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All Party Parliamentary Light Rail Group

House of Commons
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All Party Parliamentary Light Rail Group / TramForward Funding for New Tram Systems Workshop

A workshop to assess the feasibility of attracting funding for new tram systems in Warrington, Bath, Oxford, Cambridge, London, Edinburgh extensions and others; exploring existing and innovative funding solutions to address issues of uncertainty and risks in financing new tram schemes.'

Held on 18th June 2018

Hosted by Addleshaw Goddard

At their offices at

Milton Gate,

60 Chiswell Street, London,

EC1Y 4AG,

This meeting by invitation only, where MPs, Stakeholders etc., within the Light Rail industry and invited members of the Public will have a chance to discuss debate and raise questions concerning Light Rail & Trams.

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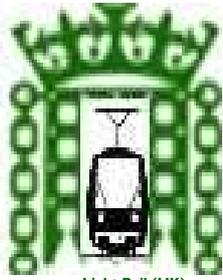
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Introduction and Welcome

Cornelia Schaffer, Managing Associate, Real Estate, Addleshaw Goddard

Cornelia Schaffer welcomed the delegates to the Tram Funding Workshop. She said that there was currently considerable press coverage of the unlocking of private finance to develop heavy rail but that light rail never got the attention that it should. Light rail has a lot to offer in terms of urban regeneration and fighting congestion as well as its environmental credentials. Despite these benefits very few new tram schemes are being built. There are plenty of proposals but very few get off the ground. Usually funding issues are cited as the main reason for this.

She said that it was good to see the variety of stakeholders here and the aim is to try to better understand the obstacles, learn from successful schemes and explore the solutions that will attract private investors. The success of this workshop depends very much on the participation of all present, sharing thoughts, sharing experience and asking questions.

Statement

Paul Rowen Chairman LRTA.

Paul Rowen introduced the LRTA as a body which had been set up to fight the scrapping of British tram systems and had since then been actively campaigning for their re-introduction. He mentioned his own involvement, as a Rochdale councillor, in the development of the Greater Manchester Metrolink system.

There are tram and light rail systems in many of our major cities, but we are now targeting smaller cities such as Cambridge Oxford and Warrington, where there is an opportunity to develop a much lower cost and less heavily engineered light rail system. These towns need an easily accessible public transport system to enable them to grow and develop. At present their roads are heavily congested. Affordable light rail systems are key to the economic health of those cities and of the country.

Some years ago, the DfT said that the only light rail developments that were likely to be funded were extensions to existing systems and that is still the case today. We have, however, seen the development of UKTram and developments in ultra-light rail. The Obama model in America is an example to us and shows how cities the size of Cambridge and Milton Keynes could have their own systems.

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This is needed not just for economic development but to meet targets on use of fossil fuels and on pollution.

To this end, Daniel Giblin has been developing the LRTA Tram Tracker, about which he will be talking later, which lists all those towns and cities which could benefit from developing light rail systems. It must be affordable, we cannot find the amounts that have been and are being spent in Manchester and Birmingham.

Metrolink is now a profitable system and the Trafford extension is being funded out of Metrolink revenue. So, it is possible to share the risk between public and private sectors and we can put that investment in place that we as a country need. We can learn a lot from the transport systems in Europe. The funding problem can be solved with goodwill on both sides. The investment is desperately needed and if it does happen those medium-sized towns and cities will grow and develop in the way that this country, post-Brexit, desperately needs.

Priority Tram systems to be funded and their attractiveness.

Jim Harkins, Secretariat, APPLRG

Jim Harkins outlined the background to his long-time support of trams, especially Manchester Metrolink, which has been hugely successful in achieving a 27% modal switch from cars, leading to improvement in air quality and regeneration of the city. He has been involved with APPLRG for some 14 years and runs the Light Rail (UK) consultancy.

Light rail is becoming more affordable and the attitude towards it has changed. The generation of politicians, who saw the demise of the run-down first-generation tramways and who thought buses were the answer to all public transport problems, has now gone.

A major driver of the change in attitude is the increasing level of lethal pollutants on our major transport corridors. There was a British Thoracic Society report in 1988 which put pollution-related deaths at between 145,000 and 156,000. Things are unlikely to have got better since then.

