

April 30, 2015



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**From:** Ronald R. Spillman, P.E.  
Principal  
SLR International Corporation  
Houston, Texas

**Re: Acoustical Evaluation of Pipeline Construction**  
Rover Pipeline Project  
SLR File No. 119.01324.00001

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## **TECHNICAL MEMORANDUM**

### **SLR Report 119.01324.00001C, Rev. 2**

At the request of Rover Pipeline LLC, SLR International Corporation (SLR) has made noise impact evaluations for pipeline construction associated with the Rover Pipeline Project (Project). This Technical Memorandum is provided as a follow-up response to Data Request 9-7 from the Federal Energy Regulatory Commission (FERC), dated April 2, 2015, which stated: *Provide an analysis of applicable state/county/local noise and vibration regulations for all counties where construction would occur, including pipeline construction.* Construction noise associated with compressor stations and horizontal directional drilling was addressed in previous Resource Report 9 draft filings, so this Technical Memo is focused on the pipeline construction aspect, including meter stations and mainline valve (MLV) sites.

Pipeline construction will involve the entire length of the Project. SLR has made a best effort to search for any applicable state, county, or municipal noise or vibration ordinances along the Project corridor.

SLR has compiled a list of the localities with relevant or applicable local regulations, and has also provided a rough calculation of the extent (decibels at various distances) of anticipated construction noise contributions.

To limit noise and vibration impacts, the pipeline construction contractors will be asked to be cognizant and considerate of local noise concerns in planning and executing their work. The single most effective method for reducing construction noise disturbance and complaints is to perform all work during daytime hours. Pipeline construction will typically take place during

daytime working hours of 7:00 am until 7:00 pm. Emergencies or other unusual circumstances may necessitate nighttime work, but the bulk of activity will take place during daylight hours..

## 1 STATE, COUNTY, LOCAL REGULATIONS

The attached **Table R1** shows a compilation of noise regulations and ordinances for states, counties, and townships through which the pipeline will pass. Many of these governmental entities do not have noise ordinances, or they have ordinances that only have wording regarding “nuisance” noise, without specific numerical (decibel) noise goals. Among the entities that do have limits, there is great variation in the types of limits, decibel parameters, the times of day covered, and the allowance for exemptions, variances, and permitting. The compilation can be provided to the construction contractors so that they will be aware of the limitations that apply for certain segments, and can plan accordingly with regard to permitting and compliance.

## 2 CONSTRUCTION NOISE MODELING

At this time, there are no contractor bids or plans for construction work, so a general noise calculation was made using typical road and pipeline construction vehicles and machinery as noise sources. Most of the equipment units that are likely to be involved in the pipeline construction will be diesel or gasoline-powered vehicles, including backhoes, bulldozers, cranes/sidebooms, front end loaders, various trucks, etc. Similar equipment is likely to be used for the meter stations and MLV site construction. No impact-type construction equipment is planned, except for sheet piling in some areas. Where practical, vibratory drivers will be employed to press sheet piles into place with minimal targeted force. Ground vibration propagation depends on factors such as distance, the type of soil, and equipment used, but environmental vibration issues are extremely unlikely beyond the work perimeter.

The noise emission reference levels for these equipment units are typically 85 dBA ( $L_{max}$ ) or less at 50 feet, and they have an acoustical (time) usage factor of around 40% (Ref 1). The Roadway Construction Noise Model (RCNM) was used to estimate sound levels at various distances, as a guide for contractor noise planning. In the model, each of the equipment units was arbitrarily designated as a “dozer” because those are rated at 85 dBA at 50 feet, with a 40% usage factor.

Calculations were made for closest pipeline approaches (to receptors) at distances of 250, 500, 750, and 1000 feet. For example, for the 250-foot calculations, four construction equipment vehicles were assumed to be working at 250 feet from a receptor; another four units were assumed ¼ mile “up” the pipeline (thus at a 1343-foot slant distance from the receptor); and an additional four units were assumed at ¼ mile “down” the pipeline (also 1343 feet from the receptor). The calculated contribution includes the summed contributions from all twelve equipment units. Similar geometry was used for the 500, 750, and 1000 foot calculations.

The full RCNM results are attached in **Table RCNM-1**. The key results are summarized as follows.

Closest Approach of Pipeline to Receptor, feet	Estimated Construction Equipment Contribution, dBA, Leq
250	73.4
500	68.0
750	65.2
1000	63.4

Assumptions:

1. A group of four diesel or gasoline-powered vehicles every 1/4 mile along pipeline corridor.
2. Each vehicle has a usage factor of 40%, and is used in daytime hours only.
3. Each produces 85 dBA at 50 ft  $L_{max}$ , typical per the RCNM.
4. Estimated sound levels are  $L_{eq}$  average values based on usage factor.

These values can be used as a first-principles estimate for worst-case noise production during construction.

### 3 DISCUSSION

Pipeline construction noise will be present only temporarily. Due to the highly time varying nature of construction work, the predicted  $L_{eq}$  values will likely only be present for brief periods at any given receptor location during the construction cycle.

Sincerely,  
**SLR International Corporation**



Ronald R. Spillman, P.E.  
Principal

Attachments Table R1 (Noise Regulation Compilation)  
Table RCNM-1 (Construction Noise Calculations)

References Ref 1: Roadway Construction Noise Model, Federal Highway Administration, 2006

