



**Notes from the Buildoffsite Rail Hub Overbuild Guide Authors meeting  
hosted by Transport for London, 55 Broadway, St. James' Park**

**April 23<sup>rd</sup> 2019**

**Confidential**

**Present:**

Murray Bean	Totalflow
Robbie Erbmann,	TfL Head of Housing Delivery Strategy
Julian Fides	Meinhardt
Nigel Fraser	Buildoffsite Rail Hub Lead - reporting
Tim Hall	Buildoffsite / Totalflow
Tom Kyle	Sheppard Robson
Neil Lee	Design Automation Systems
Steve Lugg,	TfL Head of Construction
Kevin Masters	Bryden Wood
Peter Mc Mahon	WSP
Nigel Ostime	Hawkins Brown
George Poppe	Sheppard Robson
Bill Price	WSP Author Out of Thin Air reports
Bernard Williams	IFPI
David Whorwood	Ideal Lifts Ltd
Royston Young	Design Automation Systems

**Apologies:**

Graeme Jones	C-Probe Group
Ali Mafi	Lean Thinking

The Guide is aimed at the rail sector, but anyone with a linear infrastructure estate should find value in it. This meeting is an opportunity for TfL to provide client insights and for the chapter authors to outline progress to date and get feedback on their sections.

Buildoffsite thank TfL for hosting this meeting.

**1) Introductions and context setting**

Participants introduced themselves.

The TfL representatives then provided some background to their overbuild challenges.

- TfL have 5,700 acres of land, with an estimated pipeline of homes if all were to be delivered of 40,000, potential on over 400 sites.
- Sites include stations, car parks, depots.

- 10,700 new homes currently in the pipeline - the low hanging fruit
- TfL have made limited progress with harder sites - Earl's Court has progressed.
- The economics of overbuild doesn't yet seem to stack up financially (£500/ft<sup>2</sup>)
- There could be 30-40 more sites if costs could be brought down
- TfL would welcome a practical guide
- London Residential needs are a stimulus
- There is an HS2 opportunity (It was suggested that Richard Davies be contacted – Euston 10k opportunity)
- Network Rail has 50% more land than TfL.
- Can the industry solve the construction issues around the rail environment?
- Can decking be undertaken quickly to minimise disruption to services?
- In current thinking TfL are assuming zero land value. 'With our housing targets, we need to start somewhere at low or non existent profit levels'
- TfL accept that in some locations, decking would only work if the residential values were in the £800 to £1,000 /ft<sup>2</sup> region.
- TfL very open to considering large sites and major regeneration opportunities
- TfL keen to learn from overseas but also to deploy TfL skills internationally.
- TfL recent announcement of JV with Grainger (TfL 49% owner) which should lead to housing (affordable and full market) development on several sites.
- TfL are looking at different models of home ownership to address concerns about freehold, leasehold, rent, sale, affordability, insurance etc
- In any individual home development TfL were using the GLA unit of 37m<sup>2</sup> as a minimum. TfL are not contemplating smaller 'micro homes'.
- TfL also stressed the requirement for sustainable home solutions on its estate.

## **2) Summaries of progress from chapter authors and feedback comments**

### *Chapter 1 – Place making opportunities - Hawkins Brown lead*

- Scene setting section
- An opportunity to knit together areas disconnected by linear infrastructure
- Can TfL Champion Area Change: Yes e.g. Earls Court, City Planning
- 60 sites for first 10k homes, 6 sites for next 10k - villages
- Models of funding: Nothing off the table
- Borough specific
- Landmark stations - NPPF sets density
- Curating retail offer (not chicken shops) & community (nursery, healthcare)
- Where there is a deck, 25 storeys makes it viable
- Connect with noise / vibration isolation requirements.

### *Chapter 2 – Approach to structural design - WSP lead*

- Red Box - encapsulate rapidly and cost effectively with minimal disruption low time
- Minimum size / span,
- Low impact on derailment zone

- Concrete innovations to isolate from vibration (outside Red Box)
- Integrate or separate Red Box containment & support for design?
  - Separate: Delineation (but cannot lose ownership, longer term risk, limits partners)
  - Combined: Optimal material
- Big challenge is getting foundations in around existing services (above and below ground) and drainage
- Open to develop proprietary equipment to deliver - TfL Consulting to sell insight elsewhere.
- Sharing a Pareto analysis of costs by location could be a challenge - messaging is crucial
- Circa 20 Deck studies have been produced to date, which could be used to validate assumptions used in Comparator
  - Costs of rail working and enabling (not public)
  - Plus TfL could provide a lot of data from historical projects
- Mass production objective
- Requires enough flexibility to suit multiple sites
- Solve the delivery issues to make it faster and cheaper
- Current value of airspace £0/m<sup>2</sup>
- Cost to create land needs to be cost neutral with buying land
- Cover risk and ideally some profit.

