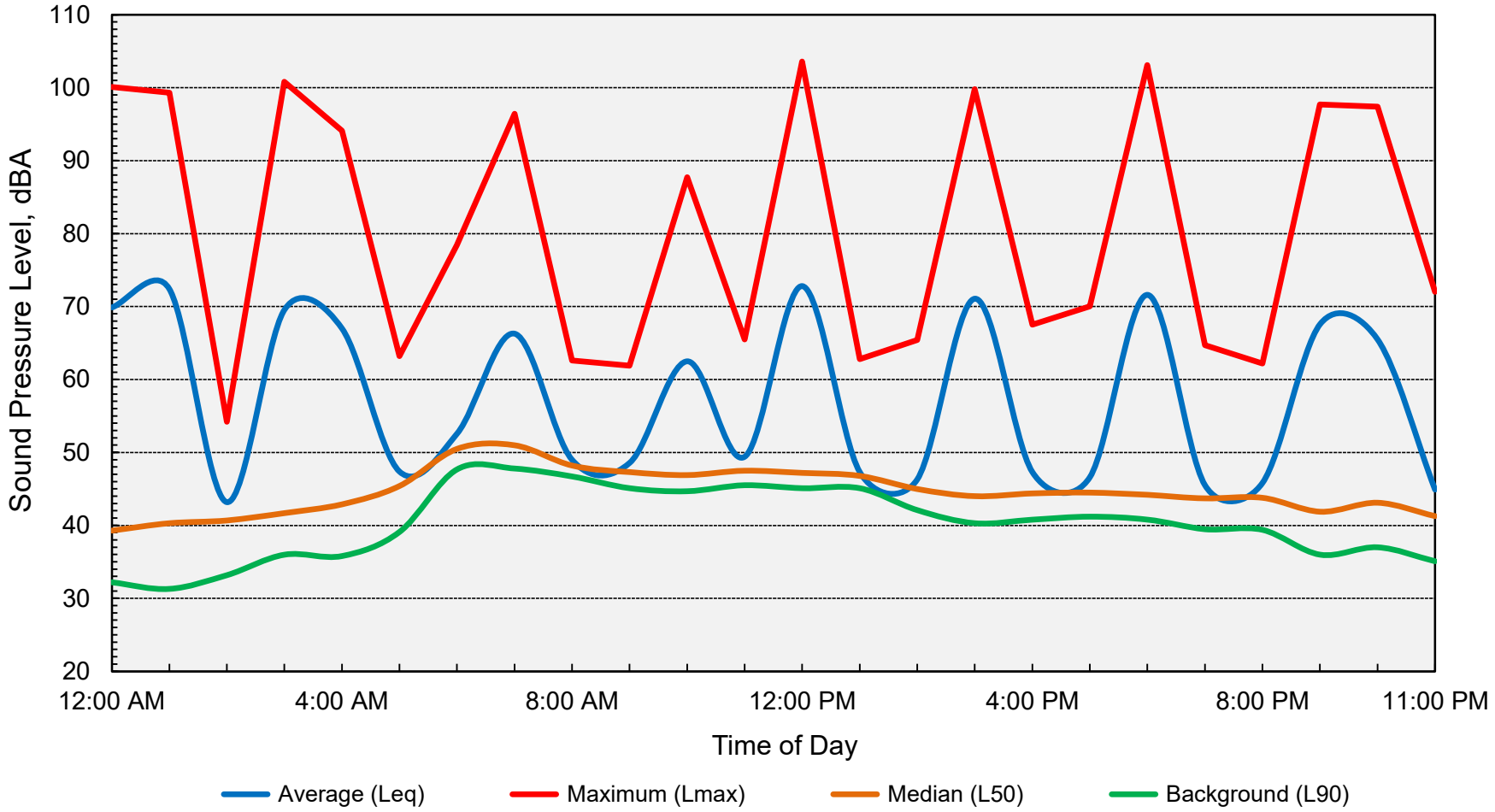
Appendix D-4
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Tuesday, April 9, 2024



