

# **Attachment B**

**A Review of the City of Billings Noise Ordinance**

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# A Review of the City of Billings Noise Ordinance

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## Current City of Billings Noise Ordinance

- Noise limit ordinance with day/night limits established
- Four noise zones:
 

| Zone             | Day    | Night  |
|------------------|--------|--------|
| Residential      | 65 dBA | 55 dBA |
| Light Commercial | 80 dBA | 60 dBA |
| Heavy Commercial | 85 dBA | 70 dBA |
| Industrial       | 90 dBA | 80 dBA |

  - Residential
  - Light & heavy commercial
  - Industrial
- Waivers are permitted to allow for pre-planned, occasional exceedances – now limited to 4 per year
- A few specific measurement requirements are specified
- A number of exemptions are provided

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## Comparison cities

- 10 cities reviewed
- Goal: to select similar MT and regional cities based on population
- Five next-largest Montana cities selected
  - Bozeman, Butte, Great Falls, Helena, and Missoula
- Five regional cities selected
  - Spokane, WA
  - Nampa, ID
  - Ogden, UT
  - Fort Collins, CO
  - Sioux Falls, SD

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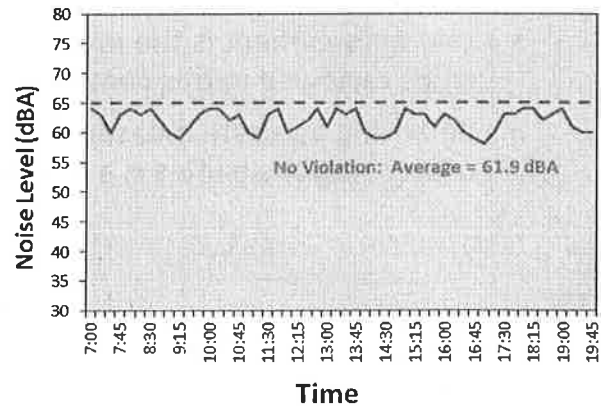
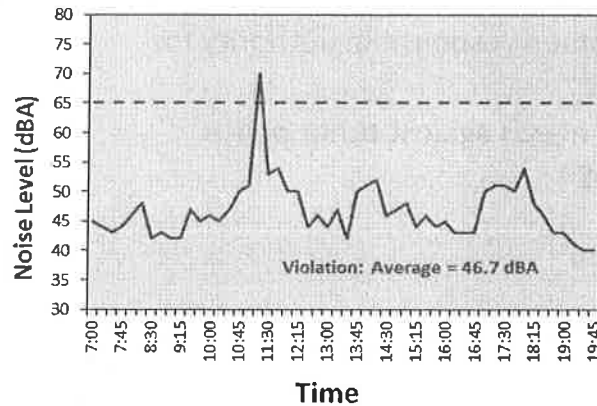
## Comparison: City of Billings noise limits

| Zone             | Day    | Night  |
|------------------|--------|--------|
| Residential      | 65 dBA | 55 dBA |
| Light Commercial | 80 dBA | 60 dBA |
| Heavy Commercial | 85 dBA | 70 dBA |
| Industrial       | 90 dBA | 80 dBA |

RED = Higher than all comparison cities; Orange = Higher or as high as all;  
 Yellow = Higher than some, but lower than some; Green = Equal to or less than all or most

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## Comparison: City of Billings noise limits



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## Comparison: Methods of measurement

- dBA as a unit of measure is common (and correct)
- Ambiguity of metrics is common
- A variety of measurement location specifications
- Adjusting for background noise is common, but how to accomplish?
- A few are very prescriptive with measurement procedures

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## Comparison: Methods of enforcement

- Law enforcement is the most common responsible authority for cities reviewed in this comparison
- Balancing accurate measurement needs against other police officer responsibilities is a challenge

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## Comparison: Permits or waivers for non-exempt activities

- General exemptions for certain activities are common, but the activities vary
  - For example: road work, traffic, sporting events, etc.
- Non-exempt activities fall under the ordinance
- Some form of temporary, short-term relief from the ordinance rules is common
  - 4 of 10 had waivers/permits similar to the City of Billings ordinance
  - 4 of 10 had only "hardship" waivers
- None had an obvious limit on the number of permits per year

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## Recommendations from the review

Consider:

1. Continuing with reduction from 4 noise zones to 3
2. Measuring 25 or more feet from source on public boundary or complainant's property line on public boundary
3. Specifying  $LAS_{max}$  as the metric used in the noise limits
4. Specifying average, sustained noise levels ( $LAS_{eq}$ ) need to be kept 10 dB below the established maximum limits
5. Requiring training for law enforcement officers measuring noise
6. Removing measurement specifics to be handled in the training

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## Recommendations from the review

| Proposed Ordinance Limits (Maximums) |        |        | Proposed Ordinance Limits (Averages) |        |        |
|--------------------------------------|--------|--------|--------------------------------------|--------|--------|
| Zone                                 | Day    | Night  | Zone                                 | Day    | Night  |
| Residential                          | 65 dBA | 55 dBA | Residential                          | 55 dBA | 45 dBA |
| Commercial                           | 80 dBA | 60 dBA | Commercial                           | 70 dBA | 50 dBA |
| Industrial                           | 90 dBA | 80 dBA | Industrial                           | 80 dBA | 70 dBA |

RED = Higher than all comparison cities; Orange = Higher or as high as all;  
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## Specific City of Billings noise issues

- Daytime start time
- 45 dBA residential limit
- Noise from generators
- Noise from air handling equipment
- Intermittent and highly variable noise
- Environmental noise in summer months
- Permitted noise event end times
- Outdoor live music
- Stadium noise

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## Public comments (11 total)

- Vehicle noise (6 of 11)
- Stadium noise (2 of 11)
- Pickleball (1 of 11)
- Barking dogs (1 of 11)
- Enforcement of existing ordinance & related rules (3 of 11)
- Music and problems with the waivers (1 of 11)
- Other comments

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## References

1. Basner, M., Babisch, W., Davis, A., Brink, M., Clark, C., Janssen, S., & Stansfeld, S. (2014). Auditory and non-auditory effects of noise on health. *The lancet*, 383(9925), 1325-1332.
2. US Environmental Protection Agency (2018) Clean Air Act Title IV – Noise Pollution. Washington, DC Accessed 7/2/2018 from: Clean Air Act Overview at <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution>
3. US Office of Noise Abatement and Control. (1974). Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. Washington, DC: US Environmental Protection Agency.
4. American National Standards Institute. (2005). ANSI/ASA S12.9 - Quantities and Procedures for Description and Measurement of Environmental Sound - Part 5: Sound Level Descriptors for Determination of Compatible Land Use. Melville, New York: Acoustical Society of America.
5. American National Standards Institute. (2005). ANSI/ASA S12.9 - Quantities and Procedures for Description and Measurement of Environmental Sound - Part 4: Noise Assessment and Prediction of Long-term Community Response. Melville, New York: Acoustical Society of America.
6. Berger, E. H., Royster, L. H., Royster, J. D., Driscoll, D. P., & Layne, M. (2003). The Noise Manual Revised 5th Edition. Fairfax, VA: AIHA Press.
7. US Office of Noise Abatement and Control. (1975). Model Community Noise Ordinance. Washington, DC: US Environmental Protection Agency.
8. United States Office of Noise Abatement and Control. (1973). Public Health and Welfare Criteria for Noise. Washington, DC: US Environmental Protection Agency.

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