Table R1: Noise Regulation Compilation

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
Michigan	Genesee County	Argentine		None found	None found	None found	None found			
Michigan	Genesee County	Atlas		Section 100 Noise and public nuisance	Sec. 300.1115 which applies to light manufacturing zoning/permits and not applicable to pipeline construction	7am - Sundown - wording may be interpreted as allowing exception for construction during these hours, with permitting.	Residential Zoning Districts Commercial Zoning: Limitations: 7 a.m.—10 p.m.: 55db(A); and 10 p.m.—7 a.m.: 50 db(A)	"100.003 - Anti-noise regulations. A. General regulation. No person, firm or corporation shall cause or create any unreasonable or unnecessarily loud noise or disturbance, injurious to the health, peace, or quiet of the residents and property owners of the Township. B. Specific violations. The following noises and disturbances are hereby declared to be a violation of this ordinance; provided, however, that the specification of the same is not thereby to be construed to exclude other violations of this ordinance not specifically enumerated: .5. The erection, excavation, demolition, alteration or repair of any building or premises in any part of the Township, and including the streets and highways, in such a manner as to emanate noise or disturbance unreasonably annoying to other persons, other than between the hours of 7:00 a.m. and sundown on any day, except in cases of urgent necessity in the interest of public health and safety. In such case, a permit shall be obtained from the building inspector or ordinance enforcement officer of the Township, which permit shall limit the periods that the activity may continue. .100.004 - Anti-noise regulations based upon dB(A) criteria..."	<a href="#">100.003 - Anti-noise regulations.</a>	<a href="https://www.municode.com/library/mi/atlas_township_(genesee_co.)codes/code_of_ordinances?nodeId=PT100_100.000NOPUNUORORNO06-006ADDE182006_100.003ANISRE">https://www.municode.com/library/mi/atlas_township_(genesee_co.)codes/code_of_ordinances?nodeId=PT100_100.000NOPUNUORORNO06-006ADDE182006_100.003ANISRE</a>
Michigan	Genesee County	Fenton		Sec. 20.63 Noise Generally, Ordinance No. 653	None found	7am - Sundown - wording may be interpreted as allowing exception for construction during these hours, with permitting.		Also, various restrictions on disturbance of schools and religious functions.	<a href="https://www.municode.com/library/mi/fenton/ordinances/code_of_ordinances?nodeId=631643">https://www.municode.com/library/mi/fenton/ordinances/code_of_ordinances?nodeId=631643</a>	
Michigan	Genesee County	Gaines		None found	None found	None found	None found	Noise restrictions only as it pertains to business licenses.		
Michigan	Genesee County	Goodrich		None found	None found	None found	None found			
Michigan	Genesee County	Grand Blanc		None found	None found	None found	None found			
Michigan	Genesee County	Mundy		Article IV Anti-Noise Regulations	Sec. 30.34 (6) Vibration. Vibrations from commercial or industrial operations and vehicular traffic must be controlled to the extent that they cannot be felt past any property line.	See day/night decibel limits in Section 12-80. Generally, 55 dBA in daytime, 50 dBA at night. Octave band limits may also be applicable.	Exceeding decibel limits. In addition to those specified violations of this article as contained in section 12-79, any noise in excess of the maximum decibel limits according to the regulations stated in table 1 of Section 12-80 is also deemed to be a violation of this article.	"(a) General regulation. No person shall cause or create any unreasonable or unnecessarily loud noise or disturbance, injurious to the health, peace and quiet of the residents and property owners of the township. (b) Specific violations. The following noises and disturbances are hereby declared to be a violation of this article; provided, however, that the specification of the same is not to be construed as excluding other violations of this article not specifically enumerated, but which nevertheless violate its intent and protections, and are in addition to the provisions of section 12-80...(12) Operating machinery, equipment, or mechanical devices. The operation of any machinery, equipment or mechanical device so as to emit an unreasonably loud noise which is disturbing to the quiet, comfort and repose of any person...Sec. 12-80. - Anti-noise regulations based upon sound level criteria..."	<a href="#">ARTICLE IV. - ANTI-NOISE REGULATIONS</a>	<a href="https://www.municode.com/library/mi/mundy_charter_township_(genesee_co.)codes/code_of_ordinances?nodeId=COOR_CH12EN_ARTIVANISRE">https://www.municode.com/library/mi/mundy_charter_township_(genesee_co.)codes/code_of_ordinances?nodeId=COOR_CH12EN_ARTIVANISRE</a>
Michigan	Lapeer County	Almont		None found	None found	None found	None found			
Michigan	Lapeer County	Attica		Attica Zoning Ordinance Section 5.5 Performance Standards (6) Noise	None		Noise. No operation or activity shall cause or create noise that becomes a nuisance to adjacent uses and/or that exceeds the sound levels prescribed below, using an A-weighted decibel scale dB(A), when measured at the lot line of any adjoining use, based upon the following maximum allowable levels for each use district: (see table)		<a href="http://atticatownship.org/wp-content/uploads/2015/01/1-15-2015-attica-clearzoning.pdf">http://atticatownship.org/wp-content/uploads/2015/01/1-15-2015-attica-clearzoning.pdf</a>	
Michigan	Lapeer County	Dryden		Ordinance 4.1 Noise control	None found	7am-10pm	None	"...noise disturbance which annoys or disturbs a reasonable person of normal sensitivities."	<a href="http://nebula.wsimg.com/f6b4a4ddcbfd3d8b4c8bdaf1e91daf14?AccessKeyId=4CA3FD2F46996E4875DF&amp;disposition=0&amp;alloworigin=1">http://nebula.wsimg.com/f6b4a4ddcbfd3d8b4c8bdaf1e91daf14?AccessKeyId=4CA3FD2F46996E4875DF&amp;disposition=0&amp;alloworigin=1</a>	
Michigan	Lapeer County	Elba		None found	None found	None found	None found			
Michigan	Lapeer County	Hadley		Yes	None found	8am-10pm		Nothing specific to be during construction or mentioning vibration but we have a general Noise Control Ordinance. It mentions night disturbances 10PM - 8AM, dogs barking, off-road vehicles, continuous nuisance noises (non-farm), etc., per Hadley Township Supervisor.	Not available on internet	
Michigan	Lapeer County	Imlay		None found	None found	None found	None found			
Michigan	Lapeer County	Lapeer		Ordinance 31.2 Noise	None found	8am-8pm	None		<a href="http://lapeertownship.org/ordinances/Noise31.2_June_2011.pdf">http://lapeertownship.org/ordinances/Noise31.2_June_2011.pdf</a>	
Michigan	Lenawee County	Adrian		Sec. 58.149	None found	7am-6pm	None	"(a) Unlawful acts. Each of the following acts is declared unlawful and prohibited, but such enumeration shall not be deemed to be exclusive: ...(2) Construction noises. The erection, including excavating, demolition, alteration or repair of any building, and the excavation of streets and highways, except between the hours of 7:00 a.m.—6:00 p.m. on weekdays, unless a permit shall first be obtained from the city administrator. Such a permit shall be granted in the case of a bona fide emergency."	<a href="https://www.municode.com/library/mi/adrian/codes/code_of_ordinances?nodeId=PTIICOOR_CH58OFMIPR_ARTVFOFINPUPEOR_S58-149NO">https://www.municode.com/library/mi/adrian/codes/code_of_ordinances?nodeId=PTIICOOR_CH58OFMIPR_ARTVFOFINPUPEOR_S58-149NO</a>	
Michigan	Lenawee County	Dover		10-602	10-602	None	None	"No person shall make, continue, or cause to be made or continued, or allow any noise disturbance which annoys or disturbs a reasonable person of normal sensitivities...D. Operating or permitting the operation of any device that causes vibration thereby causing a reasonable person of normal sensitivities to be aware of the vibration by direct means including, but not limited to, sensation by touch or visual observation of moving objects."	<a href="http://www.keystatepub.com/keystate-pub/PA/York/Dover%20Township/Chapter%2010%20Health%20and%20Safety.pdf">http://www.keystatepub.com/keystate-pub/PA/York/Dover%20Township/Chapter%2010%20Health%20and%20Safety.pdf</a>	
Michigan	Lenawee County	Franklin		Only as it relates to zoning restrictions for planning industrial businesses	None found	None found	None found			
Michigan	Lenawee County	Madison		None found	None found	None found	None found			
Michigan	Lenawee County	Morenci		None found	None found	None found	None found			
Michigan	Lenawee County	Seneca		Zoning Ordinance Article XII which may not apply to pipeline construction	vibration: machines or operations which cause vibration shall be permitted, but no operation shall cause a displacement exceeding .003 of one (1) inch as		Noise: Shall be muffled so as not to become objectionable due to intermittence, beat frequency, or shrillness. Noise as measured at the street or property line may not exceed (80) decibels with a center frequency of 125 cycles per second.		<a href="http://townshipofseneca.com/wp-content/uploads/2013/02/SENECA-TOWNSHIP-ZONING-ORDINANCE.pdf">http://townshipofseneca.com/wp-content/uploads/2013/02/SENECA-TOWNSHIP-ZONING-ORDINANCE.pdf</a>	

