

**Monitoring Strategy**

**1. Monitoring Strategy**

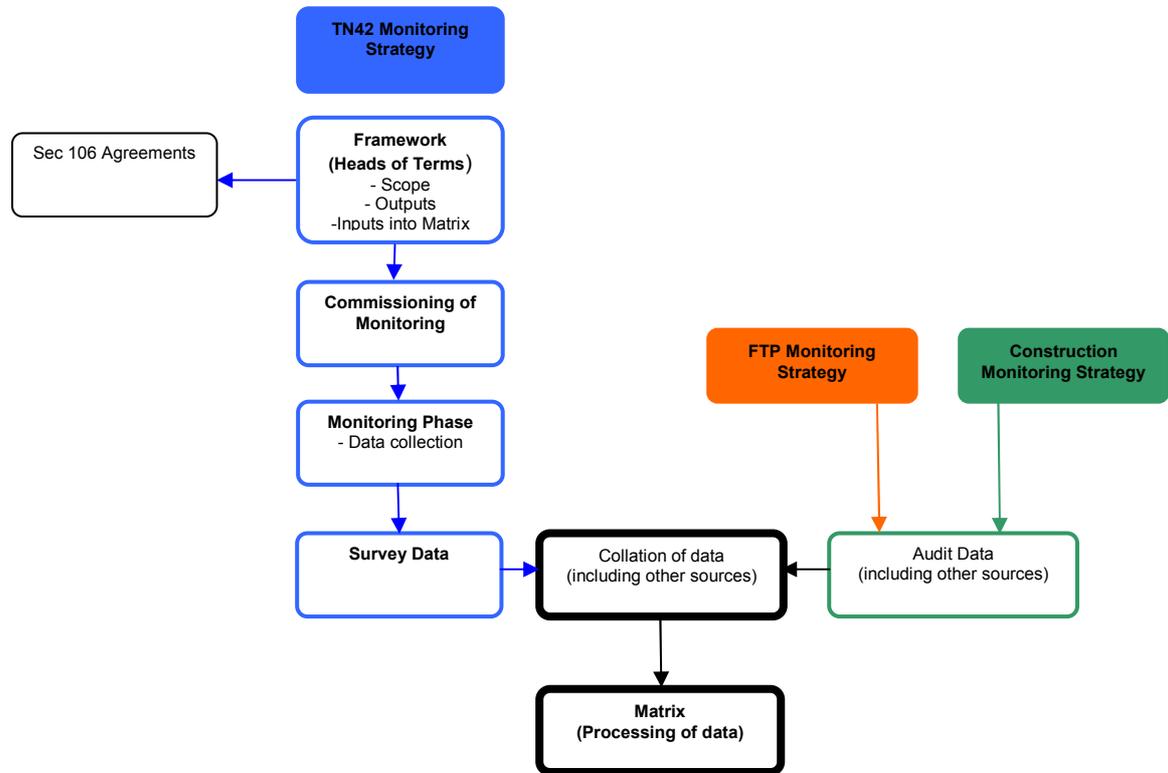
**1.1 Background**

1. This chapter sets out the framework for the monitoring of the Matrix as established in this report, this develops the initial strategy as outlined in the FTP. It has been prepared in light of discussions between the DPs and the authorities.
2. Its key aim is to measure the impacts of the BXC development and associated infrastructure and measures which will be delivered by the DPs.
3. This appendix considers the following issues:
  - Process for the Matrix Monitoring Strategy (Heads of Terms);
  - Objectives for the Matrix Monitoring Strategy;
  - Methodology; and
  - Matrix Inputs

**1.2 Process**

3. Figure 5.1 below sets out an indicative process for the monitoring strategy. The DPs will engage fully with the authorities in the scoping of the surveys necessary to carry out a run of the Matrix.

**Figure 0-1 - Monitoring Strategy**



4. The monitoring strategy is identified in Figure 5.1 by the blue boxes. The first stage in the process includes the agreement of a Framework for the monitoring strategy which is established in this document. It is suggested that this Framework can be incorporated within the Section 106 agreements between the DPs and the authorities as part of the planning consent. The monitoring needs to be set within the context of BXC data that will be collected via the Individual Travel Plans, as collated by the Travel Plan Coordinator. This establishes the scope of the Monitoring Strategy and defines the inputs which will be used in the Matrix.
5. There are further references to the monitoring process within the Framework Travel Plan (BXC05) paragraph 4.7 which sets out details which need to be considered as part of this strategy.
6. The first stage will include the DPs commissioning the necessary surveys whilst engaging with the authorities and TAG to agree their scope and nature. The next stages will entail the collection of the data and outputting this into the appropriate form for analysis.
7. The green box within Figure 5.1 shows the data collected for other purposes, including the Framework Travel Plan and the Construction Monitoring Strategy. This data will be audited to ensure that the information is consistent for analysis. Both sets of data will then be collated to prepare an evidence base to be used within the running of the Matrix.