Computed DNL = 73 dB

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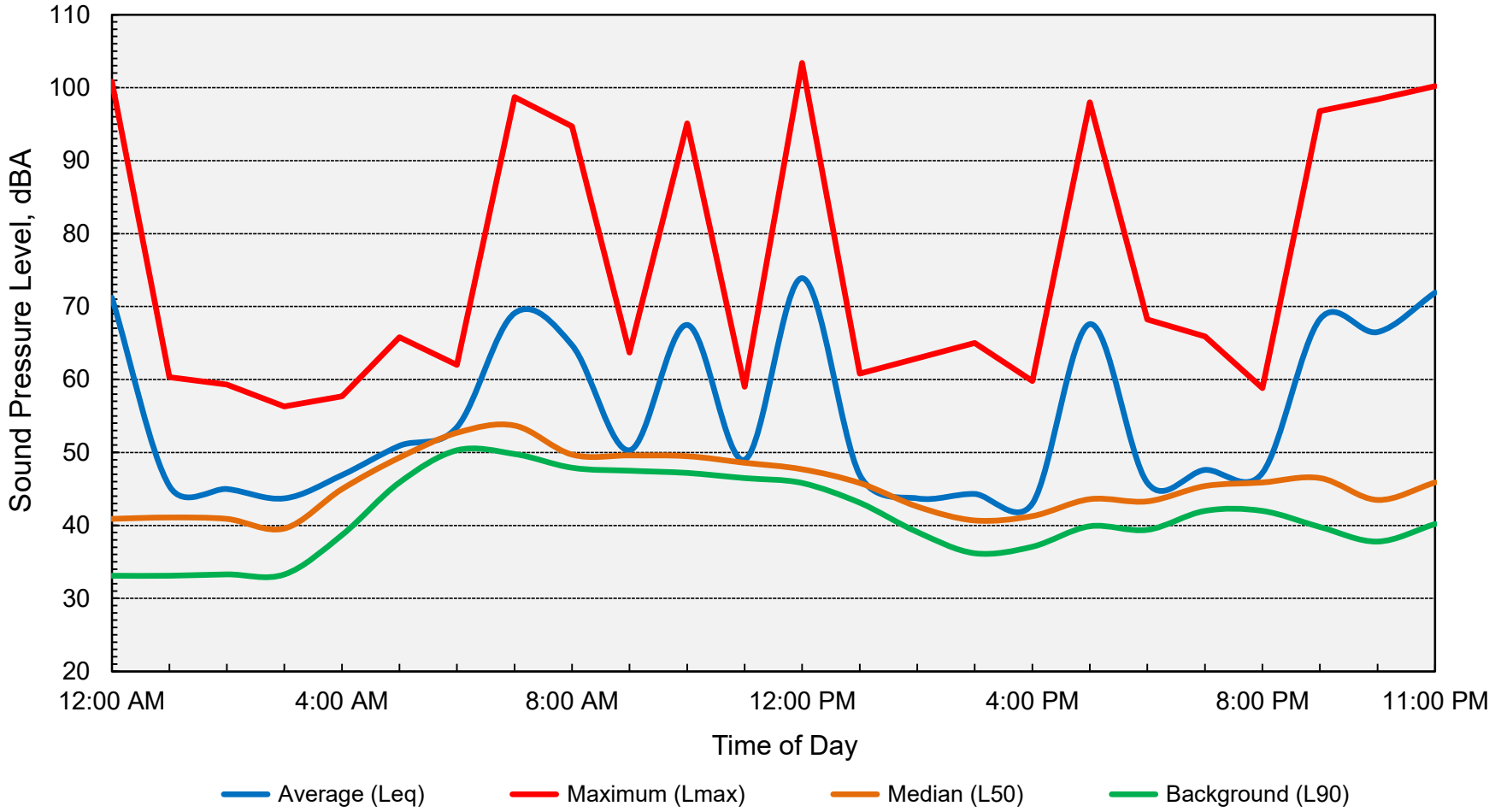
Appendix D-5
Long-Term Ambient Noise Monitoring Results, LT-1
City of Dorris General Plan Noise Element Update - Dorris, California
Wednesday, April 10, 2024