Table R1: Noise Regulation Compilation

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
Michigan	Livingston County	Cohoctah		Sec. 13.15 Excavation Operations	Sec. 13.15 Excavation Operations	None	None	"Sec. 13.15 Excavation Operations - The effects of air pollution, noise, and vibrations upon adjacent properties shall be minimized to the greatest extent possible by adequate site design, soundproofing materials, equipment, and buildings designed to accomplish this goal and by the appropriate use of berms, walls, and natural planting screens."	<a href="https://www.municode.com/library/mi/cohoctah_township_(livingston_co)/codes/zoning?nodeId=ZOOD_ARTXII_ISPUS_S13.15EXOP">https://www.municode.com/library/mi/cohoctah_township_(livingston_co)/codes/zoning?nodeId=ZOOD_ARTXII_ISPUS_S13.15EXOP</a>	
Michigan	Livingston County	Handy		None found	None found	None found	None found			
Michigan	Livingston County	Howell		Ordinance 123 Public Nuisance Sec. 7 Noise; Ordinance 25 Pipeline	Ordinance 123 Public Nuisance Sec. 7 Noise - Vibrations from any operation on any lot or	7am-9pm Monday - Saturday, construction exemption	60 dBA at property line	Pipeline permits require " A detailed statement of measures to be taken to control noise, vibration, etc. and other adverse environmental impacts."	<a href="http://www.howell-mi-twp.org/Ord.%20123.pdf">http://www.howell-mi-twp.org/Ord.%20123.pdf</a>	<a href="http://www.howell-mi-twp.org/Ord.%2085.pdf">http://www.howell-mi-twp.org/Ord.%2085.pdf</a>
Michigan	Livingston County	Iosco		None found	None found	None found	None found			
Michigan	Livingston County	Marion		None found	None found	None found	None found			
Michigan	Livingston County	Putnam		Chapter 224 Noise	Nuisance is defined to include vibration within zoning ordinances	7am - Sundown, construction exemptions require variance requests.		There is an exception for "Any act done on a temporary basis that is permitted by law and for which a license or permit has been issued by the Township or another proper governmental entity;"	<a href="http://www.ecode360.com/14789351">http://www.ecode360.com/14789351</a>	
Michigan	Macomb County	Richmond		Article III Noise; Article VIII, Sec. 8.201 Performance Standards(B) Noise	Sec. 8.201 (a) Vibration. Operating of any device that creates vibration that is above the vibration perception threshold of an individual at or beyond the property of the source shall be prohibited. For the	7:00am-8pm. on Monday through Saturday, or any time on Sundays or holidays, but shall not apply to emergency work or public service utilities.	Yes, see table in Sec. 8.201(B)	The erection, construction, demolition, alteration, or repair of any building, lands, or rights-of-way located within 300 feet at the closest point of the property or right-of-way line of the subject site from any residentially zoned property shall be prohibited between the hours of 10:00 p.m. and 6:30 a.m. unless a permit to conduct such activities during nighttime hours is granted by the city manager or, in the case of work performed by the city or its agents, the work is determined by the city manager or a department director to be necessary.	<a href="https://www.municode.com/library/mi/richmond/codes/code_of_ordinances?nodeId=PTIICOOR_CH46EN_ARTIII_NO_DIV2CONO_S46-61CONODENU">https://www.municode.com/library/mi/richmond/codes/code_of_ordinances?nodeId=PTIICOOR_CH46EN_ARTIII_NO_DIV2CONO_S46-61CONODENU</a>	
Michigan	Oakland County	Groveland		Sec. 14.293 Noise and vibration, Article IX Noise Control, Sec. 14.156 Noise	Sec. 14.293 Noise and vibration	None	"Noise disturbance means any sound that: (a) Exceeds 85 dB(A) and could endanger or injure the safety or health of humans or animals; or (b) Exceeds 90 dB(A) and could (c) endanger or injure personal or real property; or Annoys or disturbs a reasonable person of normal sensibilities." Also, "Owners and/or operators shall not operate any equipment on their premises at any time or under any condition so as to cause a level of sound which exceeds a level of 80 decibels, "A" scale (dBA)), as measured from any boundary line of the owner and/or operator's premises. The measurement of sound levels shall be made with a sound level meter having a capacity to meet the ANSI noise measurement test on the "A" band level and recorded in terms of decibel readings. Between the hours of 7:00 a.m. and the following 7:00 p.m., noise levels may be increased by 5 (dBA) for a period of time not to exceed 15 minutes in any one-hour period."	"Every effort shall be made by the permittee to minimize noise levels transmitted beyond the property line of the site. Objectionable noises due to intermittence, beat, frequency or shrillness shall be muffled so as not to become a nuisance to adjacent occupants. Every effort shall be made to prevent transmission of ground vibration beyond the property line. Noise and vibration levels of such magnitude so as to interfere with the reasonable use and enjoyment of adjacent properties are prohibited. Noise and/or vibration standards, as established in chapter 54, pertaining to zoning, shall apply. Also, Posting encouraged. A place of inside public entertainment wherein impulse or continuous noise disturbance, as defined in this article, is in excess of 85 dB(A) as read by the slow response on a sound level meter at any point that is normally occupied by a customer, is encouraged to place a conspicuous and legible sign on an outside wall of the establishment near each public entrance to the place. The sign should read "WARNING, sound levels within this establishment may cause permanent hearing impairment."	<a href="https://www.municode.com/library/mi/groveland_township_(oakland_co)/codes/code_of_ordinances?nodeId=COOR_CH14EN_ARTIVLA_DIV3STR_E_S14-293NOVI">https://www.municode.com/library/mi/groveland_township_(oakland_co)/codes/code_of_ordinances?nodeId=COOR_CH14EN_ARTIVLA_DIV3STR_E_S14-293NOVI</a>	<a href="https://www.municode.com/library/mi/groveland_township_(oakland_co)/codes/code_of_ordinances?nodeId=COOR_CH30OFMIPR_ARTIXNOCCO">https://www.municode.com/library/mi/groveland_township_(oakland_co)/codes/code_of_ordinances?nodeId=COOR_CH30OFMIPR_ARTIXNOCCO</a>