**1.3 Objectives for the Transport Matrix Monitoring Strategy**

8. The following objectives are proposed for the Transport Matrix monitoring strategy:
- To monitor the occupied portion of development
  - To monitor journeys undertaken by all modes that have either their origin or destination in the development
  - To establish the travel baseline for the Matrix
  - To deliver inputs into the Matrix appraisal process

**1.4 The Monitoring Strategy**

**1.4.1 The Monitoring Strategy**

9. The need to monitor the operation and transport related impacts of the Development takes several forms. The information obtained from the various surveys and sources will be used to both control the impacts arising from the Development and to inform the later stages of the detailed design and implementation of the various elements of the approved transport infrastructure. The monitoring will differentiate between temporary impacts due to construction and any unforeseen long term impacts that need to be addressed. Therefore, the overall monitoring strategy would be best summarised by consideration of the five categories of monitoring that are described below:

**1. MATRIX, PTR and RMTR INPUTS- POST GRANT OF PLANNING PERMISSION**

Location:	Surveys of the occupiers of the development and the construction operations.
Purpose:	Regular monitoring of development related trips by mode.
Means:	<ol style="list-style-type: none"> <li>1. FTP → Individual Travel Plans, iTRACE compatible surveys – Travel Plan Co-ordinator.</li> <li>2. CWTP → Contractors – Construction Traffic Management Operations Manager.</li> <li>3. Delivery &amp; Servicing Plans.</li> <li>4. S278 (i.e. monitoring of any junction or route impacts during construction of the highways works).</li> <li>5. Bus journey times on the sections of roads being altered as a result of the BXC proposals, and adjacent short lengths. There is a separate S106 obligation to undertake these surveys (see S106 Heads of Terms</li> </ol>

	3.2).
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## 2. DETAILED STUDIES- PRE DESIGN STAGES

Location:	Site specific surveys related to the approved infrastructure.
Purpose:	To inform detailed design.
Means:	<ol style="list-style-type: none"> <li>1. Volume of vehicles, pedestrians and cycle.</li> <li>2. Classification of vehicles.</li> <li>3. Turning movements and queue length surveys at the junctions.</li> <li>4. Routeing patterns of BXC related vehicle flows through junctions.</li> <li>5. Accident data and data on vulnerable road users.</li> <li>6. Bus journey time surveys, if required.</li> <li>7. Details of the Pedestrian and Cyclist networks, including PERS audits of pedestrian facilities on and around the boundaries of the site where the proposed networks integrate and connect with the wider surrounding adjacent networks</li> </ol>

## 3. A5 CORRIDOR STUDY - PRE DESIGN STAGES

Location:	Carried out nearer to the date of commencing detail design of infrastructure works
Purpose:	The Corridor Study is intended to inform the detailed design of the transport infrastructure at the time this is undertaken. Therefore, it is entirely separate from the application of the Matrix and the monitoring of the development effects.
Means:	<ol style="list-style-type: none"> <li>1. Surveys of the Pedestrian and Cyclist networks, including PERS audits of pedestrian facilities on and around the boundaries of the site where the proposed networks integrate and connect with the wider surrounding</li> </ol>

2.	adjacent networks
3.	Surveys of traffic management, parking, loading, unloading
4.	Review of junction signal timings, linkages, traffic management
	Review of bus priority including bus stop facilities in and around the site
	Review of road safety and accident data

#### 4. SPECIFIC LOCAL ISSUES SURVEYS- DURING OCCUPATION OF A PHASE

Location:	Surveys by exception at individual sites identified to TPC/TAG as having some particular problem.
Purpose:	Identify cause of issue.
Means:	May include, inter-alia:
1.	Queue lengths.
2.	Volume of vehicles, pedestrians, cycles.
3.	Classification of vehicles.
4.	Car parking accumulation, including on and off street parking, and cycle parking.