Computed DNL = 72 dB

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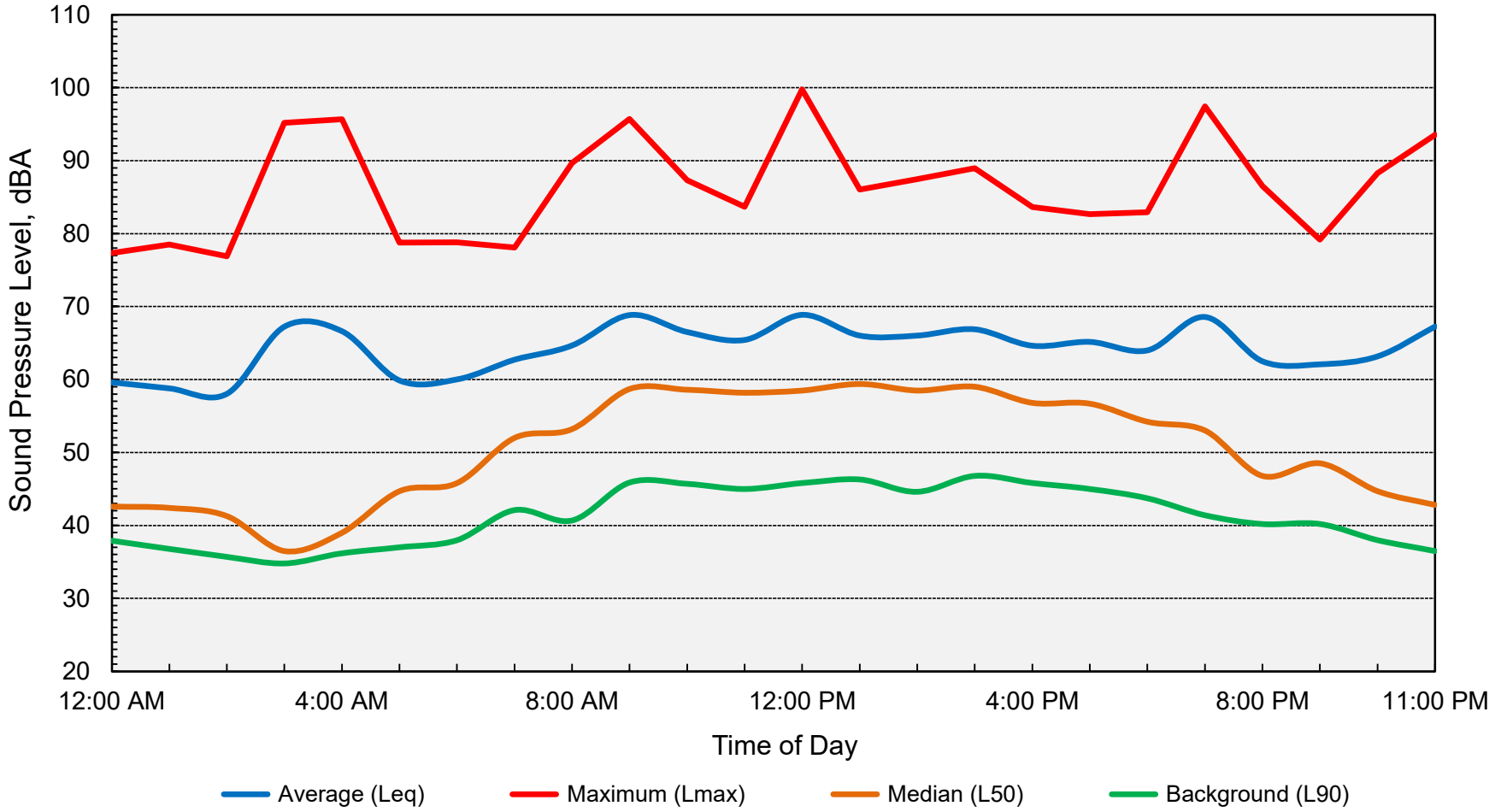
Appendix D-6
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Saturday, April 6, 2024