Michigan	Oakland County	Holly		None found	None found	None found	None found			
Michigan	Putnam County	Pinckney		Chapter IX, Section 96	None found	7am-7pm; Exceptions may be requested		"The making of any of the specific noises set forth in §§ 96.03 - 96.05 which are plainly audible at a distance of 50 feet from the source, or which are plainly audible within any neighboring private residence, hospital or court, shall constitute prima facie evidence of an unlawful noise in violation of this chapter."	<a href="http://www.amlegat.com/nxt/gateway.dll/Michigan/pinckney_mi/villageofpinckneymichigancodeofordinance?f=templates\$fn=default.htm\$3.0\$vid=amlegat:pinckney_mi">http://www.amlegat.com/nxt/gateway.dll/Michigan/pinckney_mi/villageofpinckneymichigancodeofordinance?f=templates\$fn=default.htm\$3.0\$vid=amlegat:pinckney_mi</a>	
Michigan	Shiawassee County	Burns		None found	None found	None found	None found			
Michigan	St. Clair County	Berlin		Article III, Sec. 6.5-57	Sec. 18.309 Performance Standards: Vibration. Machines or operations which cause vibrations shall be permitted in agricultural and industrial districts, provided that vibrations emanating therefrom shall not be discernible and substantially annoying or injurious to property beyond the lot lines of the affected premises.	7am-7pm	10 p.m.—7 a.m.: 50 db(A)	"(a) No person, firm, corporation or entity shall cause or create any unreasonable or improper noise or disturbance, injurious to the health, peace or quiet of the residents and property owners of the Charter Township of Berlin...(7) The erection, excavation, demolition, alteration, or repair of any building or premises in any platted residential district or section of the township, including the streets and highways therein, in such a manner as to emanate noise or disturbance unreasonably annoying to other persons, other than between the hours of 7:00 a.m. and 7:00 p.m. except in cases of urgent necessity in the interest of public health and safety, upon receipt of a permit therefor from the building inspector of the township, which permit shall limit the period that the activity may continue...(8) The emission or creation of any excessive noise on any street that unreasonably interferes with the operation of any school church, hospital or court..."	<a href="https://www.municode.com/library/mi/berlin_charter_township_(monroe_co)/codes/code_of_ordinances?nodeId=COOR_CH6.5EN_ARTIIIINOCCO">https://www.municode.com/library/mi/berlin_charter_township_(monroe_co)/codes/code_of_ordinances?nodeId=COOR_CH6.5EN_ARTIIIINOCCO</a>	
Michigan	St. Clair County	China Township		Sec. 30.628	Sec. 24.36 Performance Standards (6) Vibrations. All machinery shall be so mounted and operated as to prevent transmission of ground vibration exceeding a	7am-7pm	Yes. However, construction activities within the hours of 7am-7pm are exempt from limits.	"30.628(g) Noise resulting from temporary construction activity that occurs between 7:00 a.m. and 7:00 p.m. shall be exempt from the requirements of this section. "	<a href="https://www.municode.com/library/mi/china_charter_township_(st_clair_co)/codes/code_of_ordinances?nodeId=COOR_CH30ZO_ARTVIIPEST_DIV2MIPEST_S30-628NO">https://www.municode.com/library/mi/china_charter_township_(st_clair_co)/codes/code_of_ordinances?nodeId=COOR_CH30ZO_ARTVIIPEST_DIV2MIPEST_S30-628NO</a>	
Michigan	St. Clair County	Columbus		None found	None found	None found	None found			
Michigan	St. Clair County	East China		None found	None found	None found	None found			
Michigan	St. Clair County	Riley		None found	None found	None found	None found			
Michigan	St. Clair County	St. Clair		Sec. 10.6 Noise; Sec 38.149 Noise	None	7am-sundown	The emission of measurable noises from the premises shall not exceed sixty-five (65) decibels as measured at the boundary or property lines, except that where normal street traffic noises exceed sixty-five (65) decibels during such periods, the measurable noise emanating from the premises may equal, but shall not exceed, such traffic noises. Within the M1 and M2 districts, sound levels not exceeding seventy-five (75) decibels may be permitted.	generate noise that tends to have an annoying or disruptive effect upon: (1) Uses located outside of the immediate space occupied by the covered use if that use is one of several on a lot; or (2) Uses located on adjacent lots. (b) Except as provided in subsection (f) of this section, the table set forth in subsection (e) of this section establishes the maximum permissible noise levels for covered uses in the 1-1 and I-2 districts. Measurements shall be taken at the boundary line of the lot where the covered use is located, and, as indicated, the maximum permissible noise levels vary according to the zoning of the lot adjacent to the lot on which the covered use is located.."	<a href="https://www.municode.com/library/mi/china_charter_township_(st_clair_co)/codes/code_of_ordinances?nodeId=COOR_CH30ZO_ARTVIIPEST_DIV2MIPEST_S30-628NO">https://www.municode.com/library/mi/china_charter_township_(st_clair_co)/codes/code_of_ordinances?nodeId=COOR_CH30ZO_ARTVIIPEST_DIV2MIPEST_S30-628NO</a>	



