

## EXECUTIVE SUMMARY

The purpose of this paper is to propose a Ridership Shortfall Guarantee mechanism as an additional tool for USDOT to facilitate the financing of High Speed Rail (HSR) projects in the United States. It is proposed that this mechanism, in conjunction with grant funding and the use of the RRIF loan program, could facilitate greater use of public private partnerships (PPPs) to procure and deliver HSR projects.

## PUBLIC SECTOR FINANCIAL SUPPORT

The rail sector and rail projects require a significant level of public sector financial support due to the unique characteristics of the sector:

- Track infrastructure has a very long economic life, and it is unlikely that a commercial return can be generated on the investment from user charges alone. Track infrastructure represents a long-life valuable public asset and is most efficiently funded by the public sector which can value the asset over its entire useful life. Accordingly some government funding or financial support is usually necessary, but is well supported by government's residual security interest in the asset.
- Note that investment in "above rail" activities (rolling stock, operations and maintenance) is best directed by the private sector as the selection and maintenance of the equipment is critical to maximizing the commercial return over time and is an area where risk transfer to the private sector has most value. Many countries now have formalised competition policies mandating the separation of ownership of track infrastructure from the above rail operating company. This facilitates sourcing of alternative operating companies to utilize the track in the event that the initial operator experiences difficulties in achieving its revenue targets.
- HSR projects, in particular, produce significant positive externalities which cannot be captured and valued by the private sector equity and debt investors, such as the reduction in environmental emissions.
- Rail projects are characterized by a poor track record of forecasting ridership. This issue is particularly challenging during the early years of operation during which people are gradually adapting their travel behavior to take advantage of the alternate mode of transportation offered by HSR (the "ramp-up" period). Ridership and ramp-up forecasts may be negatively affected in the short-term by policy decisions to enhance or construct competing highway routes, airports etc. It is challenging for private sector equity and debt to take the full risks of ridership and ramp up.
- As a result of the above factors it can be very difficult to raise commercial debt and equity in the amounts necessary to support HSR projects regardless of the long-term economic and commercial benefits.

## LEVERAGING PRIVATE SECTOR INVESTMENT

Delivering HSR projects as PPPs achieves a significant level of risk transfer and delivery efficiencies, as is well documented in several studies. There is a large pool of capital available to support PPPs, including those in the rail sector (recent examples including Denver Eagle P3 Project and the acquisition of High Speed One in the United Kingdom by Canadian pension funds). However, private capital is discouraged by ridership uncertainties and long payback periods. Public sector financial support can overcome the unique challenges of HSR projects and leverage private sector finance and expertise through the following means.

- **Upfront Capital Grants.** These are the most common form of government contribution, the most widely used to date by USDOT, and the most cost effective in respect of their effects on project economics because they are essentially free money. However, care needs to be taken to ensure that government

grants do not become “dead money” in respect of risk allocation. There is evidence that excessive reliance on government grants as the first money into a project can encourage a lack of robust approach to project economics and to construction pricing. Once government money is contributed there is an incentive to keep finding more money if project costs rise. Grants should therefore ideally be contributed only after the commitment or drawdown of the private sector capital and possibly only after construction completion. It is even more effective, from a risk transfer perspective, for a portion of capital grants to be converted into a stream of Availability Payments made during an extended Concession Term (30 to 40 years) against the performance of the infrastructure created.

