

Transforming North American Rail: Solving the Market Imbalance with Collaborative Industrial Optimization—The VitalRail Approach

I. The Market Imbalance: Economic and Energy Efficiency vs. Market Share

North American land freight defies basic economic principles. The trucking industry generates \$1.1 trillion in annual revenue. Rail, despite moving freight at lower cost and lower emissions, captures only \$115 billion in revenue. Ten dollars flow to highway transportation for every one dollar to rail, a market imbalance that rewards the more costly, carbon-intensive option over the efficient one. This isn't inevitable. It's North America's most compelling addressable infrastructure opportunity.

The Network Contraction

The rail network's current capacity is constrained by previous network rationalization rather than by unavoidable market forces. After reaching a peak of 261,871 U.S. rail-route miles in 1925, the network has contracted to approximately 135,000 miles today, while the population has increased from 115 million to 342 million. The Staggers Act accelerated this decline by allowing railroads to sell off less profitable branch lines. Since 1990, the active network has shrunk by approximately 23%.

This network contraction has created dependency and logistical challenges throughout the continent.

- Eighty percent of U.S. towns now depend solely on truck service for surface freight, limiting local economic flexibility.
- In Nevada, for example, of 137 large warehouses, only one utilizes direct rail access, a striking illustration of the over-reliance on highway transportation.

This evidence points to a clear need for planned network optimization to unlock rail's full economic potential, especially in rural areas and communities where transportation costs are a major barrier to prosperity.

The challenges confronting the rail sector are systemic, rooted in planning approaches that fail to view infrastructure as a complete, integrated system. Three interconnected constraints sustain this imbalance.

Public-Private Sector Disconnect

Roads are universally provided as a public service, ensuring instant truck access for every new facility. In contrast, North America's freight rail system requires private investment, dedicated coordination, and ongoing stakeholder education, creating a significant initial barrier to effective expansion that can only be addressed by collaboration between the public and private sectors.

Fragmented Planning

The public sector plans infrastructure in isolation, mode by mode and project by project, neglecting the comprehensive integration needed for optimal system performance. Market competition alone cannot optimize infrastructure systems. Complex, shared networks require collaborative planning to benefit both public and private stakeholders.

Internal Industry Limitations

The industry's internal focus on incremental growth has limited its market capture. This is evident in:

- **Inadequate Stakeholder Relations:** A deficit in strategic government engagement and proactive community outreach often leads to insufficient public-sector support and community partnerships.
- **Lack of Growth Capital:** The lack of an industrywide growth strategy has discouraged the investment community from providing the same levels of growth capital enjoyed by many other industries of far less stability, importance, and opportunity.
- **Technology Deficit:** A limited collaboration approach with key stakeholders, both inside and outside Class I railroads, hinders the adoption of new technologies and best practices proven effective elsewhere.

II. The VitalRail Solution: Collaborative Industrial Optimization

VitalRail addresses these systemic constraints by adopting a unified empirical approach to infrastructure development, guided by a core principle:

"Every transaction matters, every community counts, and every small town, railroad, and shipper deserves attention."

Core Methodology for State-by-State and Province-by-Province Transformation

This methodology—**Collaborative Industrial Optimization**—aligns stakeholders and their interests to turn isolated projects into unified industrial systems through six core elements:

- **Mobilizing Capital FIRST:** VitalRail secures commitments from 3-5 infrastructure investors before meeting with state and provincial leaders. This step guarantees access to capital, reduces investment risks, and increases systemwide and individual project success.
- **Executive Partnership:** VitalRail then obtains commitments from governors and premiers to align all relevant agencies—transportation, economic development, and land use—for sustainable, rail-enabled economic development.
- **Collaborative Railroad Business Development:** VitalRail supports Class I and Shortline business development with commercially astute stakeholder education and collaboration.

- **360° Freight Market Intelligence:** VitalRail maps shippers, tracks cargo flows, and analyzes entire supply chains with 12-layer mapping to produce actionable insights. These layers include demographics, commodity flows, infrastructure capacity, land use, topography, natural resources, economic zones, transportation networks, industry hubs, market opportunities, and stakeholder relationships.
- **Whole Systems Thinking:** VitalRail combines individual opportunities into viable corridors, regional services, and entire industrial supply chains, boosting benefits for shippers, transportation providers, and communities.
- **Radical Inclusion:** VitalRail convenes a broad spectrum of stakeholders from different sectors using its innovative IntelliConference® dialogue method to create smart policies, plans, and investments.