Table R1: Noise Regulation Compilation

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
Michigan	St. Clair County	Berville		None found	None found	None found	None found			
Michigan	Washtenaw County	Bridgewater		Article 19 Construction Sec. 158 Noise	Article 19 158(j) defines noxious to include vibration	None	The 24 hour energy average of the A weighted sound pressure level, with the levels during the period of 10:00 p.m. to 7:00 a.m. the following day increased by ten (10) dB(A) before averaging.	*158 e. Noise disturbance. Any sound which (a) endangers or injures the safety or health of humans or animals, or (b) annoys or disturbs a reasonable person of normal sensitivities, or (c) endangers or injures personal or real property...160. Noxious. An element creating an impact that may interfere with the enjoyment and use of property, including smoke, odors, noise, vibration, glare or heat."	<a href="http://twp-bridgewater.org/publications/new%20zoning%20ordinance%2067%20adopted%2005202013/article%2019">http://twp-bridgewater.org/publications/new%20zoning%20ordinance%2067%20adopted%2005202013/article%2019</a>	
Michigan	Washtenaw County	Dexter		Article III, Sec. 18.61 Noise		None	None	"In a prosecution for a violation of subsection (a) of this section, it shall be presumed that noise is unreasonably loud or disturbing when a person plays or operates a device designed for sound reproduction (including, but not limited to, radio, television, and stereophonic equipment), musical instrument, siren, or horn with such volume as to be plainly audible in any dwelling unit or residence which is not the source of the sound, or to operate any such device on public or private property or on a public right-of-way so as to be plainly audible more than 50 feet from such device. "	<a href="https://www.municode.com/library/mi/dexter/codes/code_of_ordinances?nodeId=COOR_CH18EN_ARTIIIINO">https://www.municode.com/library/mi/dexter/codes/code_of_ordinances?nodeId=COOR_CH18EN_ARTIIIINO</a>	
Michigan	Washtenaw County	Freedom		Zoning Ordinance Chapter 6 Noise	None found	7am-10pm, construction exemption below 85 dBA at property line	85 dBA	Construction, etc. is exempt as long as it occurs 7am-10pm and does not exceed 85 dBA beyond the property line	<a href="http://twp-freedom.org/ordinances/General%20Ordinances/go_chapter_6.pdf">http://twp-freedom.org/ordinances/General%20Ordinances/go_chapter_6.pdf</a>	
Michigan	Washtenaw County	Lima		26 Noise Section 3	Zoning Ordinance Section 6.4 Vibration: No use shall generate any ground transmitted vibration in excess of the limits set forth in Section 6.4.4. below. Vibration shall be measured at the nearest adjacent lot line. 6.4.2.	7am-10pm	None	"Section 3: General Prohibited Noise. A. It shall be unlawful for any person or entity to make, maintain, or continue, or cause to be made or continued, any excessive, unnecessary, unnatural, repeated, prolonged or unusually loud noise, or any noise which annoys or disturbs or injures or irritates or unreasonably impairs the comfort, repose, health, or peace of another, within the limits of the Township of Lima."  *Nuisance. An offensive, annoying, unpleasant, or obnoxious thing or practice or a cause or source of annoyance, especially a continuing or repeated invasion of any physical characteristics of activity or use across a property line which can be perceived by or affects a human being, or the generation of an excessive or concentrated movement of people or things including but not limited to: noise, dust, smoke, odor, glare, fumes, flashes, vibration, objectionable effluent, noise of a congregation of people - particularly at night, passing traffic, or invasion of street frontage by traffic generated from an adjacent land use which lacks sufficient parking and circulation facilities. Farm operations, as defined by the Michigan Right To Farm Act, P.A. 93 of 1981, as amended, shall not be considered nuisances where generally accepted agricultural and management practices of the Michigan Commission of Agriculture are adhered to..."	<a href="http://twp-lima.org/Ordinances/Ordinance_26_Noise">http://twp-lima.org/Ordinances/Ordinance_26_Noise</a>	<a href="http://twp-lima.org/boards/planning/Zoning_Ordinance">http://twp-lima.org/boards/planning/Zoning_Ordinance</a>
Michigan	Washtenaw County	Manchester		Title IX, Chapter 92, 92.050-060		7am-10pm	Residential 61 dBA; Commercial 71 dBA. Construction, drilling, etc. is exempt if it does not exceed 86 dBA beyond property line. Temporary exemptions can be requested.		<a href="http://www.amlegal.com/nxt/gateway.dll/Michigan/manchester_mi/manches/termichigancodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal/manchester_mi">http://www.amlegal.com/nxt/gateway.dll/Michigan/manchester_mi/manches/termichigancodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal/manchester_mi</a>	
State	COUNTY	TOWNSHIP/DISTRICT	INCORPORATED AREA (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	
Ohio	Ashland County	Mohican township		None found	None found	None found	None found			
Ohio	Ashland County	Montgomery township		Montgomery Title XIII, Ch. 132	Montgomery Title 15, Ch. 150.02	7am-10pm, except for residential areas	None	"(C) No person shall generate or permit to be generated unreasonable noise or loud sound that is likely to cause inconvenience or annoyance to persons of ordinary sensibilities by reason of a sound amplifying device, or by the operation of any tools, machinery or equipment under either of the following circumstances:... (1) Between the hours of 10:00 p.m. and 7:00 a.m. the following day, when the sound is audible more than 200 feet from the source of the sound, if it can be heard upon adjacent property, or 200 feet from the property line of the property on which the source of the sound is located, whichever is less. (2) On private property in a residentially zoned area, regardless of existing non-conforming uses, conditionally permitted uses or variances, at any time of day, where the sound is audible more than 200 feet from the property on which the source of the sound is located... (D) The following uses and activities shall be exempt from the noise level regulation set forth herein:... (4) Any other noise resulting from activities of a temporary duration permitted by law or for which a license or permit therefore has been granted by the city;" Also 150.0202 NUISANCES PROHIBITED " No use shall be permitted or authorized to be established which, when conducted in compliance with the provisions of this Zoning Code and any additional conditions and requirements prescribed, may be hazardous, noxious, or offensive due to the emission of odor, dust, smoke, fumes, cinders, gas, noise, vibration , light, electrical interference, refuse matters and water carried wastes, or which will interfere with adjacent landowners enjoyment of the use of their lands."	<a href="http://www.amlegal.com/nxt/gateway.dll/Ohio/montgom/cityofmontgomery/hiccodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal/montgomery_oh">http://www.amlegal.com/nxt/gateway.dll/Ohio/montgom/cityofmontgomery/hiccodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal/montgomery_oh</a>	
Ohio	Belmont County	Mead township		None found	None found					
Ohio	Belmont County	Pultney township		None found	None found	None found	None found			
Ohio	Belmont County	Pultney township	Shadyside village	None found	None found	None found	None found			
Ohio	Belmont County	Richland township		None found	None found	None found	None found			
Ohio	Belmont County	Smith township		None found	None found	None found	None found			
Ohio	Belmont County	Washington township		Washington Zoning Requirements Article 13, Section 12	None found	7am-9pm	See detailed zoning requirements	B. Exemptions to Noise Standards...The following uses and activities shall be exempt from the noise level regulations: 1. Noise not directly under the control of the property users. 2. Noise emanating from construction and maintenance activities between the hours of 7 AM to 9 PM.... C. Required Performance Levels 1. No operation or activity shall cause or create noise in excess of the sound levels prescribed herewith. 3. The noises of safety signals, warning devices, and emergency pressure relief valves. 4. Transient noises of moving sources such as automobiles, trucks, airplanes and railroads.	<a href="http://www.washingtontwp.org/upload/zoning/zoning-resolution/-Article%2013%20-%20General%20Requirements.pdf">http://www.washingtontwp.org/upload/zoning/zoning-resolution/-Article%2013%20-%20General%20Requirements.pdf</a>	
Ohio	Belmont County	Wheeling township		None found	None found	None found	None found			
Ohio	Belmont County	York township		None found	None found	None found	None found			
Ohio	Carroll County	Loudon township		None found	None found	None found	None found			

