

# **Draft**

## **Proposed ORDC Project Evaluation Process and Measures**

### **I. Introduction**

The Ohio Rail Development Commission (ORDC) and the Ohio Department of Transportation (ODOT) have engaged Wilbur Smith Associates (WSA) to develop a project-based analytical approach for evaluating rail freight improvement project requests. The proposed process is to provide a clearly-defined procedure and quantitative analysis for evaluating and selecting rail projects for public investment. The process is to define the specific conditions and priorities under which public investment will be considered by ORDC.

This document presents the policy level proposed evaluation process and measures to be used by ORDC for rail freight improvement project evaluation. It is submitted for ORDC approval.

In addition to this policy document, a second set of deliverables are being developed. These include: a freight rail project funding request application; a user-friendly document, for project applicants, describing the information required for project consideration and instructions for completing the application; and, an Excel based evaluation tool that incorporates policies and measures set forth in this policy document to rate the attributes in each application.

### **Background Research**

The approach utilized to develop the project evaluation methodology began with understanding the current ORDC rail project selection process. ORDC provided WSA with written summaries of their current processes. ORDC staff members were also interviewed to provide insights into the approach and criteria used to select rail projects for funding. Interviews were held with Lou Jannazo, Chief of Project Development and Cathy Stout, Assistant Manager of the Safety Program. These program managers were asked to describe the functions of their department, how projects are selected for Commission consideration and approval, and the funding process for selected projects.

To supplement the project selection criteria utilized in Ohio, WSA also identified and analyzed rail assistance programs in other states to review alternative criteria, processes and procedures used to select rail projects for public funding.

### **Guidelines for Evaluation Process**

Based on review of discussion documents and comments provided at November 18, 2010 and December 16, 2010 meetings with ORDC's Long Term Strategy /Economics Development Committee, ORDC and WSA staff, and other interested parties, the

following guidelines for a project evaluation process and application were developed and agreed to:

- The public benefits to be realized from changes due to project implementation should be quantified;
- Benefits to be quantified should include shipper savings, railroad operational improvements, and truck diversion benefits in terms of reduced energy and emissions, highway congestion, and public safety;
- Evaluation of railroads' ability to finance proposed projects should be strengthened
- Applicant railroads' potential to increase their financial viability through proposed projects should be quantifiable.
- The capability to evaluate applicant railroads through comparison to system operational averages should be built into the system;
- The evaluation tool should be relatively easy for staff to use and maintain;
- The evaluation process and tool should not overly burden the railroad industry with regard to the level of data required for project applications; and,
- The process should provide the ability to rate projects on individual attributes, but not be based on a specific scoring system.

The evaluation methodology proposed is comprised of five components:

- A. The proposed project's general public economic benefits and other benefits related to retaining or diverting freight traffic to rail;
- B. The applicant's financial viability;
- C. The applicant's current operational effectiveness;
- D. Project-level economic analysis for branch line projects; and,
- E. Project-level economic analysis for mainline and intermodal projects.

The benefits generated from the proposed methodology concentrates on the loaded portion of existing or new rail traffic. It also takes into consideration the types of commodity and train service involved. The application data required to implement this approach meets or slightly exceeds the level of data required by other states in the region with significantly larger rail assistance programs (e.g. Pennsylvania, New York).

The proposed measures and evaluation tools are described below in terms of both providing the data necessary to ensure projects meet Program goals and objectives, and as a means to evaluate all aspects of individual projects in an objective and consistent manner.

## II. Quantification of ORDC Rail Program Goals and Objectives

ORDC has established six goals related to its mission and vision. Although some of the specific objectives and strategies related to these goals are not quantifiable, a number of the evaluation measures proposed will provide the reliable data required to justify decisions on a project or program basis. This data will provide quantifiable levels of dollar savings, reduced transportation-related impacts, or increased transportation efficiencies in total, or in terms of public dollars invested for policy-makers or the public. Examples for each of the six goals are provided below.

