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OVERVIEW ON FINANCING PUBLIC TRANSPORT BASED ON PPP EXPERIENCE

Gradimir Stefanovic, email: stefgrad@btinternet.com
Managing Director GSTC Ltd. London
Member/Founder of UITP LRT Committee
Chairman of UITP WG for LRT Statistics

***Summary**: The development of public transport modes is growing and becoming an important part of the urban sustainable development. Rail based modes are quite expensive for its construction. City or even State budgets could not easily cover the capital for new systems. As a result, the private sector taking its part in developing financial ambient for building new projects. The main principles of Public Private Partnership (PPP) as well as few examples were presented in this paper. Because of the size restriction of this paper more PPP practical cases will be shown in the Author slide presentation.*

***Keywords:** Urban transport, Light Rail Transit, Financing, PPP*

1. INTRODUCTION

The form of Public Private Partnership (PPP) is not something new. Most tramway and street cars systems developed in the period 1890-1910 were built and operated by private concessionaires, often linked to electricity, rolling-stock manufacturers or real-estate promoters. In Paris, the Metro was built by the city for the tunnel, tracks, energy, signalling, rollingstock, etc.. by the operator, a Belgian entrepreneur. As public transportation became less and less a profitable activity, financing of operation and renewal was widely taken over by the local authorities. The US is paradoxically an extreme example of this evolution. The UK terminology Private Finance Initiative (PFI) means roughly the same as PPP, simply Partnership and Private Finance are essential. The definition embraced by The Canadian Council for Public-Private Partnerships is as follows: „A cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards“ From a banker's point of view, PPP should be defined as following:

1. An alternative procurement scheme opposed to traditional procurement
2. The public sector has a tendency to shift as much project risks as possible to the private sector
3. Partnership: both the public and the private sector are involved during the whole lifecycle of the project private finance involved

Forms of PPP can vary significantly, due to the local condition as well as the characteristics of the constructed LRT system. Variations should be defined in the fields of:

– ownership
– nature of contractual obligations
– period of contract
– revenue structure

2. RANGE OF PPP STRUCTURES

There is a number of financing structures that are typically used in transactions with private participation and the nature and extent of public support is a key element for the success of these structures. Most of the implemented structures are within the range, starting from greater public sector control and ending in the greater commercial freedom.

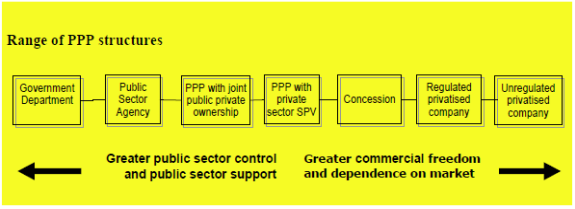

Figure 1. Range of PPP Structure

It is important to recognize that transactions that are not generating assignable cash flows (e.g. the financing of vehicle or equipment sales) require the use of specific instruments:

-- Typical private finance structures
– BOT structures
– PPP structures
– BOT & PPP projects to generate assignable cash flows
· Alternative structures (some form of public commitment required)
– operating leases
– asset based finance
– above financing suitable in principal for vehicles / E&M equipment finance (assignable project cash flows not required)
– securitization of receivables (LUL presents a first hybrid example, where PPP concession receivables secure senior debt)

3. BOT and PPP STRUCTURES

BOT and PPP structures are widely used for infrastructure finance including rail transactions, with PPP offering more flexibility to structure transactions:

· BOT structures

– private sector companies design, build & finance a rail system, own, operate & maintain it during the concession period and transfer the system to the public sector thereafter;
– lenders take limited recourse to private BOT companies but enjoy some form of public support
· PPP structures
– Essentially the above structures but with more flexibility as to asset operation, ownership and transfer and appropriate public sector support;
lenders take limited recourse to public (and private) parties.
The following graph shows the main contractual relationships between the parties of a typical PPP project. Such structures allow to split scope, responsibilities and risks between public and private parties in such a way as to allocate the key risks and responsibilities to the party controlling them most effectively. This may include to "carve out" the civil works portion from a rail PPP project and leave its financing and implementation in the hands of the public sector:

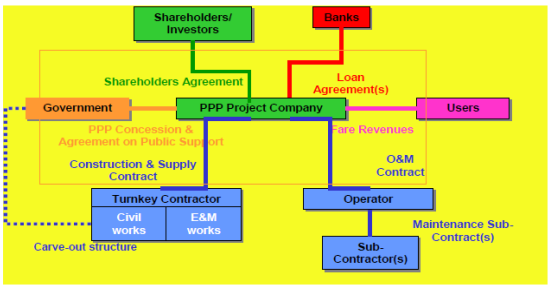

Figure 2. Main contractual relationships between the parties of a typical PPP project

List of most common PPP forms (with corresponding short abbreviation) is presented in the following table:

