Mining Operations, Public Roadways, and Overview of Potential Impacts

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OVERVIEW

• Background
• Issue - Truck Impacts to Roads
• Impacts on Infrastructure
• State-Specific Impacts and Damage Mitigation Strategies
BACKGROUND

• Speaker Background
• Mining - Core Industry for ~30 years
  • Client and Industry Advocacy
  • Industry Association Support – (not just name on list)
    • IMA-NA, NISA, NSSGA, WISA, MAA, IAAP
    • Committees, Subcommittees, Task Forces – Chair and Support
    • Papers, Presentations, Training
  • Proactive
  • One Company
BACKGROUND

• Industry Advocacy
  • Annual DC Capitol Hill Visits
  • State Senate Testimony
  • IPCB and WI Testimony
  • Rule Making - MNSSRAP
  • Regulatory Agency Interaction
  • Draft Rule Making Review
BACKGROUND

• Industry Advocacy
  • Industry Group Presentations and Webinars
  • Stakeholder Presentations
    • National Transportation Safety Board (NTSB)
    • Society for Mining, Metallurgy & Exploration (SME)
    • American Planners Association
    • County Engineers, County Zoning Officials
BACKGROUND

• Industry Advocacy
  • White Papers – NSSGA, MAA, IAAP, WISA, Progressive Rail, IMA-NA
  • Policy Papers
ISSUE

Truck Impacts to Roads

• Real or Imagined?
• New or Old?
• Statewide, Regional or Local?
ISSUE - Truck Impacts to Roads

• Real, Imagined, New or Old Issue?
  • Wisconsin Has ~2,500 NMM Mines
  • Illinois, Michigan and Minnesota – Likely Similar Numbers
  • Iowa Reports 1,100

• The Recent Increase in Industrial Sand Mines Did Not Change These Numbers
ISSUE - Truck Impacts to Roads

- What Has Changed?
  - Public Awareness
  - New Industrial Sand Mines - Faster Rate Than Other NMM
  - New Industrial Sand Mines - in New Areas
  - Isolated Impacts to Local Roads
  - Social Media
ISSUE - Truck Impacts to Roads

• Not All Mines Use Roads to Same Extent
  • Some Are Located on Class A Highways
    • County, State and US
  • Trucking From Mine to Processing
    • Some Do, Some Do Not
Impacts on Infrastructure

• Roads Deteriorate Over Time Due To:
  • Traffic Load
  • Environmental Factors
Impacts on Infrastructure
Traffic Load

- Vehicle Weight
- Average Daily Traffic (ADT)
- Distribution of Vehicle Weight Over the Axles
Impacts on Infrastructure
Traffic Load

• Vehicle Weight
  • Exponential Relationship Between Weight and Potential Impact
    • Average Passenger Vehicle ~1.5 to 2 Tons
    • Tractor-Trailer ~40 Tons
    • Loaded Tractor-Trailer
      • 20 to 25 Times Heavier than Passenger Vehicles
      • Impact May Be Equivalent to 5,000 Cars
      • On a Road Not Designed For Heavy Traffic
Impacts on Infrastructure
Traffic Load

Vehicle Weight
• Federal Law Requires All States to Allow GVW of 40 Tons
  • Interstate System and Other Designated Highways
  • Certain Distances Off These Highways En-route to Terminals
• Several States Allow Greater GVW When More Than Five Axles
  • Allowable Under “Grandfather Clauses” in Federal Law
    • Michigan – Maximum 11 Axles – 82 Tons
    • Minnesota – Maximum 8 Axles – 54 Tons
      • Maximums Based on Per Axle Limitations
Impacts on Infrastructure
Traffic Load

- Illinois, Iowa and Texas - Maximum 40 Tons -
- Wisconsin - Maximum 40 Tons
  - Applicable to All “Class ‘A’ Highways”
    - All State Trunk Highways and Connecting Highways, County Trunk Highways, Town Highways and City and Village Streets Not Designated as “Class ‘B’ Highways”
- Class B Highways – Maximum 24 Tons
  - 60% of Class A Limits
- Most States Allow Higher Maximums With Permit
Impacts on Infrastructure
Traffic Load - National Trends

National Trends

- Toward Lower Axle Weights and Higher Gross Vehicle Weights.
- Proposed Changes to Federal Law For US Highways
  - Most Recently During the 2012 Federal Highway Bill
  - Most Common Proposal - GVW of 97,000 lbs. 48.5 Tons
  - Would Add One 17,000-lb. Axle to 53-Foot Trailer
Impacts on Infrastructure
Traffic Load – National Trends