**Goal - Economic Development:** Support a fully integrated, well managed transportation system the drives business growth, prosperity, job creation and retention

*Objectives:*

- Preserve and enhance existing rail lines and corridors
- Provide rail access to retain and attract new businesses
- Provide Ohio's communities and industries with transportation options, connectivity and opportunities

*Strategies:*

- Develop policies that balance the transportation needs and requirements of existing industries and communities with new economic opportunities
- Work with Ohio railroads and other state and local agencies to leverage public and private resources to provide efficient rail access
- Provide incentives that improve access to rail service for Ohio communities and industries
- Work with railroads to continue to identify intermodal freight opportunities

***Related Measurements***

The project evaluation measurements proposed will quantify a number of economic benefits related to proposed projects. Proposed economic benefits include:

- Additional/retained railroad, industrial and related construction jobs related to the project plus appropriate economic multipliers;
- Transportation cost savings to the railroad and shippers due to the project.

In addition a qualitative analysis of transportation and logistics improvements directly attributable to the project and an analysis of any extraordinary logistical or infrastructure issues would accompany the derived economic benefits.

**Goal – Funding:** Secure funding for rail projects supporting a transportation network that provides a public benefit for Ohioans.

*Objectives:*

- Identify public benefits for all rail projects
- Identify financial resources for rail projects and programs

*Strategies:*

- Develop and continue to refine a rail project evaluation and selection process that determines both whether public funding is warranted and the appropriate level of funding.
- When clear public benefits can be demonstrated, develop funding strategies to finance rail projects through multi-agency authorities, public-private partnerships and allowing public sector investments in private model operations.

***Related Measurements***

The proposed financial and operational viability evaluation measures will provide the information necessary for ORDC to more clearly determine whether public funding is warranted or the appropriate level of public funding necessary to advance the project.

These measures include:

- Average net profit to project cost, which provides likely near term financial ability to finance improvements;
- Carloads per mile, which provides an indirect measure of existing and future profit potential; and
- Operating ratio, which provides a measure of operational efficiency and likely financial viability.

The methodology will also allow for situations where even if a rail line operates profitably, the potential for significantly large public benefits would merit consideration of financial assistance if it resulted in accelerating the timing or expanding the scope of the project.

The use of this financial results-based analysis tool and the resulting quantification of public benefits may also provide ORDC with the supporting evidence required to increase the level of rail project investment partnership arrangements with other regional and local public or private entities.

**Goal – Safety:** Work with railroads, the Public Utilities Commission of Ohio and the Ohio Department of Transportation to maintain a safe rail system.

*Objectives:*

- Increase the number of locations with warning devices
- Increase the number of at-grade crossings closed
- Reduce derailments

*Strategies:*

- Leverage private and public funding
- Support infrastructure improvements related to safety
- Implement the railroad crossing and traffic signal preemption program
- Continue to exceed the Federal Section 130 Program requirements

### ***Related Measurements***

Most of the above safety-related objectives and strategies are related to the Grade Crossing Improvement Program. Ohio's program is diverse, includes a significant level of public involvement, and follows strict federal project evaluation guidelines.

The objective to reduce derailments, however, can be measured by evaluating the respective reduction of substandard and minimum standard track conditions which have a direct correlation to track-related derailments. Proposed specific measurements will include:

- The relative reduction of excepted track miles due to the proposed project
- The relative improvement in track condition in terms of FRA Track Class miles
- The relative improvements above in relation to existing or increased hazardous materials handled
- Quantification of highway congestion and safety (accident) savings.

**Goal – Environmental Benefits:** Support sustainable rail programs and projects that enhance Ohio's environment.

*Objective:* Improve environmental quality, especially in terms of air quality.

*Strategies:*

- Support rail-related emission reduction programs
- Incorporate cost-effective green principles in future rail projects
- Promote modal diversion to rail to reduce roadway congestion

### ***Related Measurements***

The proposed evaluation measures will provide the quantities (in annual tons) of four major transportation pollutants saved in moving existing or new commodities via rail as opposed to truck. The specific environmental and energy-related measures proposed will include:

- Tons of carbon monoxide reduced annually
- Tons of nitrogen oxide reduced annually
- Tons of particulate matter reduced annually
- Tons of carbon dioxide reduced annually
- Net fuel savings annually in gallons

The quantities of emissions or fuel savings can be provided on a project or program basis or presented in terms of the amount reduced per dollar of public investment.

The concept of modal diversion can also be provided through the proposed measure of the number of trucks displaced due the project. This measure will take into consideration the types of commodities and rail services involved in the proposed project.

**Goal – Efficient Railways:** In partnership with private railroads, create a fast, frequent and reliable rail network that connects Ohio to the national transportation system.