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Pollution from tail-pipe emissions is well-known and measures are being taken to combat it. Less well-known is pollution caused by the “Oslo effect”, caused by the abrasion of tyres, road surfaces and brake linings. Particulates from these sources go down to PM_{2.5}, as opposed to the PM_{10s} from tail-pipes, and are highly toxic and can not only be absorbed into the bloodstream but can pass through the cranial membrane into the brain. There is evidence that this is one of the causes of dementia and Alzheimer’s disease.

The Oslo effect was highlighted by a Parliamentary “super” select committee earlier this year. It comes down to the fact that rubber-tyred vehicles in built-up areas are killing people.

The only solution is for more rail-based public transport using steel wheels on steel rail.

This has other benefits such as relieving the traffic congestion, which is strangling commerce in our cities

Costs are coming down, particularly after Edinburgh, which was a case study in how not to build a tramway, because technology is changing. UKTram has put together a whole range of standards.

One emerging branch of light rail is ultra-light rail (ULR) with smaller vehicles and lower costs, more suited to more modestly-sized cities and towns. Another is TramTrain, vehicles which can share rail lines outside city centres with conventional trains but transfer to tramlines on street for local distribution in the centre, a technology which is already well-developed in Germany and other countries.

The long-delayed trial line between Sheffield and Rotherham should be in operation soon and there are plans for their use in Wales.

APPLRG and TramForward are cooperating in the development of a Tram Tracker which will coordinate information on potential tram systems, a project in which Jesse Norman, Parliamentary Under-Secretary of State for Transport, is very interested.

We see growth now in the smaller cities and towns. Even in towns such as Warrington movement is very slow due to traffic congestion

Explaining the Oslo effect to local politicians, backed with statistics on deaths attributed to air pollution, is usually effective. Rubber wheels are effectively shortening everyone’s’ lifespan; there are no safe minimum limits. This is an international problem. Last year Poland was fined between 30,000 and 50,000 Euros per day for exceeding air quality limits and this will happen in the UK. APPLRG has been able to link NHS expenditure on pollution-related disease to government transport policy. If government transport policies could be changed to favour steel on steel, an enormous amount of money spent by the NHS could be saved.

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The solution is trams and a number of systems are available, such as the light trams being developed by WMG for Coventry, the hydrogen trams we have proposed for Warrington and the TramPower trams being developed for Preston.

With the tram there is no significant pollution at point of use and by attracting people from their cars overall pollution levels can be reduced. Modal switch from cars achieved by Manchester Metrolink is 27%. DfT figures show 272million passengers were carried on UK trams and light rail last year with fewer than 800 vehicles.

The Transport Focus survey showed passenger satisfaction rate of 93%, significantly higher than for heavy rail or bus. Even though trams charge fares high enough to cover their operating cost they are still regarded by 69% of passengers as good value for money.

In Zaragoza, when trams were introduced, rubber-tired vehicles were banned from the central business area and there is now 15% less emissions, 35% reduction in air pollution. They have saved 491 tonnes of NO_x, 293 tonnes of CO₂ and 17 tonnes of Oslo effect particulates. Nottingham trams have produced a 33% CO₂ reduction and 3 tonnes less carbon, than in 2005. Nottingham has made its tram a significant part of the transport mix and has shown that integrated transport does work. Warrington wants to build a 2½ mile Western Link Relief road for an estimated £212m. Using UKTram's figures, that sum could buy 70km of tramway (about £3m per track kilometre) including depots and vehicles.

Our plan is for hydrogen-powered vehicles as the INEOS salt mining plant at Northwich produces hydrogen as a by-product which is burnt off at present but which they would be prepared to supply to the tramway.

The tram is the means of preserving the urban way of life doing nothing is not an option and getting it wrong is unforgivable

Question

In response to a question on the effect of tramways on the decline of retail in the high street, **Jim Harkins** said Warrington had been designed to accommodate the car and was pedestrian unfriendly. Experience in continental cities where the tram penetrates central pedestrian areas show an increase in footfall. In Kassel with the introduction of TramTrain, linking suburban lines with the city centre, retail footfall rose 46% in two years. Trams in cities impart a pleasant ambience and will bring people back into city centres.