Table R1: Noise Regulation Compilation

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
Ohio	Carroll County	Orange township		Orange RES.13-309 exempts oil & gas pipelines	Orange Article XVII of Zoning requirements	None	None	RES. 13-309 "(J) Noise resulting from the drilling, completion, operation, maintenance, or construction of any crude oil or natural gas wells or pipelines or any appurtenances to those wells or pipelines or from the distribution, transportation, gathering, or storage of crude oil or natural gas is exempt from the provisions of this Resolution." Article XVII of Zoning requirements "(f) Vibrations and Noise – No uses shall be located and no equipment shall be installed in such a way as to produce intense, earth shaking vibrations which are discernable without instruments at or beyond the property line of the subject premises. Noise standards of the Environmental Protection Agency shall be adhered to."	<a href="http://www.orangetwp.org/documentcenter/view/454">http://www.orangetwp.org/documentcenter/view/454</a>	
Ohio	Carroll County	Perry township		Perry zoning resolution Article X1, Section 1102	Perry zoning resolution Article X1, Section 1102	None	None	"Such uses shall not create a nuisance by reason of noise, odor, dust, vibration, fumes, smoke, electric interference, or other causes."	<a href="http://www.perrytp.com/files/1413/2043/1121/Zoning_Book.pdf">http://www.perrytp.com/files/1413/2043/1121/Zoning_Book.pdf</a>	
Ohio	Crawford County	Auburn township		None found	None found	None found	None found			
Ohio	Crawford County	Chatfield township		None found	None found	None found	None found			
Ohio	Crawford County	Cranberry township		None found	None found	None found	None found			
Ohio	Crawford County	Lykens township		None found	None found	None found	None found			
Ohio	Crawford County	Vernon township		None found	None found	None found	None found			
Ohio	Defiance County	Adams township		None found	None found	None found	None found			
Ohio	Defiance County	Richland township		None found	None found	None found	None found			
Ohio	Defiance County	Tiffin township		None found	None found	None found	None found			
Ohio	Ashland County	Vermillion township		None found	None found	None found	None found			
Ohio	Fulton County	Chesterfield township		None found	None found	None found	None found			
Ohio	Fulton County	Dover township		Dover Zoning Resolution Article VI, Section 611	None	Dover Zoning Resolution Article VI, Section 611	None	611 Objectionable, Noxious, or Dangerous Uses, Practices, or Conditions. "No land or building in any district shall be occupied or used in any manner which creates or contributes to the existence of conditions which are dangerous, injurious, harmful, noxious, or objectionable, or which may otherwise adversely affect surrounding areas or adjoining premises, except that any use permitted by this Resolution may be undertaken or maintained if acceptable measures and safeguards to reduce any dangerous or objectionable...5. Objectionable noise as determined by the Zoning Inspector to frequency or beat is present; 6. Vibration discernible by the Zoning Inspector without instruments is present on an adjoining lot or property."	<a href="https://dovertownship.files.wordpress.com/2014/10/article-6-supplementary-district-regulations.pdf">https://dovertownship.files.wordpress.com/2014/10/article-6-supplementary-district-regulations.pdf</a>	
Ohio	Fulton County	Franklin township		Not applicable. Franklin Part 5, Chapter 510 applies to radio receiving set, musical instrument, or any other sound amplification system	None found	None	None		<a href="http://amlegal.com/nxt/gateway.dll/Ohio/franklin/cityoffranklinohiocodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal:franklin_oh">http://amlegal.com/nxt/gateway.dll/Ohio/franklin/cityoffranklinohiocodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal:franklin_oh</a>	
Ohio	Fulton County	German township		None found	None found	None found	None found			
Ohio	Hancock County	Washington township		None found	None found	None found	None found			
Ohio	Harrison County	Athens township		Athens 13.04.10.	23.04.04. - B-1 applies to zoning for Neighborhood Business	7am-10pm (see comment)	85 dB	"...outside operations that have noise or sound between the hours of 10:00 P.M. and 7:00 A.M. each day Sunday evening through Friday morning, or between the hours of 12:00 A.M. and 7:00 A.M. Saturday and Sunday mornings in such a manner as to be plainly audible at a distance of 50 feet from the building, structure or vehicle in which it is located or exceeds 85 dB at any point outside of the property plane, or source of the noise or sound, shall be prima facie evidence of a violation of this section."	<a href="https://www.municode.com/library/oh/athens/codes/code_of_ordinances?nodelid=TIT13GE0F_CH13_04OFAGPUPE_13.04.10UNNO">https://www.municode.com/library/oh/athens/codes/code_of_ordinances?nodelid=TIT13GE0F_CH13_04OFAGPUPE_13.04.10UNNO</a>	
Ohio	Harrison County	Cadiz township		None found	None found	None found	None found			
Ohio	Harrison County	Monroe township		None found	None found	None found	None found			
Ohio	Harrison County	North township		None found	None found	None found	None found			
Ohio	Harrison County	Stock township		None found	None found	None found	None found			
Ohio	Henry County	Flatrock township		None found	None found	None found	None found			
Ohio	Henry County	Monroe township		Monroe Part 6; Chapter 632	None applicable	8am-10pm	None	"The following circumstances apply to fixed sound sources located in any residential or commercial district and shall be enforced between the hours of 10:00 p.m. and 8:00 a.m. No person shall:... (c) Operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist tractor, or other mechanical apparatus operated by fuel or electric power, the use of which produces loud and unusual noise. (d) Operate any other motorized or non-motorized device which causes noise which is plainly audible at a distance of 75 feet from the building, structure or open-air site in which the source of the noise is located."	<a href="http://amlegal.com/nxt/gateway.dll/Ohio/monroe_oh/codifiedordinancesofmonroeohio?f=templates\$fn=default.htm\$3.0\$vid=amlegal:monroe_oh">http://amlegal.com/nxt/gateway.dll/Ohio/monroe_oh/codifiedordinancesofmonroeohio?f=templates\$fn=default.htm\$3.0\$vid=amlegal:monroe_oh</a>	
Ohio	Henry County	Richfield township		None found	None found	None found	None found			
Ohio	Henry County	Ridgeville township		None found	None found	None found	None found			
Ohio	Jefferson County	Island Creek township		Jefferson CO Part 6 Chapter 678	None found	Limits apply 8:00 a.m. to 11:00 p.m. Sunday through Thursday; 8:00 a.m. to 12:00 midnight Friday and Saturday	Residential 55 -50 dBA; Commercial 65 dBA; Industrial 70dBA	"Noise disturbances are enforceable when they create a disturbance across a real property boundary line; create a disturbance outside the limits of a vehicle operating on the public rights-of-way, parks, and parking lots, or create a disturbance outside a business establishment that has public pedestrian access."	<a href="http://amlegal.com/nxt/gateway.dll/Ohio/jefferson/jeffersonohiocodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal:jefferson_oh">http://amlegal.com/nxt/gateway.dll/Ohio/jefferson/jeffersonohiocodeofordinances?f=templates\$fn=default.htm\$3.0\$vid=amlegal:jefferson_oh</a>	
Ohio	Jefferson County	Knox township		Jefferson CO Part 6 Chapter 678	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.
Ohio	Jefferson County	Knox township	Toronto city	Jefferson CO Part 6 Chapter 678	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.
Ohio	Jefferson County	Salem township		Jefferson CO Part 6 Chapter 678	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.
Ohio	Jefferson County	Springfield township		Jefferson CO Part 6 Chapter 678	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.	See Jefferson CO above.
Ohio	Ashland County	Milton township		None found	None found	None	None		<a href="http://miltontownshipohio.org/images/zoningresolution.pdf">http://miltontownshipohio.org/images/zoningresolution.pdf</a>	
Ohio	Monroe County	Adams township		Monroe CO Part 6, Chapter 632	Not applicable. Monroe CO Part 2, Chapter 1206 applies to manufacturing only.	8am-6pm	None	"The following circumstances apply to fixed sound sources located in any residential or commercial district and shall be enforced between the hours of 10:00 p.m. and 8:00 a.m. No person shall:.(c) Operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist tractor, or other mechanical apparatus operated by fuel or electric power, the use of which produces loud and unusual noise. (d) Operate any other motorized or non-motorized device which causes noise which is plainly audible at a distance of 75 feet from the building, structure or open-air site in which the source of the noise is located."		
Ohio	Monroe County	Center township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above	
Ohio	Monroe County	Franklin township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above	