*Objectives:*

- Improve on-time performance
- Preserve, maintain, expand, and modernize Ohio’s rail system, including main lines and branch lines
- Preserve existing tracks and rail rights-of-way for future use.
- Improve access to global and domestic markets through seamless intermodal connectivity
- Provide improved transportation choices for Ohio communities and industries.

*Strategies:*

- Sponsor programs and projects that improve time reliability, capacity, access and seamless connections between rail and other transportation modes.

***Related Measurements***

The proposed evaluation measures include a number of rail operational characteristics.

The proposed operational characteristics to be evaluated include:

- Change in average system speed (mph)
- Change in locomotive fuel costs
- Change in system maintenance costs
- Changes in system track class conditions
- Changes in system 286k capability

The characteristics to be evaluated above provide a direct linkage in determining the project’s potential to improve on-time performance, reliability, capacity and access as well as to preserve and expand system usage.

Additional measures related to financial viability, such as changes in carloads and revenue per mile, and reduction in system operating costs also provide an indirect measure of the applicant’s potential to maintain or increase operational efficiency in the future due to increased profitability.

**Goal – Balanced Transportation Policy:** Increase support for rail.

*Objective:* Educate and inform Ohio citizens and decision makers about the benefits of rail.

*Strategy:* Provide a rail development perspective on policy issues to advance a balanced transportation policy.

***Related Measurements***

The evaluation measurements discussed above all provide the ability to present proposed project decisions with resulting quantifiable benefits. These benefits can be provided in terms of:

- Economic benefits
- Rail system efficiency and safety benefits,
- Environmental and energy benefits, and
- Highway maintenance, congestion and safety benefits

All of these benefit types will be quantified through multiple measures.

### **III. Project Evaluation and Optimization**

The evaluation measures proposed above to support the program or individual projects' meeting established goals and objectives can be similarly utilized and expanded to conduct project analysis in terms of specific ORDC objectives. The evaluation measures can also be subjected to optimization criteria to determine the extent proposed projects attain specific standards.

Application of optimization criteria is intended for internal staff use and can be adjusted as objectives or standards change.

The measures and optimization criteria are described in more detail and presented in terms of economic and operational characteristics from both the railroad and shipper perspective. The data and other information required from the applicant to develop the evaluation measures are also addressed.

#### **A. Proposed Project's General Public Economic Benefits**

Purpose: These measures provide a basis for evaluating the projected level of economic benefits resulting from the proposed project. Economic benefits are measured in terms of shipper savings (reduced transportation costs), additional or retained employment by shippers and the railroad, construction-related job creation and related economic benefits, and applicable multipliers for all categories as applicable. The measures also provide the project benefits related to diverting freight from truck to rail in terms of the monetary value of avoided highway damage, congestion and accidents, associated fuel savings in gallons, and the amount of environmental emissions reduced in terms of tons.

1. ***Projected Railroad Employment Benefits*** – This provides the value of additional or retained railroad jobs due to the project plus related economic multipliers.
2. ***Projected Industrial Employment Benefits*** - This provides the value of additional and retained employment by industries served on the line due to the project plus related economic multipliers.
3. ***Construction Job Creation*** - This provides an estimation of the person hours of construction work needed to complete the funded project.
4. ***Projected Shipper Transportation Cost Savings*** - This provides the monetary savings of transporting new or existing commodities by rail as opposed to truck. Estimates of transportation savings will take into account the amount and type of commodities and the type of rail service (e.g. bulk unit train, agriculture manifest, other manifest, intermodal service).