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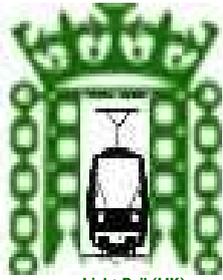
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Funding Mechanisms.

Anna Heaton, Partner, Real Estate, Addleshaw Goddard, and **Alexander Jan**, Arup

Anna Heaton outlined key components for tram projects. Getting the economic strategy right, which is a matter for the promoting authority. Why is this tram scheme the right answer? How does it fit into the overall transport network? How does the tram fit into a sense of place? How will it engender regeneration? Making sure there are physical benefits from the system which will lead to value-capture.

The wider transport network is always important, integrated transport is no longer a dirty word but is part of the solution. How do local people feel about the system? Ensure businesses are ready for the changes involved. Identify the stakeholders and ensure they are engaged. Finalise delivery structures and funding structures so that there is a complete plan from the beginning. Do not just think of it from an engineering or transport point of view. Stakeholders must be engaged all the way through the process.

Alexander Jan continued by saying the government had a framework for all investment, not just transport, which it requires local authorities and others to abide by when making the case for investment. The process for every project is made up of three high-level phases: a strategic business case; an outline business case and a full business case. The strategic busyness case has five stages: the strategic case for change – what is wrong with the way things are at the moment and what should be done to remedy problems with the present situation?

There are now strategic cases for tram schemes to tackle some of the issues that have been mentioned earlier. The next stage looks at the economic case, not just in terms of cost and fare-box income but how relevant and valuable the scheme is, what does it bring in terms of its social value. This involves trying to put monetary values on everything to compare costs with all benefits. Thirdly there is the financial case - to what extent is the scheme affordable, whatever the benefits may be.

This is the government's view of projects large and small. Tram schemes however have importance at a local level which involves other criteria. Schemes need a good catchment area not just from the point of view of the fare-box but to make them more relevant to their community. Design, aesthetics and quality are important and increasingly tram schemes are seen as drivers of regeneration and urban renewal. Also important is integration with other modes of transport.

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The issue of regeneration and sustainable development brings us back to the issue of how to pay for it. Traditionally schemes were evaluated in transport terms – delivering capacity, time saving etc. But what else should we be thinking about from a perspective of economic development and growth? Does this require amendments to the route?

This is important because it may help to pay for the scheme itself. The project is identifying sources of potential funding as part of the development of the alignment. Crucial to this is greater control over the local tax base. There is a strong case for giving local authorities and combined authorities greater powers over their local tax base which will then allow them to get these schemes built.

Anna Heaton then asked how we get more private investment into these schemes. What are possible sources of revenue and capital? A firm forecast of the future income is necessary to raise capital. This and capital already obtained can be used to back loans. How can other investors and public-private arrangements be used to obtain capital and to share risk? Who benefits from an infrastructure investment? Land developers if nearby sites are available, existing land owners looking for increase in value, passengers benefiting from new services (who will increase fare box revenue), existing local businesses, who will benefit from higher footfall, new businesses who will be attracted to the area and local authorities who will increase their tax take and will gain from the wider economic and environmental benefits.

Revenue streams: fare box, rent from property, car parking and possibly sale of data. Money might be raised from the improvement of the area, not necessarily a tax but possibly a contractual arrangement with businesses that benefit. To achieve this it is essential to involve potential stakeholders from the very beginning of the project. Delivery structures: traditional project finance; loans; joint ventures with development partners; taxation of other value capture schemes.

Alexander Jan added that one of the advantages of these new ways of funding schemes is that it would be harder for government to cancel the scheme. Crossrail, for example, is about one third funded by property developers, a third from future fare box and track access charges and a third from traditional grants from DfT.

Cancellation would have incurred 100% of the political flack for a saving of a third of the money. Building a coalition around a project with real money is a powerful way of persuading people to get behind a scheme and preventing the Treasury from cancelling it on the grounds of affordability.

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Anna Heaton said that taxation on property benefiting from schemes would require legislation and is unlikely to happen in the short term. Local authorities already have a number of ways through planning levies to raise finance, such as contractual charges on property or Work Place Parking levy (as in Nottingham).

The whole life of a project, building and operating, must be looked at. Phase the project to maximise income. Bring stakeholders in from the beginning and get them to commit to the project.