- **Government Concessional or Subordinated Loan Facilities.** These can be amongst the most effective means of providing government financial support, but unlike the grant structures described above, they typically rank ahead of equity in repayment and accordingly do not provide necessary support where the project economics do not provide a fully commercial return on investment. USDOT has a number of existing and potential forms of loan facilities which may be applicable to High Speed Rail.
  - Access to Private Activity Bonds would provide HSR projects with a competitive, tax-exempt financing tool. PABs have been successfully utilized in numerous infrastructure and transportation projects and are a proven method of finance. In the current market, PABs are only likely to be viable with an investment grade credit rating, which is likely to require some form of credit enhancement for an HSR project.
  - Access to TIFIA following the anticipated re-authorization would provide HSR projects with a competitive, long-dated form of financing which is not readily available in the current credit markets. As with PABS, TIFIA has been successfully utilized in numerous infrastructure and transportation projects and is a proven method of finance. It requires the senior debt to have an investment grade credit rating, which again may require some form of credit enhancement for an HSR project.
  - Access to Railroad Rehabilitation and Improvement Financing program (RRIF): HSR projects will generally fall within the eligibility criteria for the RRIF loan program which has \$35 billion of authorized capacity. As a self supporting loan program without a budgetary allocation, RRIF needs to exercise caution in making loans to some HSR projects where repayment outcomes may be uncertain.
  - The creation of an independent National Infrastructure Bank (which was proposed in the 2010 federal budget but not yet funded by Congress) could also provide a source of capital to supplement private debt sources for projects of “significant national or regional economic benefit”.
- **Ridership Shortfall** support in the form of annual payments to the project linked to ridership is perhaps the most useful bridge between grant funding and loan funding. This is a financing tool which USDOT does not currently have. Ridership support payments may be structured in a number of ways including:
  - **Shadow Payments:** a shadow payment is a payment made based on the ridership of a project and is best used where ridership forecasts are relatively certain but there is a differential between the commercially or politically viable fare able to be charged and the amount necessary to fund the project. Shadow payments by government are added on top of commercial farebox revenues.
    - For example, if the fare to make the project feasible is \$60 a passenger but the commercially reasonable fare is only \$40 per passenger, the government would provide a \$20 per passenger payment to the private operator.
  - **Ridership Shortfall payments:** these would be made if ridership falls below a pre-determined threshold, with future repayment of support payments if ridership exceeds the forecast at a later point. This payment structure could also be linked to fare levels so that government, the public users and the private sector partners are sharing in ridership elasticity risks. In other words the shadow payment would only be drawn if after a fare increase there were still insufficient revenues to support the project.
    - For example, if 1,000 riders paying \$40 per passenger are required to make a project feasible. The government would make a \$4,000 payment to the private operator if only 900 riders used the train (\$40 x the missing 100 riders). When ridership increased to over 1,000, the private operator would make payments back to the government.
  - Payments linked to the equity returns of the project could also be utilized.

- For example, payments would be made if the equity return achieved by the private sector concessionaire falls below a pre-determined threshold, with future repayment of support payments if future achieved return exceeds that forecast at the start of the project. This type of approach is common in the regulated utility sector as it ensures substantial risk transfer to the private sector and prevents the potential for windfall profits by the private sector partner.

It is likely that a combination of the above grant, loan and ridership guarantee support mechanisms would be the most appropriate to support High Speed Rail in the United States.

### **RIDERSHIP SHORTFALL GUARANTEE MECHANISM**

The proposed Ridership Shortfall Guarantee mechanism for HSR projects is described below.

We envisage that Congress would authorize a budget for a Ridership Shortfall Guarantee facility. USDOT would be limited to providing guarantees for an amount within this budget unless and until initial guarantee obligations expired and/or the facility generated surplus revenues from sharing in ridership upside.

The Ridership Shortfall Guarantee would be a contingent loan guarantee program. No funds would be drawn unless and until it was necessary to make a shortfall payment under the guarantee facility.

- The proposed Ridership Shortfall Guarantee mechanism would work in the following way to support ridership risk. A revenue band would be established based on revenue curves that generate a minimum revenue level (“minimum curve”) and a maximum revenue level (“maximum curve”) each year. In any year in which revenue falls below the minimum curve, the Ridership Shortfall Guarantee facility would provide funding to top up the revenue to that minimum level. The shortfall funds provided will be repaid in the future in years which the revenue is greater than the base case curve. The shortfall funds will accrue interest at the 30-year US Treasury rate until repaid. If revenue is greater than the maximum curve in any given year, then the revenue above the maximum will be shared between the project and the Ridership Shortfall Guarantee facility, thereby enabling the facility to benefit from projects which achieve more favourable ridership outcomes to offset those projects which may struggle to repay shortfall funding. Similarly because ridership revenue upside is shared, the project partner has appropriate incentive to achieve ridership outperformance where possible.