5. ***Projected Railroad Cost Savings*** - This provides an evaluation of the cost savings that would result to the railroad applicant in terms of faster train speeds/lower operating costs, reduced derailment expenses, reduced maintenance expenses, and other cost savings that would partially be passed down to rail users assuming a competitive transportation environment.
6. ***Transportation & Logistics Qualitative Improvements*** – This would provide a case by case analysis of expected economic improvements (shipper cost savings, shipper inventory cost reductions, increased shipper transportation options/flexibility, and related shipper benefits) that would take into account the enhancement of an existing service, e.g. adding capacity to an existing intermodal yard, adding a new service, e.g. opening up a new intermodal lane or providing a new transportation option such as a rail – river transload, and other service improvements. In addition, it would catalogue the economic development sites served by the improvements (for branch line projects) by the readiness of the sites in question, e.g. JRS ready, most utilities present, few utilities present, etc.)
7. ***Extraordinary Logistical or Infrastructure Issues*** – This provides a case by case analysis of any unusual issues that might be an important factor in project evaluation. Examples of such issues could be: unusual logistics for short line operations or for connecting carrier operations; aged or “specialty” bridges such as those that must open to allow water traffic to pass; especially light rail (80 lb. or 90 lb.), or other such issues.
8. ***Projected Highway Maintenance Savings*** – This measure will calculate the related maintenance cost savings of the displaced trucks necessary to move new or existing commodities within Ohio. This measure will be displayed both in terms of the number of trucks displaced and the value of the avoided highway maintenance.
9. ***Projected Highway Congestion Savings*** – This measure will calculate the related savings of reduced highway congestion due to the diversion of freight from truck to rail. This measure will be displayed in terms of the number of trucks displaced and the value of reduced congestion/delays in Ohio.
10. ***Projected Highway Safety Savings*** - This measure will calculate the related savings of reduced highway accidents due to the diversion of freight from truck to rail in Ohio.
11. ***Projected Fuel Savings*** – This measure will calculate the net fuel savings in gallons resulting from rail vs. truck usage within Ohio.
12. ***Projected Reduction of Environmental Emissions*** – This measure will calculate the net reduction of carbon monoxide, nitrogen oxide, particulate

matter, and carbon dioxide, in terms of tons, resulting from rail vs. truck usage within Ohio.

**Optimization:** Optimization criteria are not proposed for the above economic benefits.

***Applicant Data Required***

- Current and projected railroad employment (3-year average)
- Current and projected shipper employment (3-year average)
- Current carloads by shipper and commodity for previous three years
- Commodities by carload to be retained or diverted or added to rail due to the project
- Origin and destination of each commodity above as needed
- Explanation of how and why truck traffic will be diverted to rail, if applicable
- Type of train service to be provided
- Estimates of railroad cost savings for reduced crew time, derailment costs, maintenance costs etc.
- Description of qualitative transportation and logistics improvements
- Track charts, maps, data on crewing and logistics, and information on any unusual logistics or infrastructure issues.
- Listing of industrial parks and development sites

***ORDC Evaluation Tools to Help with Qualitative and Quantitative Benefit Assessments\****

- Industry based job multiplier/assessment factors.
- Industry based investment multiplier/assessment factors.
- Shipper cost saving factors and methodology.
- Multiplier/Assessment factors for preventing damage to roads
- Multiplier/Assessment factors to account for rail fuel savings vs. truck
- Multiplier/Assessment factors for emission reductions of rail vs. truck

\*Consultant to provide multiplier factors, sources, and how to update the multiplier as part of final product

**B. Applicant Financial Viability Measures**

Purpose: For select projects, provides an initial screen to measure the applicant's financial viability. ORDC staff will review the applicants' financial data and utilize appropriate measures to determine individual applicant's need for project financial assistance.

***Applicant Data Required:***

- Audited financial statements for the previous three year period.

## C. Applicant Operational Effectiveness Measures

Purpose: These operational measures supplement the applicant's financial viability measures, providing an indication of the applicant's revenue and operating efficiency. These measures can be evaluated on their own merits, as well as against established standards (e.g., Ohio short line industry averages).

1. ***Carloads per mile*** – Provides a measure of business activity and revenue potential.
2. ***Current Operating Ratio*** – (Operating Costs / Operating Revenue) – Provides a measure of operating profitability. A relatively low ratio will indicate a profitable railroad which may not require assistance and a relatively high ratio may indicate serious underlying problems which threaten viability. Evaluation of system costs and revenues per mile also provide guidance of whether revenue divisions, types of commodities carried or underlying cost structure are adequate for long-term viability.
3. ***Average System Speed*** – This measure provides an indication of track condition and a basis to evaluate potential project effectiveness.
4. ***Maintenance Expense per Mile*** – This provides an indication of the applicant's ability and willingness to maintain the rail line in a state of good repair.
5. ***Current Track Class*** – Provides a basis for determining proposed project effectiveness and a measure of the applicant's track conditions to an established standard.
6. ***286K Track Capability*** – Provides a measure of rail operational and shipper cost efficiency and a basis for determining proposed project effectiveness.