**Action:** TfL agreed to provide IFPI with cost data from studies

*Chapter 4 – Overbuild delivery systems - leads Bryden Wood (alternative) & Hawkins Brown (existing)*

- Alternative approaches and can achieve step changes in costs (BW)
- Link modular systems, to delivery and placemaking : e.g. Grainger (speed stacks up on £)
- Visibility of scale to stimulate capacity
- Only 3 or 4 suppliers close to capable, but insufficient
- Brings product cost learning curve value
- Minimum 3,000 units per year 1500 build to rent (BTR) - potentially considerably more
- Demand levelling will be an issue for suppliers
- Clarity of pipeline is key: how high, how big, what diversity, what scale
- Risk of lack of evidence of capability
- EU & Asia supply is possible
- Needs an ROI
- Construction in high value areas is challenging but worth it
- Construction in low value areas is easier but considered unviable
- Central £800/£1000 sq.ft (1,000sq.ft = £1M home)
- Zone 3 £800/sq.ft.
- Procurement challenge can be addressed (not case by case)
- This is generally not classic public sector procurement.
  - A pipeline is possible.
  - Offsets manufacturer and constructor investment
  - Even possible to invest in the enabling kit

- TfL Scorecard has an affordable housing target
- Grainger JV - Will be largest BTR @ 3.5k with strong TfL voice / specification.

**Action:** TfL: Buildoffsite would welcome contact details for the Grainger framework

- Suggested approach of client invests in a design and licence to suppliers, or performance specification and compete.
- Perhaps a standardised set of layouts which 2 or 3 can meet.
- Lots to work through for the JV including planning submissions
- Separate issues of the overbuild vs. the general housing delivery

#### *Chapter 5 – Cost considerations lead IFPI*

- IFPI confirmed that data is valuable in any format, can be firewalled and treated confidentially
  - TfL agreed to liaise with IFPI directly following this meeting.
- Action** TfL/IFPI to liaise (see above)

#### *Chapter 6 – Potential Future Innovations lead Buildoffsite*

Multiple innovations are being considered, including:

- Configuration of dwellings
- Increasing density
- Community mix / flexibility / adaptability (needed for BTR in particular)
- Space standards are firmly to be followed (minimum 37m2) - but adaptability could shift
- Minimum requirements are unlikely to challenge the London Plan with Mayor as Chair
- TfL have looked at the 'Collective' model.
- Supply side:
  - o CO2 build / operate and embedded. (Crucial Candice Sinetra)
  - o Resilience / longevity (Crucial)
  - o Fire / safety
  - o Standardisation - for Hybrid systems
  - o Interoperability
- Standards – BSI reviewing offsite standards, Chinese leading update to ISO modular standards.
- Railway standards need to apply to any overbuild structure.

#### *Chapter 8 – Global initiatives and expertise lead WSP*

Global Initiatives

- Scheme in Copenhagen: Over build 2/4 tracks plus future metro box.
- Aarhus homes over station and step free access
- Paris: Gare Austerlitz / Peripherique
  - City pays for decking? Developers buy land

- Gothenberg: dual carriageway placed below ground. Roof will become deck for homes and offices.
- Smaller deck packages vs. multi-span
- Hudson Yards - commercially led, very large spans
- Chicago – various schemes over many years
- Toronto – current work at Union Station
- How much subsidy / stimulus is provided elsewhere is to be considered.
- What should we ask of Government? £2bn = 100k homes.

### *Chapter 9 – Procurement and risk lead Meinhardt / Buildoffsite*

- Options: Landowner packaging a development and hand-over, but rejected by TfL in the past as:
  - o Need to design as a system and can't offload the commercial responsibility.
  - o Cannot pre-empt the future use: either over-engineered and costly, or under-estimated and unusable (Jubilee line extension)
  - o Transport business needs to be intimately involved in the design
  - o Network Rail struggle to have an equivalent capability
- Insurance: Volume of projects some self-insured others commercially
  - o What information can be shared is to be confirmed.
- Ali Mafi: inputs regarding avoiding root-causes of delay
  - o Time related cost analysis (not an AI historical approach looking at the past).

**Action:** TfL to confirm

**Action:** All authors to take on board feedback and insights from TfL.

### **3) Questions authors want to raise with the rail asset owners**

It was agreed that these would be circulated after the meeting – see below:

#### **Placemaking**

- Is your organisation geared to champion “area change” in addition to a standalone oversite development?
- What models of funding and delivery would be most appropriate?

#### **Economics**

- Typically what is the time needed to acquire the necessary approvals (excluding Town and Country Planning) to proceed?
- Can anything be done to shorten this time-lag?
- To what extent (if any) would construction of the Deck reduce the efficiency of the operational activities?
- Has this factor been quantified in the past?
- Would increased speed of construction of the deck alleviate the problems?

- Is it possible to quantify the value of any such benefits?
- To what extent (if any) would increased speed of construction of the works above the deck influence the operational performance?
- Has this factor been quantified in the past?
- If the estimated cost of offsite construction of the Deck could become lower than traditional thereby making a scheme marginally viable where it would otherwise not be, would landowners proceed?
- Do rail asset owners have any benchmarks for traditional construction that may be used by this team?

### **Risk & Procurement**

- Would landowners be prepared to seek Government indemnity against loss in cases where viability of schemes is dependent upon estimated costs (and/or speed) of construction being more favorable than traditional?
- Have rail asset owners considered splitting site creation from the development phase?
- Have rail asset owners considered alternative approaches to project insurance (e.g. such as the BAA approach on T5)?
- Would landowners consider profit-sharing/risk-and-reward arrangements with offsite providers?

### **Innovation**

- How open are landowners to innovative solutions being used – what are the criteria they would use to assess their acceptability?
- Are there any innovations that landowners are aware of that they would like to be considered in the development of this guide?
- Are there product approval procedures that are a pre-requisite to deploying a new product on an overbuild project?

**Action:** TfL to respond to these questions following the meeting.

**4) Next Overbuild Guide Authors' Meeting: 19<sup>th</sup> July, 13:30 – 17:00 WSP House, Chancery Lane, London**

Please put this in your diaries.

*build*offsite