The precise details of the minimum and maximum curves and the ridership sharing percentages would be negotiated based on the characteristics of each project applying for support.

### **ADVANTAGES**

The major advantages of the proposed Ridership Shortfall Guarantee Mechanism for the Federal Government are:

- The Shortfall Guarantee provides an additional tool which is neither a grant, because it is a contingent facility which is only drawn upon if required, nor a self-funding loan program, because it would have its own budgetary allocation appropriate for the risks it is undertaking and would benefit from the upside in projects as well as accepting downside risks. Unlike a grant, the Shortfall Guarantee focuses attention on the commerciality of the project and on ridership. Over time, with judicious selection of projects supported, the facility should be capable of becoming self-supporting and growing in capacity without additional budgetary allocation.
- The facility is a risk sharing mechanism. As a result of the requirement for ridership revenues to fall below a minimum level before the Shortfall Guarantee Facility is drawn, the project partner is sharing in the risk of revenue downside. Similarly because ridership revenue upside is shared, the project partner has appropriate incentive to achieve ridership outperformance where possible.
- This risk sharing principle allows for the Ridership Shortfall Guarantee facility to leverage significant private sector risk capital to support PPP procurement and delivery.
- Although the facility would be providing loan guarantees which could last for 20-30 years if drawn, generally ridership is established early in a project life during a 3-5 year ‘ramp-up’ period. Guarantee obligations could expire if they were not required to be drawn within this period, allowing for the capital to be quickly recycled to support other projects.
- The Ridership Shortfall Guarantee facility is not an operating subsidy. It would be linked directly to ridership risk and would not provide any support, for example, in the event that the project was struggling due to

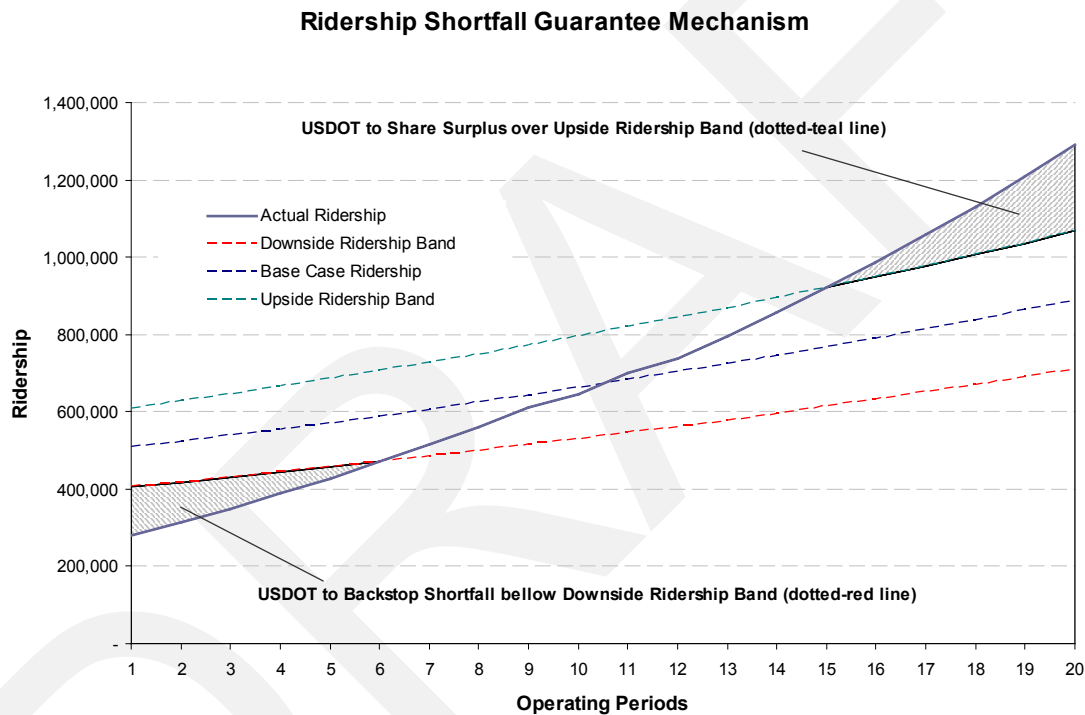
higher than anticipated operating costs. In common with most PPP structures, the facility would require certain minimum operating performance requirements to be met before the facility could be drawn.