### ***Applicant Data Required:***

- Rail line length (miles)
- Total annual carloads (3 year avg.)
- Rail Operating Costs (3 year avg.)
- Rail Operating Revenues (3 year avg.)
- Track Class (Excepted, Class I, II, III+) in miles
- Maintenance expense (3 year avg.)
- Average system speed (mph)
- Existing and required 286K mile

## **D. Project Level Economic Analyses for Branch Line Projects**

Purpose: To evaluate the economics of the particular project to determine the appropriate level of public funding. Information is only for line segment for which project is to be performed as determined. ORDC will determine the parameters of the line segment.

1. ***Carloads per Mile:*** Provides a measure of business activity and revenue potential.

**Optimization** – Carload density between 35 per mile and 125 per mile preferred.

2. ***Line Segment Operation Ratio:*** Railroad estimation of ratio to be based on stated assumptions of operating cost per hour (for crew, fuel, and other direct operating expenses), hours of service on the line, revenue per car by commodity assigned to the segment of line in question or another reasonable revenue assumption. ORDC would give the railroads reasonable latitude for providing the segment operating ratio.

**Optimization** – No optimization is proposed but an operating ratio less than 1.0 required.

3. ***Maintenance Ratio:*** (Normal maintenance + capital investment) per mile/net profit per mile for line segment

**Optimization:** No optimization is proposed but projects with a ratio below 1 will likely not be funded and higher ratios will receive greater consideration.

4. ***286K Track Capability:*** – Provides a measure of rail operational and shipper cost efficiency and a basis for determining proposed project effectiveness.

**Optimization:** Based on need for 286K; importance rises with the volume of traffic benefitting from 286K cars.

### ***Applicant Data Required***

- Current carloads by shipper and commodity for previous three years over the project segment
- Operating Ratio estimate for project segment.
- Maintenance & capital investment and estimated net profits for previous three years for the line segment
- Information on line segments that cannot handle 286K traffic and volume of traffic that would benefit from 286K.

### ***ORDC Evaluation Tools to Help with Qualitative and Quantitative Benefit Assessments\****

- Estimation of range of the Average Short Line Revenue/High Revenue Commodities (including but not limited to chemicals, plastics, petroleum products, metals and products, and other products) per car.

- Estimation of range of the Average Short Line Revenue/Medium Revenue Commodities (food and kindred products, trailers/containers, metallic ores, pulp, paper and allied products, grain mill products, waste and scrap products, and other products) per car.
- Estimation of range of the Average Short Line Revenue/Low Revenue Commodities (coal, crushed stone, sand and gravel, grain, coal, stone, clay, cullet, and other products) per car.
- Estimation of the range of the Average Short Line Costs per hour of locomotive operation

\* Consultant to provide revenue and cost estimate factors, sources, and how to update the factors as part of final product

## **F. Project Level Economic Analyses for Mainline & Intermodal Projects**

Purpose: To evaluate projects proposed by Class I railroads to determine if public funding is appropriate particularly projects such as those that enhance container/trailer intermodal facilities or which improve the capacity of railroads to carry more freight, or those that relieve highway congestion. In addition, to evaluate special projects such as rail – truck transloads or rail – river/lake facility enhancements.

On a project by project basis, ORDC will work with applicant railroad to determine the whether the level of public benefits identified by the applicant and others exceed the funding gap or assist to accelerate the completion time required to implement the proposed project. In addition to the applicant’s estimate of benefits, the estimated return on investment of the proposed project to the railroad and other factors will be considered. The ORDC will utilize the performance measures below to help ORDC staff evaluate railroad information.

### ***Applicant Data Required***

- Complete description of project proposed.
- Explanation of the improvements to logistics for Ohio businesses.
- Explanation and estimation of transportation cost savings for Ohio businesses.
- Explanation as to the likely disposition of the project (implementation status, timing, etc.) without public assistance.

### ***ORDC Evaluation Tools to Help with Qualitative and Quantitative Benefit Assessments\****

1. Estimate of range of shipper savings per additional intermodal container/trailer
2. Estimate of range of shipper savings per additional rail carload by commodity
3. Operating Ratio for Railroad Applicant (from STB reports).
4. Class I Railroad Cost of Capital (as published by STB).

\* Consultant to provide revenue and cost estimate factors, sources, and how to update the factors as part of final product.