

North Dakota Highway Traffic Noise Training Lessons Learned

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North Dakota Statistics

■ **2013 STATE population***: 723,393 (9.7 people/sq. mi.)

■ **Largest Counties**

- 1) Cass County (Fargo): 162,829
- 2) Burleigh County (Bismarck): 88,457
- 3) Grand Forks County (Grand Forks): 69,179
- 4) Ward County (Minot): 67,990
- 5) Williams County (Williston): 29,595
- 6) Morton County (Mandan): 28,990
- 7) Stark County (Dickinson): 28,212



New Hampshire: 1,323,459
147.8 people/sq. mi.



Chicago – Kennedy Expressway

Chicago (City):
12,882,135 people



Fargo - I-29 and 52nd Avenue South interchange

Cass County (City of Fargo):
162,829 people

NDDOT Noise Program

- Started in 1996
 - Basic policy
 - Very few noise studies
 - One staff member

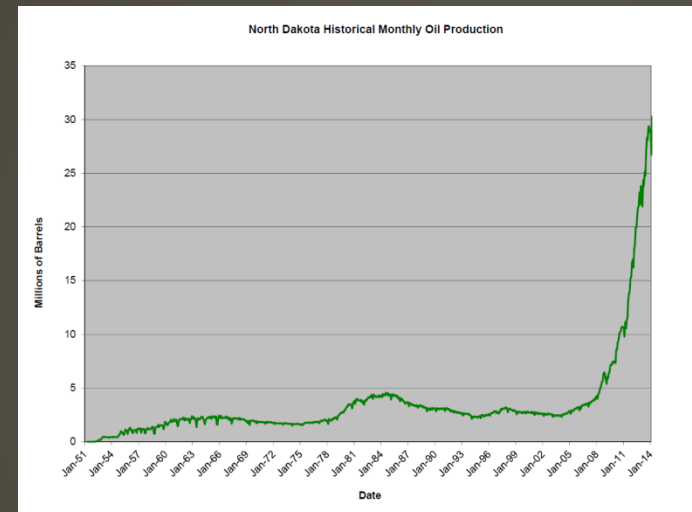
- Revised in 2011
 - New federal policy –
 - More restrictive definitions
 - Removed state flexibility
 - Required greater detail in all noise analyses
 - Ultimately, required more noise studies
 - One staff member



2008 – Current: Bakken Oil Boom

NEED FOR TRAINING!

- Large influx of population
- Drastic increase in Truck Traffic
 - Not really noticeable until 2010/2011
- DOT recognized need for capacity improvement projects
 - Increased the number of Type I projects
 - Increase in noise analyses completed
 - Recognition that these were not adequate



Overarching Challenges: Prior to Noise Training

- Previously noise hadn't been viewed as a problem in ND.
 - One noise wall in the state – Fargo, ND (I-29/I-94 Interchange)
 - Low population density statewide



Country Road –
New Salem, ND



US Hwy 2
Williston, ND



Typical Stretch of Road
Eastern ND



I-94 at Cass County, ND



North Dakota Badlands along Highway 22

Overarching Challenges

- **Inexperienced Staff and Consultants**
 - Lack of consultants and staff with training
 - Noise measurement and noise modeling
 - Lack of awareness of the federal and state requirements
- **No local ordinances controlling development next to roadways**
 - State has grown to the Interstates = Access corridors.
 - Date of common plan of development – Until a Type I project
- **No defined formatting of noise analysis**





Common Issues

- **Lack of understanding**

- Of how to conduct a noise analysis and how to complete modeling and report

- **Field Data Collection –**

- Hand drawn maps
- Field measurements taken in all weather conditions and inappropriate times

- **Didn't know where to place receptors.**

- Too close to buildings
- Too many or not enough
- Missing locations
- Grouping of receptors – not identified
- Didn't identify land-use

- **Vehicle types**

- Not Recorded
- Not broken into the 5 vehicle types required by TNM (would group into 2 types)
 - Used % in noise analysis vs actual number of vehicles per type

- **Data not consistent:**

- Fall off rates not consistent - As you got farther away from source, the noise got louder.
- Traffic data and noise measurements not consistent.

Benefits of Training

- **Cross trained staff**
 - Consultants
 - Multi-departmental NDDOT staff
 - FHWA
- **Heightened Awareness =**
 - Easier to communicate between departments
 - Higher expectations of consultant reports
 - Easier to communicate with consultants
- **Valuable experience**
 - Helpful to evaluate scenarios between FHWA, Consultants and NDDOT during training
 - Gained insight from historical examples
- **Better understanding of the Federal Policy**
 - Apply to State Policy



Challenges Moving Forward

- Noise Policy

- Temperature
 - Frozen ground - Snow and Ice
- Wind!!!
 - 12-13 mph max... that is the ***average daily*** wind speed in ND.
- Rural/Farm Residence
- Gravel Roads
- Population Density
- Rapid Development in North Dakota due to the Bakken Oil Boom
 - Higher percentage of heavy equipment and larger trucks

- Federal —

- Policy Very Rigid and difficult for rural states
- TNM is required, but, training is expensive, not readily available, and expensive to travel to.
- Gravel is not a pavement type in TNM





Man Camps



Oil Well Development



Mandan, ND Railyard



Oil Wells



Next Steps

- Revising our Noise Policy
- Developing a noise template
- More specific in our RFP's
- Offering training annually (based on demand)

Goal:

Better trained staff and consultants = High Quality Noise Analyses!



Questions?

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Enchanted Highway in North Dakota