All Stakeholder Groups Contribute

VitalRail engages each stakeholder group as an essential partner in expanding rail infrastructure and services.

- **Communities and Media:** Tools and messaging to communicate freight rail's benefits and improve railroad-community relationships.
- **Labor, Shippers, Suppliers, and Environmental Groups:** Structured dialogue through IntelliConferences to address shared challenges collaboratively.
- **Economic Developers and Landowners:** Training in “Rail-Enabled Economic Development” and “Industrial Land Value Optimization.”
- **Heavy Industry:** Sector-specific strategies for minerals, aggregates, wood products, and other commodities that integrate production, processing, and distribution into end-to-end industrial ecosystems.
- **Public Officials:** Development of policies, programs, and plans that connect local rail service, regional economic development, and continental supply chains.

Principles of the VitalRail Approach

VitalRail's approach is guided by ten principles for expanding rail infrastructure and service:

- **Design for Action:** Develop dynamic, evolving plans instead of static reports.
- **Radical Inclusion:** Integrate all regions and shipment opportunities.
- **Right Tools and Data:** Deploy the right tools and data to enable informed decision-making.
- **Rail and Roads as One System:** Integrate transportation modes into a unified, collaborative system.
- **Whole Supply Chains:** Promote collaboration across businesses and government agencies.
- **Beyond State Lines:** Understand that supply chains are regional and continental.
- **Smart Logistics Drives Development:** Link rail planning directly with regional economic development.
- **Transportation and Land Use:** Coordinate individual site selection to optimize overall freight movement.
- **Compelling Growth Plans:** Offer railroads well-positioned commercial opportunities.
- **Private Capital Focus:** Position government support as a catalyst for substantial private sector investment.

OnTrackNorthAmerica applied these principles in creating the 2021 Nevada State Rail Plan. For a 15-minute deep-dive, read [The New Blueprint for Rail-Enabled Economic Development](#).

Targeted Solutions for Rural Economic Development

The network contraction has disproportionately impacted less-populated areas. VitalRail uses a targeted approach to develop new, commercially viable local rail services that reverse this trend.

VitalRail's rural strategy begins by supporting existing businesses, finding growth opportunities, and resolving immediate logistical challenges. This method aggregates smaller shipping needs often overlooked by traditional economic development. Success requires developing complete industrial systems—like Mississippi's potential for a biomass-to-energy supply chain—that connect production, processing, and distribution into integrated corridor services. VitalRail also emphasizes repurposing existing assets—abandoned and under-used rail lines, rights-of-way, and brownfields—adding productive capacity more cost-effectively than new construction.

III. Value Propositions for All Stakeholders

VitalRail delivers measurable, evidence-based benefits to all key stakeholder groups:

Value for Class I, II, and III Railroads: Market Expansion and De-Risked Growth

By working collaboratively with shippers, investors, states, and railroads, VitalRail delivers the strategic intelligence and capital readiness to optimize system traffic:

- **Expanded Market Share:** Opens up access to new, non-traditional rail sectors such as minerals, glass, waste, recycling, and forest products, increasing volume to the main lines.
- **Prepared, Funded Projects:** Customers arrive with plans and committed capital from private investors, eliminating the historical financing barrier for local rail infrastructure.
- **Corridor Optimization:** Aggregation of small and large shippers makes serving these markets economical, generating new traffic and strengthening the network.
- **Public Support Mobilization:** State and federal programs are aligned to support rail capacity expansion and reduce regulatory friction.

Value for Infrastructure Investors: Systemic Scale and Optimized Returns

VitalRail enables deployment of de-risked capital at scale into essential infrastructure and industrial ecosystems:

- **Systemic Investment Opportunity:** Enables capital deployment across entire industrial ecosystems, moving beyond single-asset risk (e.g., the Nevada State Rail Plan identified 50+ rail construction projects representing a \$580M investment opportunity).
- **Deep Domain Knowledge De-risks Investment:** Provides unparalleled 360° Freight Market Intelligence (12-layer mapping), delivering confidence in long-term project viability and eliminating traditional investment uncertainties.
- **Enhanced Portfolio Returns:** Investments are secured by essential, long-term industrial supply chains with predictable cash flows.