Questions

Q. Utilities are the bane of tram projects as the relocation of their infrastructure has to be paid for. But the utilities cannot force this on tram schemes and an alternative is to leave the utilities in situ and stop the tram and give them access when required. This would be an inconvenience to the tramway but services are stopped from time to time anyway for tramway maintenance.

Alexander Jan responded that utilities were somewhat out of control in Britain, London's roads are dug up about one million times a year and it is a result of the property rights that the utilities were given when they were privatised. It is not something you see in any other city in the world.

Moving utilities is a big cost factor but we need a more sensible approach to the regulation of utilities. In Singapore Arup are working on developing an underground land use plan.

With very high land values they are looking to move lower value assets off the surface. Many countries are moving to shared utility space but there have to be high land values to justify the cost of such intervention. In UK the current regulatory scheme for utilities militates against any such combination and the utilities do not like sharing space because of interface risk and so on.

Q. A trams scheme might last for 100 years or more but the cost is only spread over 60. Using the longer period would bring down the lifetime cost and make trams more affordable compared with alternative modes.

Anna Heaton said it was a matter of adjusting the financial model and looking for cost-spreading and longer term income streams. The Treasury is more likely to be receptive if a scheme can demonstrate a sound financial plan bringing in investment from elsewhere.

Q. With schemes relying on fare-box revenue and land value capture which are long-term revenue streams, who is taking the risk until the money starts coming in?

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Alexander Jan agreed this was a problem. It is unusual for major schemes to fully cover their operating costs from fare-box revenue, let alone their construction costs. Schemes therefore try to tap into other more bankable forms of value creation. For instance, the Nine Elms Northern Line extension model is based on borrowing against future increase in the business rate value of the development. This is a public loan which is being paid for by a form of taxation. A similar mechanism is being used for the Thames Tideway Tunnel but that is private finance with a Treasury guarantee which brings down the cost of borrowing.

So there are ways in which the government can intervene to take the edge off the risk. Allocation of risk is something that would be explored in the commercial case for a scheme. There is always going to be a problem with the Treasury's wariness about adding to public sector liability. In both the above examples only the risk of default is attached as a liability to the government's balance sheet

Anna Heaton thought is unlikely that a tram scheme could be wholly undertaken by a private investor without some national or local government underpinning and that projects are likely to be phased with different people involved in different parts of the project.

Q. Government relies on WebTAG to evaluate transport schemes and this provides monetary values for some benefits but not for all, which can lead to a scheme showing lower value for money than it should. How can this be changed to reflect the true benefits which often only become apparent when the scheme is finished and in operation?

Anna Heaton agreed that the inadequacies of business cases in this respect are a big problem but involvement of private investment should help the case.

Alexander Jan said that government needed a process to evaluate schemes for investment. High quality research is needed to evaluate the benefits of schemes but getting this incorporated in the evaluation process is a long process.

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Funding challenges and solutions

Richard Waters - Director, NatWest

Richard Waters said that lenders will require assurance from technical advisers on the viability of a project. Is the project supportable and are there alternatives? Are trams really needed, would electric buses do? What future technology changes might alter the case? Answers to these questions need to be presented in a form that the lenders can assess.

What is the track-record of the sponsors of the project, local authorities and contractors? What is the nature of the project, is it a joint venture, what are the guarantees? If a party to the project is deemed not credit-worthy, can guarantees from other sources be procured? What level of equity contribution is going in, what is the timing and what are the guarantees that it will be there when needed? On design, construction and delivery, what is the track-record of the contractor(s)? Is it a fixed-price contract and under what circumstances could that price increase? On operation and maintenance, again what is the track record of the contractor(s), what are the concession terms, how will costs be controlled?

What is the risk associated with fare-box income, what alternative sources of income are available? Ridership levels are unpredictable, due to changing working patterns for instance, and existing trends may change, as has happened with passenger numbers on main-line rail recently. All assumptions related to ridership must be rigorously tested.

Financial structure – the gearing levels – how much can be raised is dependent on how much of the cash flow is genuinely at risk to the fare-box. Typically, there would be a maximum gearing level of 85% with a fare-box element but each case will be judged on its own merits.

A feature that is likely to be required now is having margin step-ups designed to encourage refinancing. This would not affect the legal case which will be for the full term of the loan. Once the system has been running for a few years and the numbers stack up, there is a very good case for refinancing, which would be encouraged.