Table 1. Most common PPP forms

BOOT (build, own, operate, transfer)	
BOO	Build, own, operate
ROO	Rehabilitate, own, operate
FBOOT	Finance, build, own, operate,
BOOST	Build, own, operate, subsidies,
BOT (build, operate, transfer)	
BOL	Build, own, lease
BOD	Build, operate, deliver
BOS	Build, operate, sell
BOM	Build, operate, maintenance
BRT	Build, rent, transfer
BTO	Build, transfer, operate
BOTM	Build, operate, transfer, maintenance
FOT	Finance, operate, transfer
LOM	Lease, operate, maintenance
BLT	Build, lease, transfer
ROL	Rehabilitate, operate, lease
ROM	Rehabilitate, operate, maintenance
DBOT	Design, build, operate, transfer
DBOM	Design, build, operate, maintenance

4. PPP EXPERIENCE FROM UNITED KINGDOM

4.1.MANCHESTER LRT – "METROLINK"

The case of Manchester Metrolink, with its "Phased Development" , is of particular interest in the evolution of "private finance" in Britain, illustrating in particular how *the method* chosen affected investment definition, project execution and subsequent operation, i.e. changed the economic behaviour of the public authorities and the private sectors alike.

1. Phase One: 1989-1996

In essence, Manchester Phase one is a public funding and public finance associated with a private concession which brings virtually no capital of its own to the table. Looking at the case from our finance - investment management perspective, the crucial innovation (practised for centuries in France) consisted of allowing the concession holder to co-determine, at the (late) design stage, how the public debt should be used. The birth of the project was political. Greater Manchester applied for central government funding after a five year planning process had yielded a fully specified design for a tram system. Reflecting new government thinking,

funding was made conditional on private sector involvement. Accordingly, the design's detailed technical specifications were transformed into *performance* specifications. To simplify the tender, the material details (and costing) of the original design were offered to all tenderers as a reference, greatly reducing the cost of tendering. The tender took the form of a Design-Build-Operate-Maintain contract, with the construction and commercial risk assumed by the private sector. The consortium bid was won in September 1989 and the first section of the system opened for use in April 1992.

The Project:	1989. Operated 1992-1996 Design, build and operate a **new tram system** connecting existing ex-BR track with new inner city infrastructure(total 31.5 km, including tunnels and surface tracks. Procure and operate new rolling stock: 26light rail (heavy trams) (GEC-Alsthom). Detailed *performance* specifications derived from 5-year conventional public project preparation.
The Concession: Granted by: To: Owned by:	**DBFO. 15 years;** termination option after 4 years Manchester Public Transport Authority & Executive GMML (Greater Manchester MetroLink Ltd. GEC Alsthom; 2 civil engineering firms
Finance Free transfer of Treasure Grant Manchester Grant ERDF "Equity" public assets.	**Total: £ 145 million** ~ £ 100 million worth of existing BR track (pre-privatisation) £ 48 million £ 69 million + £ 15 million EIB municipal loan + £ 15 million £ 5 million (essentially fee paid to Manchester for right to run

Table 2. Basic data for Metrolink Phase One

Once the new system was fully operational passenger numbers turned out to be well above forecasts. By 1995, the operators had made a profit equivalent to their initial investment. In 1996, Manchester decided to exercise their termination clause. This resulted from the fact that a tender for an extension of the system (Phase two) was won by a different consortium, and Manchester wanted a single operator for the whole system.

Phase II

In 1996, the 15-year contract for "Phase I" with GMML was terminated. There was an innovative new tender which asked bidders to quote a single price for

– operating the Phase I system

– DBOM an extension with an investment volume of around £ 148 million.

The existing consortium was one of three bidders, but did not obtain the contract. Since Manchester wanted a single operator for the whole system, the existing (two-way)

termination option was exercised. Manchester could easily afford to pay the contractual"penalty" for the premature termination of the Phase I concession, £ 7 million. The winning consortium offered £ 90 million for the right to run the system.

Current situation

Metrolink was originally built and operated from 1989 by the consortium Greater Manchester Metrolink Limited (GMML). In 1997 the contract was awarded to a new consortium, Altram (Manchester) Limited, a consortium of Ansaldo Transporti, Serco Investments Limited, Laing Civil Engineering and 3i. Serco Metrolink, a wholly owned subsidiary of Serco Limited, took over the operations and maintenance of the system on 26 May 1997. In March 2003, Serco Investments bought out its partners and Altram (Manchester) Limited became a wholly owned subsidiary of Serco.

In July 2007 the 10-year contract to operate Metrolink was awarded to Stagecoach Metrolink, a subsidiary of the Scottish transport company, Stagecoach Group plc.Unlike Serco, Stagecoach do not own the concession, merely operate it on a fixed-term management contract.

RATP Group bought Stagecoach Metrolink Ltd from Stagecoach Group on 1 August 2011.