Computed DNL = 71 dB

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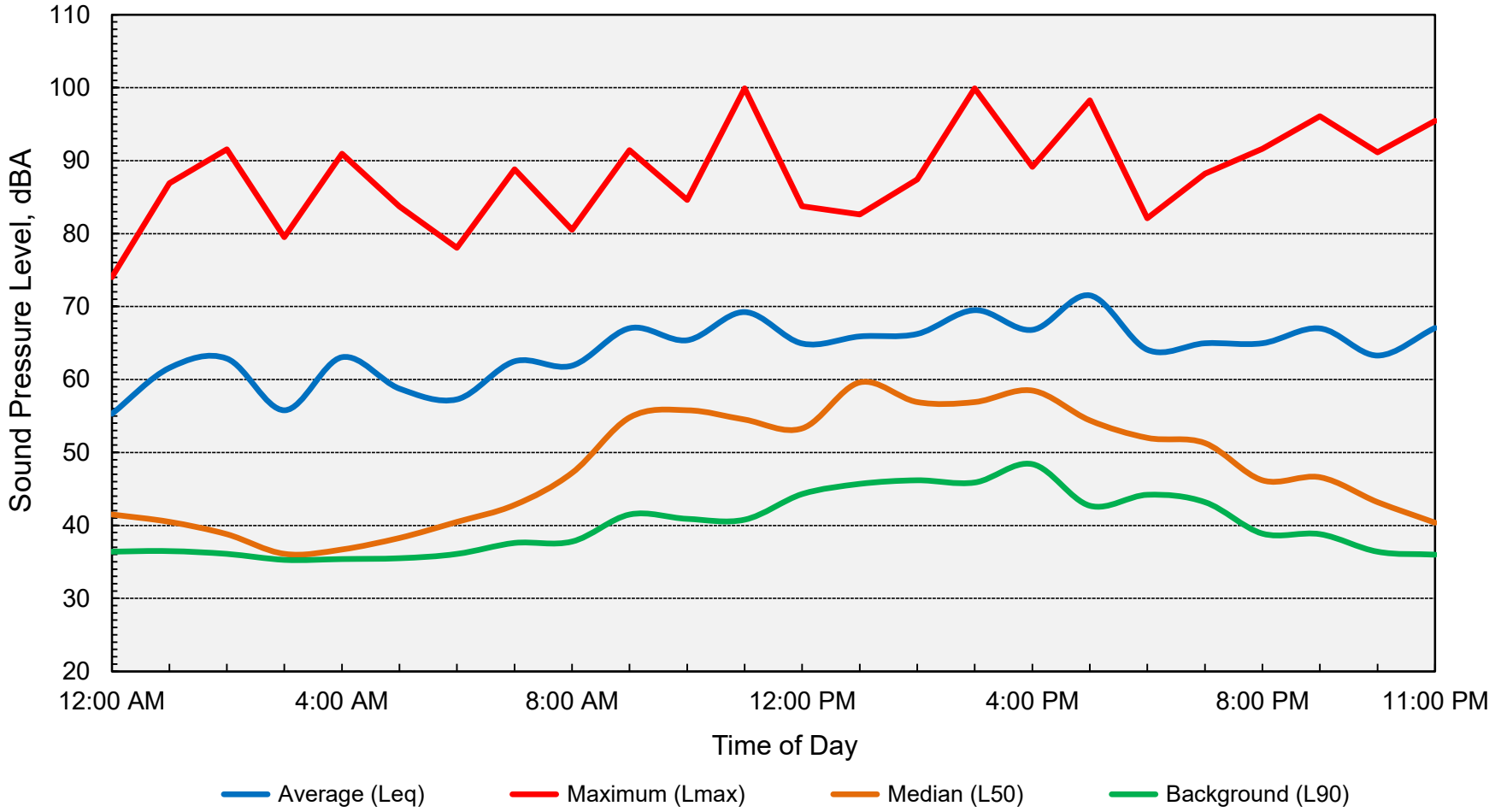
Appendix D-7
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Sunday, April 7, 2024