Covenants will be required. There will be restrictions on payments to equity to junior lenders if debt service levels are breached. Banks would typically lend for these projects for a maximum of twenty years including the construction period, although some other lending institutions may be prepared to lend over a longer period, some rolling stock projects have achieved finance for a 25-30 year period. The institutional market has now become more adept at assessing risk. A debt service reserve of six months minimum would typically be required. Security would be required over all aspects of the project in case of default.

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All regulatory requirements would need to be met by the sponsors. Environmental risk is becoming increasingly important and this type of project should be environmentally extremely positive but there needs to be the evidence to support that. Banks will also be concerned about reputational risk should there be problems with the project.

Questions

Q. What lessons were learnt from the RBS involvement in the Nottingham extensions?

Richard Waters said that from a lending perspective it was very conservative initially but there were challenges. In an ideal world, once a project is up and operating, the amount of management time needed should dissipate. This is why there should be a margin set-up, which was not a feature in that transaction. This is a bit of a double-edged sword, because, with a margin set-up, if a transaction is struggling the margin set-up only serves to accelerate that struggle and make it more acute but it does focus people's minds that there is an additional cost going out.

Q was bus competition on one of the routes a factor, and one which had not been anticipated?

Richard Waters agreed. This was an argument for integrated transport. Use the bus network to deliver people to the trams not to compete.

Q In view of the Carillion affair and the government's lack of support for tram systems, are there still lenders who will back trams?

Richard Waters said that they had not canvassed views from other institutional lenders but he thought that no bank would go alone on this. It will be difficult but, if a project appears that has been properly prepared with answers to all the questions that the banks will ask, then there is a much greater chance. Lenders are looking for good returns and projects that require a lot of groundwork and development on the chance that there may be a bankable transaction at the end are always going to find it challenging to raise loans.

The only way to test this is to fully prepare a project, approach a couple of banks that have had some experience in this field and start talking.

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Q a huge amount of detail required is required to raise money for a project, does this include detailed design work?

Richard Waters thought that an outline would be required but details of design of a system would follow later as long as all major consents had been obtained and all stakeholders were supportive.

Contractors'/Suppliers' business/profit requirements for equity investment

Nicholas Falk, URBED

Nicholas Falk began by explaining his involvement with Oxford, when he was advising Grosvenor on a development at Barton Park on the A40. Oxford was unable to provide the necessary housing to attract and retain research staff at one of our leading universities. There was a tremendous resistance to building housing because of fears of increased congestion. In cooperation with the Oxford Civic Society the report *Oxford Futures* was produced based on previous experience at Cambridge.

This won the Wolfson Economic Prize in 2014 and this helped to reinforce a commitment to double the size of Oxford by building 60,000 houses to cope with growth over the next thirty years. The tram is only a small part of this scheme. The National Infrastructure Commission has highlighted the importance of building an orbital link between Oxford, Milton Keynes and Cambridge, which may be useful, but more important is the "last mile" which is getting people around the cities.

The basic problem arises because there is a lot of knowledge-based employment in and around Oxford and down to Harwell and Culham and the main road link the A34 has been dubbed the longest car park in Europe.

There is not the capacity to carry the current traffic which includes long-distance traffic between Southampton and the Midlands and the North. We proposed setting up a commission to look at the organisational structure for handling growth, then commissioning a spatial growth plan etc. Nothing much happened for four years but there is now a commitment to commission a joint spatial plan and there is a realignment amongst the authorities.

The problem is that in Britain local authority boundaries are quite tightly drawn with green belts etc. that have strong adherence to stopping growth and there is a lack of shared vision amongst the political parties.

We have proposed the "spine line" enabling "Swift Rail", modelled on the German Schnellbahn, to operate. This involves extending services along the line to Cowley, which is currently freight only, reopening the station at Kidlington, taking advantage of the Chiltern Line's investment in developing the Oxford-Marylebone line and extending to Milton Park, which is a substantial business park not too far

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from Harlow. This is a fairly easy thing to do but even something that is common sense and easy has needed the NIC to say that it has to be done before anything happened. The Rail Regulator has supported the idea and there is a commitment to do it by 2019.