– From the point of network length several extensions were performed, such as:

Branches to Altrincham and Eccles

– Manchester Airport extension (opened in 2014)

4.2. CROYDON TRAMLINK

The Croydon project is partially financed under procedures elaborated under the private finance initiative (PFI). While over 60% of the initial investment of £ 300 is covered by a public grant (as against 100% common in continental European practice, notably for infrastructure), the company is committed to run the service subsequently without operational subsidies altogether (as compared to the 60-80% operational subsidies common in continental Europe).
The project contains several interesting features.
– both track and rolling stock are financed through leases
– the manufacturer (& co-shareholder) has concluded a Tram Maintenance agreement
– the concession is for 99 years, but the operator (& co-shareholder) can be replaced
when EU legislation requires periodic tenders for operator services.

The Project	Operational start: November 1999. (D) BFO a **new tram system,** combining old British Rail track with new on-street lines; hence: (1) upgrading former British Rail track; (2) adjustment to present heavy rail (3) new street-level tracks (4) maintenance and command-and-control facilities (5) new rolling stock: 24 low floor units.
The Concession (D) BFO 99 Year Concession	
Granted by	British government (Act of Parliament !); Authority functions delegated to London Transport
To	Tramtrack Croydon Ltd
Owned by	Builders, stock suppliers, a private bus operator, financial institutions (see diagram)
Finance:	£ 300 million (of which " 40 million to re-purchase track from Railtrack) Government grant: £ 175 M Private finance: £ 125 M, much in the form of leases for both track (!) , land, and rolling stock.

Table 3. Key elements of Tramlink development

Phased development

In the first phase, the public sponsors - London Transport and the Borough of Croydon issued a tender for development of a new Tramlink, i.e. traffic forecasts, design, technical specifications and commercial parameters for the subsequent BFO contract. This initial tender was won by a consortium formed by:
– Tarmac Construction
– AEG (rolling stock manufacturer)
– Transdev (the French operator and subsidiary of the Caisse des Depots).

The design group was dissolved in 1995. The partners participated in the subsequent tender, but lost to a rival consortium. They were compensated for the intellectual property - about £ 6 million.

The winning consortium was composed of private sector companies from four different fields:
Construction: Amey and Sir Robert McAlpine in a construction joint venture, CIV
Operator: Centre West Buses

Current situation

In March 2008, TfL announced that it had reached agreement to buy TCL for £ 98m. The purchase was finalised on 28 June 2008. The background to this purchase relates to the requirement that TfL (who took over from London Regional Transport in 2000) compensates TCL for the consequences of any changes to the fares and ticketing policy introduced since 1996. In 2007 that payment was £ 4m, with an annual increase in rate.

In October 2008 TfL introduced a new livery, using the blue, white and green of the routes on TfL maps, to distinguish the trams from buses operating in the area. The red colour of the cars were repainted green, and the brand name was changed from Croydon Tramlink to simply Tramlink. These refurbishments were completed in early 2009.

1. JERUSALEM LRT

The First LRT Line in Israel, was constructed as a part of large LRT network development in Jerusalem. Total length of first line was 13.8 km segregated double track with 23 stations. For day to day service LRT system requiring 46 vehicles with 100% low floor. Maximal designed gradient is 9.2%. In accordance to expected demands peak headway should be 4.5 Min. Demand (in accordance to the serious modelling process) were considered in the range 100,000 passengers per day. Today some 140,000 passengers using LRT. Start of operation began in 2011. Purchase of additional vehicles are on the way. On the request of the Ministry of Transport , LRT promoter (JTMT) insist on Full form of Public – Private Partnership, with contractual commitments for supporting transport scheme for the 30 years of concession. Severe security situation was developed after issuing the tender documents, which led towards the extension of tendering procedure, and postponing of contractual activities. Relatively high demand expected, assuming importance of the corridor of the first line. Urban integration within the Central Business district (CBD) and its revival as part of the project. Promoter JTMT organised public referendum for the vehicle design. Financing Scheme – The risk allocation within the *Public – Private Partnership* In order to optimise cost of risk coverage, JTMT and Private sector agreed following risk distribution:

Figure 3.Risk Sharing principles between Private and Public Sector

JTMT as promoter on behalf the City of Jerusalem and Transport Ministry, proposed the following Contractual commitments:

– Full priority at traffic lights (Concessionaire has right to claim additional costs caused by delays on traffic lights)

– Restrictive traffic arrangements in the city centre which will reduce or eliminate possible congestion with other cars on the LRT sections in the city centre.

– No competing bus lines. Bus network will be rearranged in order to form fully complementary public transport network.

– Fully integrated bus feeder system, which will be time coordinated with LRT services.

Non- binding measures

P&R facilities combined with restrictive parking policy Full urban integration & CBD revival

Dealing with the security challenge – compensation to Concessionaire

Local Authorities in Jerusalem responsible for the realisation of LRT project considered any possible impact of worsening security situation, such as:

· Compensation for inability to work during construction period

· Compensation for loss of passengers during regular operation

Authorities also allowed additional costs for specially reinforced windows and protected

vehicles bodies. Authorities will accept additional operation costs due to the closing of some or all stations because of its security check.

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