Computed DNL = 70 dB

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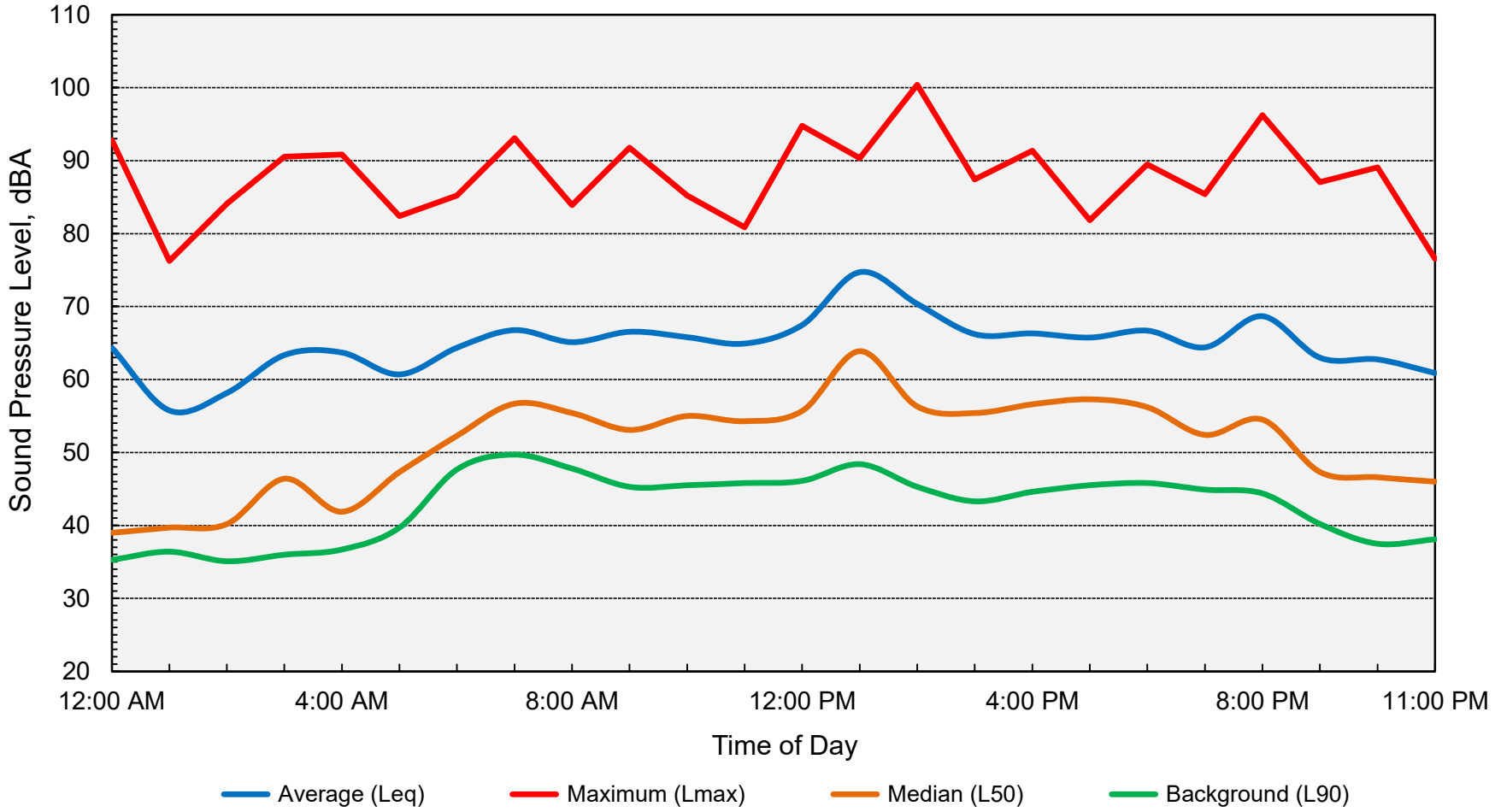
Appendix D-8
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Monday, April 8, 2024