London Docklands and the Docklands Light Railway is an example of how we do things in this country with no long-term plan but opportunistically and incrementally, starting where it is easiest because, if you come up with a long-term plan, it is so expensive that nobody wants to hear

We showed that it is possible to find sites around Oxford on land that did not flood and that was not in areas of natural beauty but which would produce enough land to double the size of Oxford. It would involve taking 4-5% of the green belt, which could be replaced elsewhere. The green belt and administrative boundaries are man-made obstacles and could be changed if the will was there. We were looking at a 10km radius, more or less the right length for a rapid transit system. Different modes were proposed for different routes with a street tramline which runs from a park and ride on one side. We showed that there was enough in land value in Oxford to be able to fund substantial infrastructure, using figures from Nottingham for the costs and assuming we would pay the land owners ten times the current value of their land, most being college-owned.

For the Wolfson prize we produced plans for a theoretical city called Uxcester. There are probably ten or twenty towns like Uxcester, which was actually based on York. So these ideas are not only applicable to Oxford but because it has so many problems and because so many of the people who run this country went there it was thought suitable to act as a model for other places. The potential for realising land value depends on where it is – high in Oxford or Reading for instance, low in Stoke. A report was produced for the GLA called *Capital gains* showing how land values could be tapped to fund infrastructure through greater use of compulsory purchase powers.

Mott McDonald were asked to give some costs for the proposed tram route in Oxford which picks up the main traffic generators, the railway station, the Westgate shopping centre, the hospital complex. The concern is not to fund the capital costs of building the tram but to cover the running costs in perpetuity, so it was crucial to find a route where there would be enough traffic to support it. Possible objections were anticipated by proposing catenary-free battery running down the High Street

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We have tried to get agreement on the transit plan which includes bus rapid transit linking in with the tram but with the condition that those routes could be converted to tram operation. This was to maintain the support of the county who are committed to BRT and the upgrading of the A40, for which money is apparently already on the table. The plan is proceeding incrementally, which is not ideal but seems to be the only way to achieve anything in his country.

In the report, which has been sent to Daniel Giblin, and to which comments are requested, the British system for making decisions is attacked. WebTAG is really limited and multi-criteria analysis is needed to take account, not just of economic considerations but social and environmental factors. Agreement on the principles must be the starting point – how are transport, economic development and housing to be linked? We need to develop the places like Oxford and Cambridge to broaden our export base. There needs to be a different way of doing this other than producing endless reports and studies and hopefully Oxford provides an opportunity to do this and provide a pattern for other cities.

TramForward's Model Funding prospectus and Financial Toolkit for Councils and promoters
Daniel Giblin

Daniel Giblin introduced the TramForward funding toolkit which was designed to provide a roadmap which encourages investment in trams and the creation of value for communities. Eighty four potential tram systems have been identified, some of which are just a “twinkle in the eye” but others are well-developed. An example of the latter is the £5m Wirral Waters proposal in Merseyside. There are a number of such schemes which are being put into a spreadsheet which is being developed into a programme management tool called Tram Tracker.

Through LRTA’s 3000 members details have been built up into something substantial. What we want is to provide a toolkit of live and verified information in order to enable councils and others who have a vested interest in making the tram work and to understand and simplify a complex process and enable them to take it to the next stage. We are not in the business of providing vast and expensive consultancy services but to pump-prime the process by supplying the toolkit which will be created for each individual case and develop that into an outline financial; prospectus.

Trams are not an expensive luxury, they can be afforded. There are lots of new ideas around which need to be looked at, particularly new turnkey offers. We have talked to a number of contractors who have great ideas about economies of scale, risk transfer and borrowing strategy. We have been looking at funding trails for new ideas, based on the work of URBED and others.

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How do we put finance first and how do we engineer finance as well as engineering the technical side?

We also want to look at some of the issues with the DfT. Is their cost-benefit model effective? Are buses favoured over trams? It is not just trams; we are also considering intermediate vehicles such as TramTrains.

We aim to enable people to understand the transactions which will take place. Many councillors say trams are too expensive but we say there is a process for looking at affordable options. We in TramForward have people around the country lobbying for trams and they are gearing up with the knowledge to enable them to campaign more effectively and move proposals forward. We need to bring together promoters and other stakeholders with potential funders. With the Tram Tracker we are building up facts and figures to put into a firm proposal which can be trusted by councils and which can be taken to the marketplace.

