Short-Line Railroad Improvement Program Performance Metrics Instructions by Measure Area

1. This document is intended to provide additional background and information for each Measure Area that an applicant is expected to complete for the table located in Appendix II of the project nomination.

2. The following standardized terminology has been developed: Project benefits = Outputs + Outcomes
    a) Outputs = actual physical infrastructure improvements (i.e. miles of bike lanes, # of transit stations)
    b) Outcomes = non-physical improvements (i.e. congestion reduction, air quality improvement)
    c) Measure = the outcome that is being measured (i.e. safety, air quality)
    d) Metric = how the outcome is being measured (i.e. air quality improvement = reduced greenhouse gas emissions)

3. Project benefits are expected to be provided for the scope of the project as defined in the application and as projected for the "Build" scenario versus the "No Build" scenario over a 20-year horizon (with no other alternatives consideration required). If a horizon other than 20 years is utilized, it must be identified and justified in the table. Provide current conditions where applicable and explain current conditions as part of project purpose and need.

4. These metrics measure estimated project benefits based on what data available at the time of application.

5. For each measure area applicants must specify the horizon year, methodology, assumptions, and data source(s) used and any data gaps or challenges should also be noted.

6. Modeled and observed data may be used. Modeled data used must be calibrated per federal standards.

7. Project types include Class III Rail: Transload Facilities, Rail Terminals, Rail Yards, Sea Port, and Other Rail Lines or any combination thereof. Benefits are reported for the project as a whole.

8. A few tools have been identified in the table below, including the Regional Travel Demand Model, Sub-Regional or Project- Level Models. Applicants are encouraged to use tools that are industry standard to the extent possible, but when there is a need to use an alternate tool, applicants must explain their choice of model and underlying assumptions.

9. Each application should include analysis utilizing the most recent version of Caltrans' Life Cycle Benefit Cost Analysis (Cal-B/C) Model to document that the expected benefits of the project justify its costs. If another model is more applicable it may be used; the alternative model must be identified and justified in the table, including a description of the methodology, assumptions, and data sources used.

10. For the Air Quality analysis portion of the application, Cal-B/C Intermodal Freight Mobility Tool must be used. The most recent version of Cal-B/C Intermodal Freight Mobility Tool can be accessed here: https://dot.ca.gov/programs/transportation-planning/economics-data-management/transportation-economics

11. For Cal-B/C tool data and assumptions documentation, applicants must provide an electronic copy of the completed Excel workbook as part of the application submittal.

12. The intent of these metrics is not to require a RTDM run for every project. It is anticipated that project applicants will utilize existing analyses (i.e. project level modeling conducted for the environmental analysis) and use that information coupled with additional off model tools or other calculations to estimate the project benefits for the application process.

Performance Measures Table:

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Congestion Reduction	**Reduction in Daily Truck Trips** (due to mode shift)	Terminals Transload Yard	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards • Only required for applicable rail projects increasing rail freight volume
	Reduction in Daily Truck Miles Traveled (due to mode shift)	Terminals Transload Yard	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards • Only required for applicable rail projects increasing rail freight volume

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Throughput	**Change in Annual Rail Volume** that can be accommodated due to improvement	Rail Terminals Transload Yard	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards (In the event detailed private rail data is difficult to obtain, # of trains or other simple observed data can be utilized.)
	Change in Annual Cargo Volume that can be accommodated due to improvement	Sea Port	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards (In the event detailed private rail data is difficult to obtain, # of trains or other simple observed data can be utilized.)

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Safety	Other Narrative	All	• Other freight project information can be presented here, would be a good place to discuss rural freight safety metrics. • For freight rail projects: train involved collisions and railroad grade crossing fatalities and injuries are examples of other metrics that could be used if applicable.

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Velocity	**Travel Time** or **Total Cargo Transport Time** (including dwell time in logistics facility – port, railyard, etc.) if applicable for project	All	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards (In the event detailed private rail data is difficult to obtain, # of trains or other simple observed data can be utilized.)
	Change in Average Peak Period Weekday Speed for Rail Facility	Rail	• Regional or Sub-Regional Travel Demand Model (RTDM) • Other Industry Standards (In the event detailed private rail data is difficult to obtain, # of trains or other simple observed data can be utilized.)

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Economic Development and Job Creation	Jobs Created (Direct and Indirect)	All	• Federal Multiplier (RIMS II-type) based on Project Cost • Caltrans uses 11 jobs per $1 million invested in 2018 Executive Fact Book
	Other Narrative (optional)	All	• Narrative explanation of other economic development information including the quality of jobs, local training and hires, etc.

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Air Quality & Greenhouse Gas Emissions	Particulate Matter (PM 2.5 PM 10)	All	• Provide a summary of Cal-B/C Intermodal Freight inputs
	Carbon Dioxide (CO_2)		
	Volatile Organic Compounds (VOC)		
	Sulphur Dioxides (SO_x)		
	Carbon Monoxide (CO)		
	Nitrogen Oxides (NO_x)		

Measure	Metric	Project Type	Horizon, Methodology, and Data Notes
Cost Effectiveness	Cost Benefit Ratio	All	• Cal-B/C Tools Available using RTDM inputs: https://dot.ca.gov/programs/transportation-planning/economics-data- management/transportation-economics • Provide a summary of Cal-B/C inputs