Computed DNL = 70 dB

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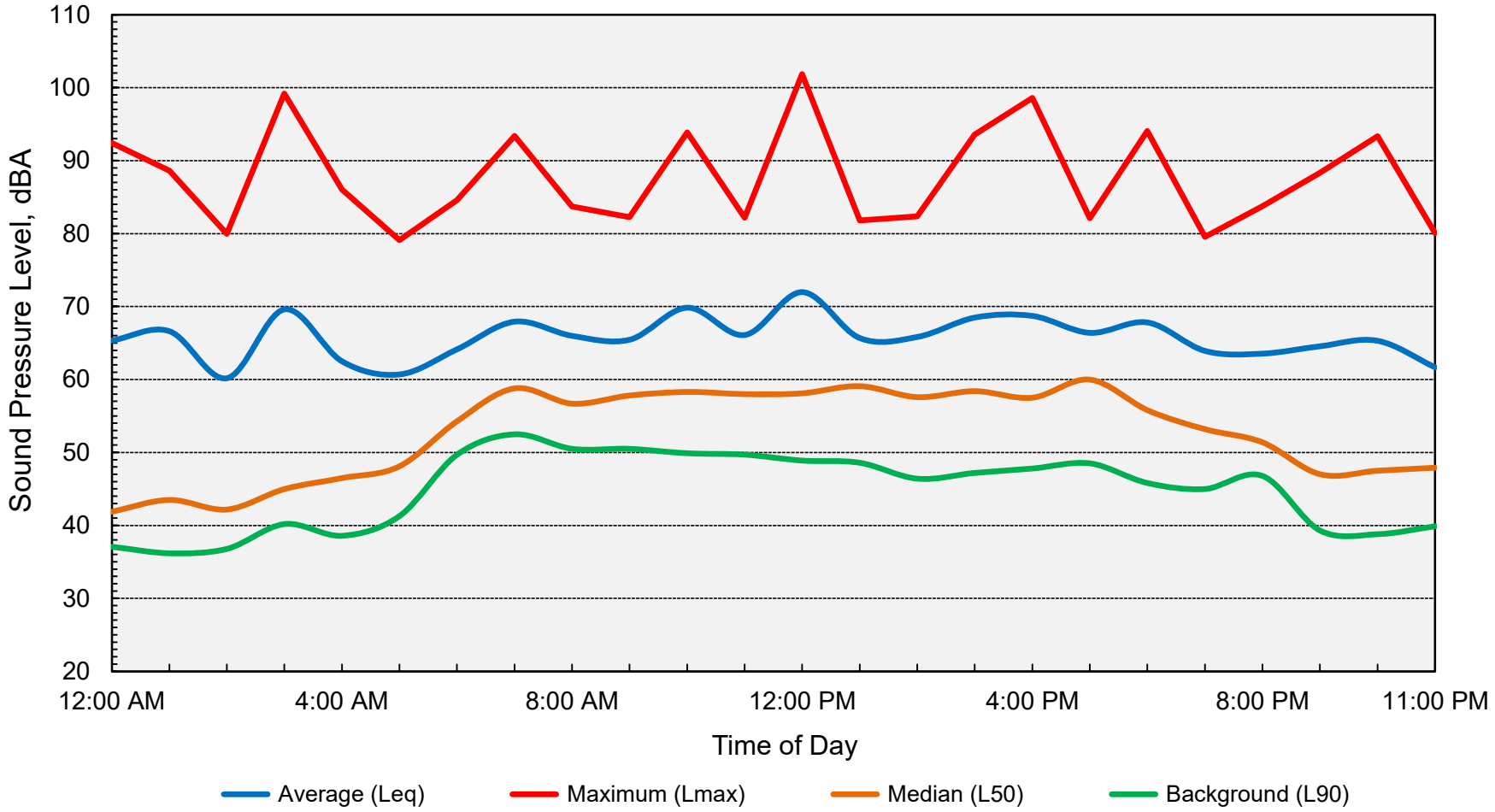
Appendix D-9
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Tuesday, April 9, 2024