Table R1: Noise Regulation Compilation

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
Ohio	Monroe County	Green township		Monroe CO Part 6, Chapter 632; Green Part 6, Chapter 648.13	Both Monroe CO and Green Township vibration ordinance applies to manufacturing only.	See Monroe CO above; Green restriction is 6am-10pm	None	See Monroe CO above. Also, Green Township, "(b) Noisy Machinery. No person shall maintain, run, or operate any steam, gas, gasoline, or other engine, boiler, press, machine, or other apparatus so constructed or operated as to make excessive noise, to the annoyance and discomfort of persons of ordinary sensibilities...(f) It is prima facie unlawful for a person to generate or permit to be generated sound in violation of divisions (a) through (e) of this section, between the hours of 10:00 p.m. and 6:00 a.m. the following day in a predominantly residential area where the sound is audible ten feet from the property line of the property on which the source of the sound is located. The City shall be exempt from the provisions of divisions (a) through (e) of this section.."	<a href="http://amlegal.com/nxt/gateway.dll/Ohio/greenoh/codifiedordinancesofgreenohio?f=templates&amp;fn=default.htm\$3.0&amp;vid=amlegal:green_oh">http://amlegal.com/nxt/gateway.dll/Ohio/greenoh/codifiedordinancesofgreenohio?f=templates&amp;fn=default.htm\$3.0&amp;vid=amlegal:green_oh</a>	
Ohio	Monroe County	Lee township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Monroe County	Malaga township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Monroe County	Seneca township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Monroe County	Summit township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Monroe County	Sunsbury township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Monroe County	Switzerland township		Monroe CO Part 6, Chapter 632	See Monroe CO above	See Monroe CO above	See Monroe CO above	See Monroe CO above		
Ohio	Noble County	Marion township		None Found	None Found	None Found	None Found	See Monroe CO above		
Ohio	Richland County	Franklin township		None Found	None Found	None Found	None Found			
Ohio	Richland County	Jackson township		None Found	None Found	None Found	None Found			
Ohio	Richland County	Sharon township		None applicable. Sharon zoning ordinance noise restrictions apply to homes only.	None applicable. Sharon zoning ordinance vibration restrictions apply to homes only.	None	None		<a href="http://www.rcrpc.org/documents/SHARON-PDF.pdf">http://www.rcrpc.org/documents/SHARON-PDF.pdf</a>	
Ohio	Richland County	Weller township		None applicable. Weller zoning ordinance noise restrictions apply to homes only.	None applicable. Weller zoning ordinance vibration restrictions apply to homes only.	None	None		<a href="http://www.rcrpc.org/documents/WELLER-PDF.pdf">http://www.rcrpc.org/documents/WELLER-PDF.pdf</a>	
Ohio	Seneca County	Bloom township		None applicable. Bloom Zoning regulations related to noise apply to commercial and manufacturing.	None found	None found	None found			
Ohio	Seneca County	Eden township		None found	None found	None found	None found			
Ohio	Seneca County	Hopewell township		None found	None found	None found	None found			
Ohio	Seneca County	Loudon township		None found	None found	None found	None found			
Ohio	Seneca County	Seneca township		None found	None found	None found	None found			
Ohio	Stark County	Bethlehem township		None found	None found	None found	None found			
Ohio	Stark County	Pike township		None found	None found	None found	None found			
Ohio	Stark County	Sugar Creek township		None found	None found	None found	None found			
Ohio	Tuscarawas County	Fairfield township		None found	None found	None found	None found			
Ohio	Tuscarawas County	Sandy township		None found	None found	None found	None found			
Ohio	Tuscarawas County	Warren township		None found	None found	None found	None found			
Ohio	Wayne County	Franklin township		None found	None found	None found	None found			
Ohio	Wayne County	Paint township		None found	None found	None found	None found			
Ohio	Wayne County	Plain township		None found	None found	None found	None found			
Ohio	Wayne County	Salt Creek township		None found	None found	None found	None found			
Ohio	Wayne County	Wooster city	Wooster city	Wooster 509.01	Wooster 1125.14	6am - 12am	None	"509.01(a) Permitting excessive noise. No person, being the owner or person in possession or control of any building or premises within the Municipality, shall use the same, allow the use of the same, or rent the same to be used for any business or employment or residential use, or for any purpose of pleasure or recreation, if such use shall, by its loud or boisterous nature, disturb or destroy the peace and quiet of the neighborhood, or any resident thereof; cause inconvenience or annoyance, or create a condition which is physically offensive to persons of ordinary sensibilities; or be dangerous or detrimental to health or safety. It is prima facie unlawful where the sound or noise is plainly audible on private property between the hours of 12:00 a.m. and 6:00 a.m. from a distance of at least fifty (50) feet from the source of the sound or noise..." Also, " 1142.09 Performance standards. (g) Emission. No land use or structure shall be used or occupied in any manner to create dangerous or objectionable noise or emissions. All uses shall comply with the regulations regarding emissions in Section 1125.14, Performance Standards." Also, "1125.14No land or structure in any zoning district shall be used or occupied in any manner to create a dangerous or objectionable condition, substance or element, in such a manner or in such amount to adversely affect the adjoining premises or surrounding area. All uses, except those in Manufacturing Districts which must comply with the performance standards in Section 1143.09, shall comply with the following performance standards...(d) (d) Vibration. Vibrations, which are perceptible without the aid of instruments, shall not be permitted beyond the lot occupied by the use generating such vibration. "	<a href="http://www.conwaygreene.com/Wooster/pext.dll?f=templates&amp;fn=main-hit-h.htm&amp;2.0">http://www.conwaygreene.com/Wooster/pext.dll?f=templates&amp;fn=main-hit-h.htm&amp;2.0</a>	
Ohio	Wayne County	Wooster township		None found	None found	None found	None found			
Ohio	Wood County	Bloom township		None found	None found	None found	None found			
Ohio	Wood County	Henry township		None found	None found	None found	None found			
Ohio	Wood County	Jackson township		None found	None found	None found	None found			
Ohio	Wood County	Milton township		None found	None found	None found	None found			
Ohio	Wood County	Perry township		None found	None found	None found	None found			
West Virginia	Doddridge County	Beech district		None found	None found	None found	None found			
West Virginia	Doddridge County	Maple district		None found	None found	None found	None found			
West Virginia	Hancock County	Clay district		None found	None found	None found	None found			
West Virginia	Marshall County	District 1		None found	None found	None found	None found			
West Virginia	Tyler County	Central district		None found	None found	None found	None found			
West Virginia	Tyler County	North district		None found	None found	None found	None found			
West Virginia	Tyler County	South district		None found	None found	None found	None found			
West Virginia	Tyler County	West district		None found	None found	None found	None found			
West Virginia	Wetzel County	District 2		None found	None found	None found	None found			