The major advantages of the proposed Ridership Shortfall Guarantee Mechanism for private sector lenders and investors are:

- It would mitigate one of the major barriers to private sector investment in the sector and leverage significant funding for new projects
- It would create investment structures for project developers and institutional investors such as pension funds, which are similar to those available in other countries.
- The private sector would still be able to share in ridership risk and upside opportunity and over time would gain greater confidence in ridership risk forecasting.

### EXAMPLE OF THE MECHANISM

To further illustrate how the mechanism will work the graph below shows how a ridership shortfall guarantee provided by USDOT could work over the lifetime of a concession:



- In the event, actual ridership performs as forecast in the base case (the blue blue-dotted line) then the Ridership Shortfall Guarantee Facility would expire unutilised and the guarantee facility would be available to support new projects.
- Similarly the Ridership Shortfall Guarantee Facility would not be used if actual ridership is lower than the base case but above the Downside Ridership Band (the dotted red-line). Losses within this range would be absorbed by the equity investors in the Project.
- When actual project ridership (solid purple line) is under the downside ridership band (red-dotted line) revenues would be topped up from the Ridership Shortfall Guarantee so that the revenues would equal the Downside Ridership Band. In the example above, this occurs for the first 6 years of the concession. The Ridership Shortfall Guarantee would allow equity investors to generate a lower level of return even under ridership downside scenarios. As a result, the rate of return required at the Downside Ridership Band level would likely be equivalent to the low rates of return seen in availability type PPP transactions such as the I-595 in Florida. The Ridership Shortfall Guarantee would also allow commercial debt financing to be raised based on the Downside Ridership Band.

- Between years 6 and 15 of the concession, ridership remains within the ridership bands given by the downside ridership band and upside ridership band (teal-dotted line) and therefore during this period there would be no further drawings on the Ridership Shortfall Guarantee but neither are there any repayments or upside sharing associated with the drawings during the first six years. This assures the equity investors that they can receive an appropriate rate of return on investment for the risks they are taking and assures commercial lenders of improvement in the debt coverage ratios of the project.
- Starting in year 16, ridership exceeds the upside ridership band. Revenues received above the upside ridership band are shared with the government entity providing the shortfall guarantee, providing both a return on amount of the guarantee drawn and a sharing in the upside potential of the project. Although the private sector's rate of return is limited by this sharing mechanism, this is acceptable because of the downside risk protection provided by the Ridership Shortfall Guarantee. As a result, both the base case investor return expectation and the upside return expectation will be significantly lower than they would be where there was no ridership risk sharing. This will allow more projects to be viable in attracting private sector finance. The upside rate of return to the private sector can be reduced through the sharing mechanism but should not be capped. Because ridership revenue upside is shared, the project partner has appropriate incentive to achieve ridership outperformance where possible.
- It is common for the ridership profile of major new transportation projects to follow the path described in this example: to underperform forecasts during the early "ramp-up" phase of the project and to outperform forecasts as the project matures.
- The Ridership Shortfall Guarantee would therefore improve risk transfer and access to capital for high speed rail projects by:
  - Reducing the amount of grant funding required from the Federal government
  - Attracting private sector equity at lower rates of return than would be required if the private sector was taking full ridership risk
  - Attracting commercial debt financing which may not be available if the project was exposed to full ridership risk.