Computed DNL = 72 dB

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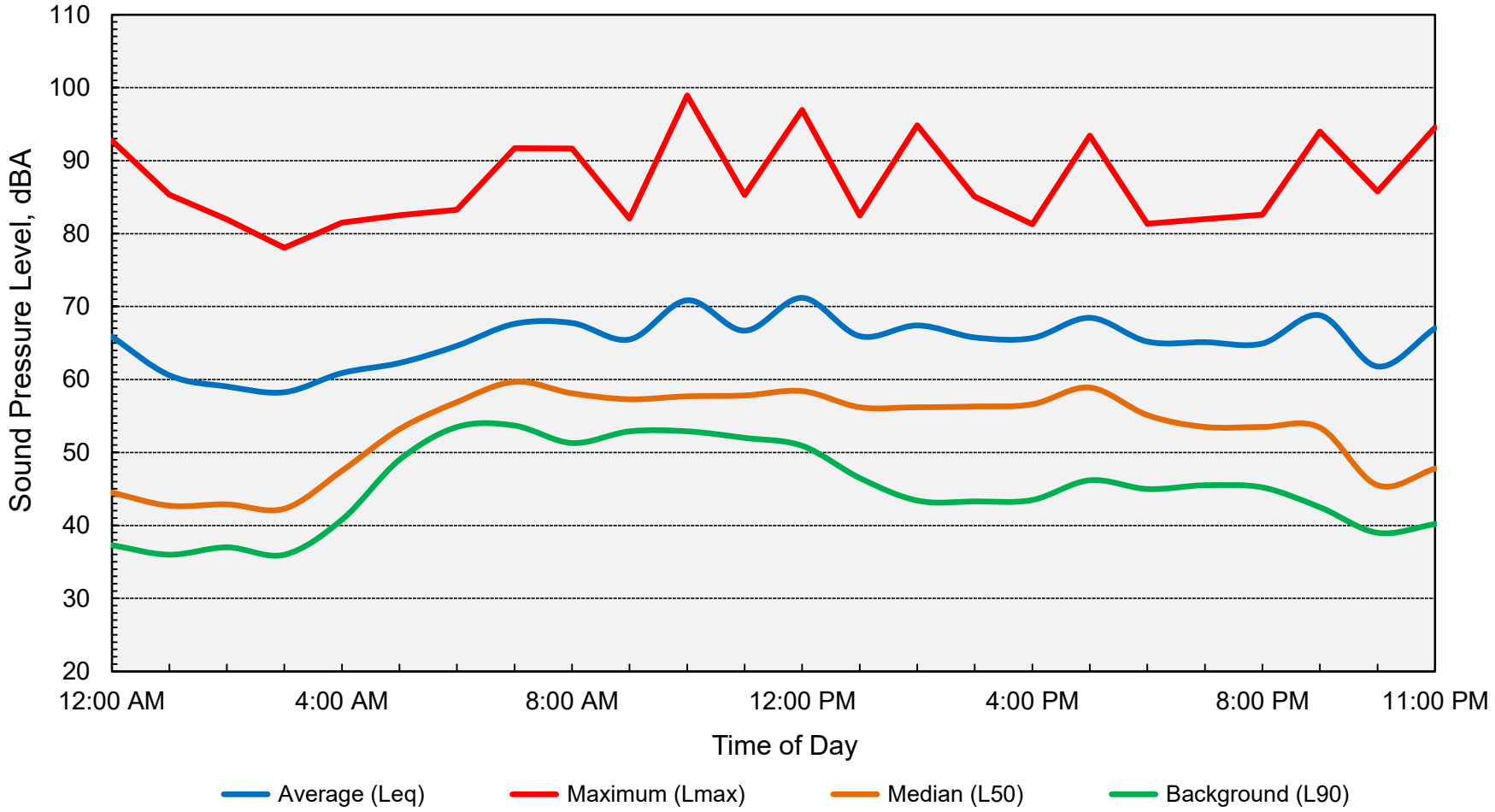
Appendix D-10
Long-Term Ambient Noise Monitoring Results, LT-2
City of Dorris General Plan Noise Element Update - Dorris, California
Wednesday, April 10, 2024



Computed DNL = 71 dB

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Appendix E
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information:

Job Number: 2024-041
Project Name: Dorris GP Noise Element Update
Roadway Name: Highway 97 (Main Street)

Traffic Data:

Year: Future
Average Daily Traffic Volume: 11,000
Percent Daytime Traffic: 80
Percent Nighttime Traffic: 20
Percent Medium Trucks (2 axle): 6.1
Percent Heavy Trucks (3+ axle): 22.6
Assumed Vehicle Speed (mph): 35
Intervening Ground Type (hard/soft): **Soft**

Traffic Noise Levels:

				DNL (dB)			
Receiver	Description	Distance	Offset (dB)	Autos	Medium Trucks	Heavy Trucks	Total
Generic	Reference distance of 100 feet	100		58	57	68	69

Traffic Noise Contours (No Calibration Offset):

DNl Contour (dB)	Distance from Centerline (ft)
75	39
70	84
65	180
60	388

Notes: 1. Future ADT volume derived by increasing existing (2022) Caltrans traffic counts by a factor of 2

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