- **Meaningful ESG Investing:** Projects achieve measurable ESG benefits, including a 62% to 75% reduction in carbon footprint compared to trucking and significant infrastructure preservation benefits (one truck causes road damage equivalent to 5,000 passenger vehicles). VitalRail's [FreightImpact Calculator](#) tracks and quantifies these impacts.

Value for Government: Rail-Enabled Economic Development—The Public Catalyst

VitalRail's methodology ensures public support acts as a catalyst for strategic growth:

- **Leveraged Public Capital:** Public funding attracts substantial private investment, multiplying its economic impact.
- **Economic Beneficiation:** Rail-enabled supply chains enable new suppliers to enter the market while facilitating value-added processing and manufacturing, generating additional economic activity and wealth in-state.
- **Growth Without Truck Traffic:** Economic expansion is achieved while mitigating congestion and infrastructure damage; the goods in a single mile-long train require a 27-mile over-the-road truck convoy.

Value for Shippers: Operational Excellence and Expanded Market Access

- **Reduced Logistics Costs:** Rail transport offers lower per-ton-mile costs compared to trucking, directly improving bottom-line margins.
- **Access to Previously Truck-Dependent Markets:** VitalRail's corridor optimization opens new supply and distribution channels to regional, continental, and global markets.
- **Supply Chain Reliability:** Multimodal options reduce dependency on single transportation modes, protecting against disruptions from highway congestion, weather events, or driver shortages.
- **Enhanced Sustainability Credentials:** Companies can achieve measurable carbon reduction targets through modal shift, strengthening ESG reporting, and brand positioning.

Value for Communities: Economic Development and Quality of Life

- **Job Creation:** Rail-enabled economic development generates direct employment in logistics, warehousing, and value-added processing, plus multiplier effects in local services and retail.
- **Reduced Road Damage and Maintenance Costs:** Modal shift from trucks to rail dramatically reduces pavement degradation and saves municipalities in road repair expenses.
- **Improved Air Quality and Public Health:** Reducing truck traffic decreases local diesel emissions, particulate matter, and noise pollution, contributing to healthier communities.
- **Economic Development Anchor:** Rail-served industrial sites attract manufacturing, distribution, and processing facilities that create long-term, stable employment and tax base expansion.
- **Property Value Appreciation:** Access to rail services improves regional economic vitality and drives enhanced commercial and industrial property values.

IV. Proven Track Record: Evidence of Impact

VitalRail's methodology has delivered tangible, quantifiable results in advancing significant infrastructure investment and development:

- **Port of Mobile:** Strategic analysis revealed 70% more cargo opportunity, leading to the State's immediate \$231.6M commitment for the Alabama-USA Rail Corridor.
- **Port of Long Beach:** Financial modeling guided the POLB Board's \$1.5B commitment to the Pier B Intermodal Facility.
- **Nevada State Rail Plan:** The state's evaluation of the VitalRail proposal scored 95 out of a potential 100 points, outperforming the other competitors' standard state rail plan proposals. Subsequent VitalRail analyses identified 10.5 million potentially convertible truck trips and 750,000 acres of land suitable for rail-enabled development.
- **Iowa Northern Railway:** VitalRail's founder facilitated \$45M in rail growth capital by effectively combining low-interest state and federal programs with private banking.

V. Implementation and The Path Forward

Collaborative Funding Model

VitalRail aligns incentives among four key partners: Infrastructure Investors supply capital for de-risked, long-term assets; Class I Railroads commit to investing attention to gain new market share; State Governments empower multi-departmental coordination and make modest public investments to attract significant private capital; and Industrial Stakeholders optimize logistics while reducing costs. Infrastructure Investors and Class I Railroads provide the initial funding to kickstart engagement with other stakeholders. This is the winning approach that the rail industry and all partners need to grow this vital backbone of the continent's industrial systems.

The VitalRail Timeline

VitalRail's state-by-state and provincial transformation follows a 12–18-month timeline: investor enrollment and stakeholder mapping (Months 1-3), executive partnership and comprehensive planning (Months 4-9), project structuring and capital commitment (Months 10-15), and implementation launch with first groundbreaking (Months 16-18).

The Imperative

North American freight infrastructure stands at a crossroads. VitalRail offers a proven method to unlock billions in private investment and fundamentally strengthen the continent's freight network.

The infrastructure exists. The methodology is proven. The capital is available.

What's needed now is commitment to action by investors, government leaders, and railroads.

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