The tools will begin the process of a simulation model which will be different for each individual case. There is no standard model that can be applied universally We are looking at proposals from the bottom up with technical solutions as well as from the top down, with questions on fundability – how can the proposal be funded in a way that is effective for the community? That might mean ultra-light rail or heavy rail depending on circumstances and likely ridership.

The toolkit we are building will be able to provide reporting tools and analytics but we need help to do that. We cannot do this on our own. Despite the amount of technical and economic expertise at our disposal, we still need financial and legal expertise, which is the object of today's gathering. We support the idea of early contractor involvement in proposals to give advice and guidance.

We need to start conversations with councils to bring together all the threads that will enable an outline business case to be made and to get people to buy into that rather than take a supposedly cheaper and easier option. We have to look at environmental issues, at health issues, at the bigger picture so we see that tram is the solution and that funding can be achieved not just from the public but from the private sector.

There is much risk involved in this and we need good quality data to understand this. How can we create a simplified model that will enable councils and public sector sponsors to feel confident and to trust the process of installing a tram and that future profitability can be achieved? All these risks must be faced right from the start

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We are meeting with councils, with interested individuals and with other public bodies, such as LEPs, and explaining the benefits of trams. We have talked with the Under-Secretary of State for Transport, who expressed much interest in this project and would like to see the Tram Tracker available as an app. We want to ensure that the data we provide is honest, fair and reliable. We want to work with others to help reinforce that. We want the toolkit to be used in a practical way with a financial prospectus produced for each scheme. This cannot be done overnight but we have about half a dozen priority schemes.

At the end of the day there will be a scope of work and a tender document but that process is well known and the challenge is to kick-start it. We have much engineering data and experience but we want to be able to financially engineer it as well to create a process that people will feel comfortable with. TramForward understands the tram industry which is why it is in the forefront of tram promotion. There is a lot of experience both positive and negative (we are aware of the problems in Edinburgh but also of the lessons that can be learned).

There may be less appetite for large systems at the moment but we wish to promote the more modest schemes for places such as Oxford, Cambridge, Warrington, Swindon and Bath.

We want to go forward with this knowing that we have some support from yourselves so that we can fine-tune what we are doing. We want to lead people forward to present these solutions. There may be a hundred years of work in all the schemes we have listed but we should like to see some progress in the next five to ten years

Discussion facilitated by TramForward

Daniel Giblin called for a discussion on how we could make some of what we had been talking about happen. The following points were raised:

Local government pension schemes, which are now co-ordinating their investments, should be added to the list of potential funders. Corporation bonds should also be considered.

What rate of return on investment would be considered reasonable? **Richard Waters** said he would not be able to discuss specific investment cases but rates of return will depend on many factors.

These are long-term projects and the pension industry is more likely to be looking for short-term returns. The Oxford to Cambridge railway line project is costed at £5b with no government funds yet allocated.

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Yet the pension contributions of the academics of both universities would be enough to fund the project. Infrastructure investment is not well understood by pension funds.

Cambridge University had had no trouble in raising £350m for the Eddington development. While transport projects' main aim is reduction in congestion, there is also the possibility of land value uplift nearby which makes the funding more attractive.

The concept of transport related land value uplift is well known but there are the problems of how to measure it, how to collect it and the timing issue – as the enhancement comes only after the infrastructure has been built, whereas the money is needed up-front to build the infrastructure.

The example of Hong Kong MTR was raised, where commercial property was built over the stations and the property eventually became more valuable than the MTR itself. This was facilitated by the state owning the freehold to all property.

We should not assume that because we have not recently used methods of fundraising that we will not use them in the future, such as the way the new towns were developed after WWII.

Compulsory acquisition of land for such developments can lead to problems. There could be resistance to any extension of the state's right to assemble land in this way such as acquiring land adjacent to railways or tramways at low value for development.

Infrastructure schemes are of interest to local pension schemes and are benefiting the locality. They are looking at low-risk 30-40-year projects, their concerns are long-term yield and inflation. Yields from changes in land values would be an advantage.

Daniel Giblin then closed the proceedings, thanking both Addleshaw Goddard for hosting the event and the APPLRG

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