**Table R1: Noise Regulation Compilation**

State	County	Township/District	Incorporated Area (if applicable)	Noise Ordinance	Vibration Ordinance	Hours restricted	Maximum Permissible Limits	Selected Text and Other Comments	Link to full text	Additional Link
State	COUNTY	TOWNSHIP/DISTRICT		<b>Noise Ordinance</b>	<b>Vibration Ordinance</b>	<b>Hours restricted</b>	<b>Maximum Permissible Limits</b>	<b>Selected Text and Other Comments</b>	<b>Link to full text</b>	
Pennsylvania	Washington County	Hanover township		Ordinance 109 includes noise restrictions for oil and gas well drilling and completions; however, some elements define facilities broadly and may be applied to pipeline and compressor stations (see 1103.43(c) and (d) related to compressor stations and definition of compressor station	None applicable. Applies to oil & gas well drilling only.			"All operations, including drilling and fracturing, shall comply with the noise standards in the Township Zoning Ordinance...1103.43 (c) and (d) - "Compressors shall be located within a completely enclosed building. During periods of normal operations, doors, windows and similar operations shall remain closed to ensure maximum noise suppression..."...All equipment and facilities shall comply with the noise standards of § 1201.2 of the Township Zoning Ordinance."	<a href="http://webzoom.freewebs.com/hanover/townshipcommunity/RIGHT%20TO%20KNOW/Oil%20&amp;%20Gas%20Amdmt%205.pdf">http://webzoom.freewebs.com/hanover/townshipcommunity/RIGHT%20TO%20KNOW/Oil%20&amp;%20Gas%20Amdmt%205.pdf</a>	
Pennsylvania	Washington County	Smith township		None found	None found	None found	None found			

Table RCNM-1									
Calculations from Roadway Construction Noise Model (RCNM)									
Report date:	4/29/2015								
Case Description:	Pipeline Construction								
---- Receptor #1 ----									
Description									
Receiver at 250 ft									
Equipment									
				Spec	Actual	Receptor	Estimated		
	Impact			Lmax	Lmax	Distance	Shielding		
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)			
Dozer	No	40	40	85	250	0	Distance to closest units		
Dozer	No	40	40	85	250	0	Distance to closest units		
Dozer	No	40	40	85	250	0	Distance to closest units		
Dozer	No	40	40	85	250	0	Distance to closest units		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1343	0	Slant distance to units 1/4 mile down pipeline route		
Results									
Calculated (dBA)									
Equipment	*Lmax	Leq							
Dozer	71	67							
Dozer	71	67							
Dozer	71	67							
Dozer	71	67							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Dozer	56.4	52.4							
Total	71	<b>73.4</b>							
*Calculated Lmax is the Loudest value.									
---- Receptor #2 ----									
Description									
Receiver at 500 ft									
Equipment									
				Spec	Actual	Receptor	Estimated		
	Impact			Lmax	Lmax	Distance	Shielding		
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)			
Dozer	No	40	40	85	500	0	Distance to closest units		
Dozer	No	40	40	85	500	0	Distance to closest units		
Dozer	No	40	40	85	500	0	Distance to closest units		
Dozer	No	40	40	85	500	0	Distance to closest units		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile up pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile down pipeline route		
Dozer	No	40	40	85	1411	0	Slant distance to units 1/4 mile down pipeline route		
Results									
Calculated (dBA)									

Equipment		*Lmax	Leq																		
Dozer		65	61																		
Dozer		65	61																		
Dozer		65	61																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
Dozer		56	52																		
	Total	65.0	68.0																		
		*Calculated Lmax is the Loudest value.																			
---- Receptor #3 ----																					
Description																					
Receiver at 750 ft																					
Equipment																					
Spec Actual Receptor Estimated																					
Impact Lmax Lmax Distance Shielding																					
Description Device Usage(%) (dBA) (dBA) (feet) (dBA)																					
Dozer	No	40	85	750	0	Distance to closest units															
Dozer	No	40	85	750	0	Distance to closest units															
Dozer	No	40	85	750	0	Distance to closest units															
Dozer	No	40	85	750	0	Distance to closest units															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile up pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile up pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile up pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile up pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile down pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile down pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile down pipeline route															
Dozer	No	40	85	1518	0	Slant distance to units 1/4 mile down pipeline route															
Results																					
Calculated (dBA)																					
Equipment		*Lmax	Leq																		
Dozer		61.5	57.5																		
Dozer		61.5	57.5																		
Dozer		61.5	57.5																		
Dozer		61.5	57.5																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
Dozer		55.4	51.4																		
	Total	61.5	65.2																		
		*Calculated Lmax is the Loudest value.																			
---- Receptor #4 ----																					
Description																					
Receiver at 1000 ft																					
Equipment																					
Spec Actual Receptor Estimated																					
Impact Lmax Lmax Distance Shielding																					
Description Device Usage(%) (dBA) (dBA) (feet) (dBA)																					
Dozer	No	40	85	1000	0	Distance to closest units															
Dozer	No	40	85	1000	0	Distance to closest units															
Dozer	No	40	85	1000	0	Distance to closest units															
Dozer	No	40	85	1000	0	Distance to closest units															

Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile up pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile up pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile up pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile up pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile down pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile down pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile down pipeline route
Dozer		No	40	85	1656	0	Slant distance to units 1/4 mile down pipeline route
				Results			
		Calculated (dBA)					
Equipment		*Lmax	Leq				
Dozer		59	55				
Dozer		59	55				
Dozer		59	55				
Dozer		59	55				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
Dozer		54.6	50.6				
	Total	59	<b>63.4</b>				
		*Calculated Lmax is the Loudest value.					