• The Transportation Research Board (TRB) Published Research – the “Turner Proposal”
  • Heavier Gross Vehicle Weights on More Axles, With Each Axle Carrying Less Weight
    • Net Decrease of $326 Million in Annual Pavement and Bridge Costs Nationally
  • Shippers and Businesses Would Save an Estimated $2 Billion Annually
Impacts on Infrastructure
Traffic Load

• Common Truck Types Transporting Industrial Sand
  • Five-axle Tractor-Trailers GVW 40 Tons
  • Quad-Axle Dump Trucks GVW 36-37 Tons
Impacts on Infrastructure
Environmental Factors

Rainfall and Temperature.
• Rainfall
  • Penetrates the Structure of the Road, Alters the Properties of Different Layers
  • Pavement Becomes More Vulnerable to Traffic Loads
• Temperature
  • Generates Stresses Causing Materials to Expand and Contract
  • Frost Heave
State-Specific Impacts and Damage Mitigation Strategies

- Wisconsin
- Minnesota
- Iowa
- Illinois
State-Specific Impacts and Damage Mitigation Strategies

Wisconsin

- Local Jurisdictions Often Impose:
  - Hours of Operation
  - Truck Routes and Speeds
  - Road Repair Liabilities
State-Specific Impacts and Damage Mitigation Strategies

Wisconsin

- Wisconsin Statutes Provide Authority to Local Governments Protect Roadways
  - Statute 348.16 - Set Weight Restrictions on Class B Highways - Include County and Town Highways and Village and City Streets
  - Statute 348.17 - Impose Special or Seasonal Weight Limits
  - Statute 349.16 – Enter Road Upkeep and Maintenance Agreements [RUMA]
State-Specific Impacts and Damage Mitigation Strategies

Wisconsin

• Road Upkeep and Maintenance Agreements (RUMAs)
  • Negotiated
  • Upgrade or Maintain Roads to Accommodate Changed Use
  • Most Appropriate for Improving Road Class B to A
  • Chippewa County Examples in Policy Paper No. 3
State-Specific Impacts and Damage Mitigation Strategies

Wisconsin

• Inconsistencies in the Application of Authorities
• Need Fact-Based Engineering to Apply Statutes and Develop RUMAs
  • Traffic Impact Analysis (TIA)
  • WisDOT Facility Development Manual (FDM)
State-Specific Impacts and Damage Mitigation Strategies

Wisconsin

• Local Officials Cannot Regulate State Roads
• Maintenance and Improvement Costs by State
• WisDOT Northwest Region Reports
  • Overall Impact of Frac Sand Mining on State Highway System Will be Relatively Minor
    • Small Percentage of Highway Segments
    • Primarily Improvements at Public and Private Road Intersections - Most at Sand Industry Expense
State-Specific Impacts and Damage Mitigation Strategies

Minnesota

• 7 of 9 Sand Mines Located Within Existing NMM
• Established Transportation Infrastructure Along U.S. and State Highways
State-Specific Impacts and Damage Mitigation Strategies

Minnesota

• 2016 Minnesota Statutes - 298.75 Aggregate Material Removal Production Tax
• Tax on Removal of Aggregate
• Collected and Administered at the County Level.
• Any County May Impose if County Board Has:
  • Voted After a Public Hearing to Impose the Tax, and
  • Has Notified the Commissioner of Revenue
• 21.5 cents per cubic yard or 15 cents per ton
State-Specific Impacts and Damage Mitigation Strategies

Iowa

• One Industrial Sand Mine
• No Hope for Others Due to Geology and Restrictive Ordinances
State-Specific Impacts and Damage Mitigation Strategies

Illinois

• 6 of 7 Industrial Sand Mines Are in La Salle County
• One in Ogle County.
• 5 of 7 Mines - Decades to >100 Years
  • On U.S., State, or County Highways Designed Decades Ago to Accommodate Heavy Truck Traffic.
  • One New Mine On U.S. highway.
  • One New Mine On County Highway
State-Specific Impacts and Damage Mitigation Strategies

Concluding Remarks

• Industrial Sand Mining Has Not Lead to Widespread Damage to Public Roads.
• Industrial Sand Operators Have Paid to Repair, Upgrade, and Maintain Local and County Roads.
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