#### 5. TRANSPORT DATA FROM OTHERS- DURING OCCUPATION OF A PHASE

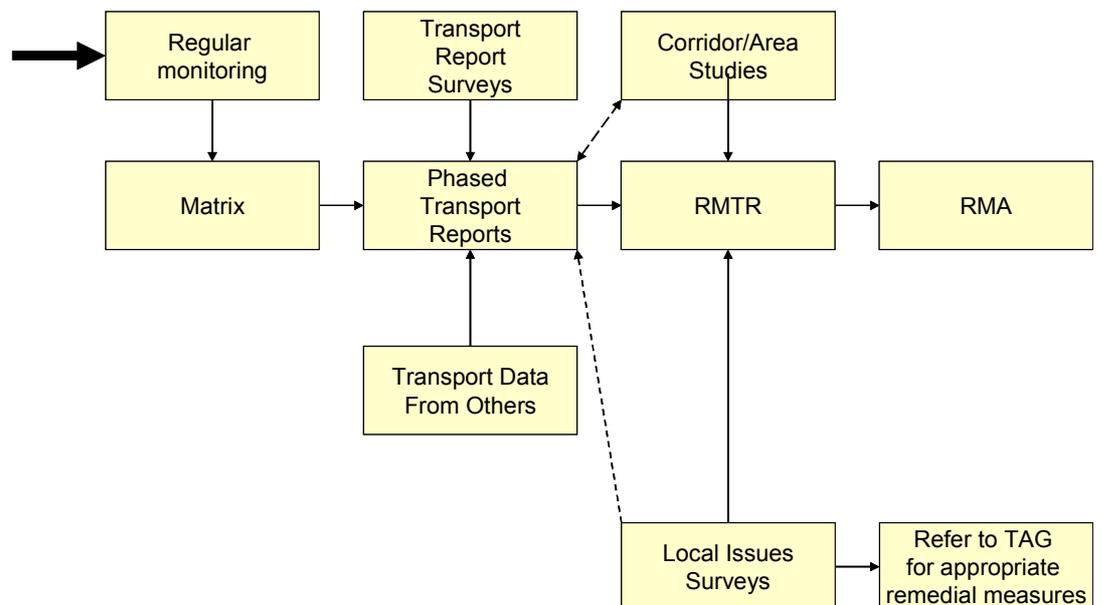
Location:	Desktop Studies to obtain published data from Authorities and others as appropriate.
Purpose:	To understand background trends in context of NW London.
Means:	May include, inter-alia:
1.	Bus journey times.
2.	BODS Data – Bus loadings..
3.	RODS Data – Underground loadings.
4.	TfL annual Transport Monitoring Reports.
5.	HA Annual Traffic Monitoring
6.	Other sources of relevant published information.

**6. TRANSPORT REPORT SURVEYS- DURING OCCUPATION OF A PHASE**

Location:	Within the site of the development.
Purpose:	Targeted data for PTR/RMTR.
Means:	<ol style="list-style-type: none"> <li>1. Servicing and delivery flows.</li> <li>2. Public transport flows at interchanges.</li> <li>3. Public transport passenger loadings.</li> <li>4. Baseline traffic data e.g. vehicle flows, pedestrian and cyclist counts.</li> </ol> <p>Plus, will include data from the Matrix Inputs, the Corridor and Area Studies, Local Issue Surveys and Transport Data from other published sources, as appropriate.</p>

10. The overall process for monitoring and how it is intended to inform the subsequent processes is illustrated in the following Figure 5.2:

**Figure 5.2 – The Monitoring Strategy and Relationship to Subsequent Processes**



### **1.4.2 Role of the TPC**

11. The BXC Travel Plan Coordinator (TPC) will arrange for the necessary surveys to be undertaken, these will consider the BXC developments as a whole at each particular time and monitor progress against mode split progressions to the target. The Travel Plan and Delivery & Servicing surveys will be performed annually or if appropriate by agreement with TAG in relation to the development quantum in place at any stage. The monitoring strategy will be agreed with LB Barnet and TfL.
12. The TPC will also arrange for the analysis of the surveys, and will present an analysis of the results to the DP's and TAG, along with any recommendations for the TAG to consider and report to the Joint Transport Executive Board (JTEB) as appropriate. The TAG will also ensure that any issues arising can be used to inform the subsequent Transport Matrix, PTR, RMTR and RMA processes.
13. Construction traffic will be continually monitored and reported to the TPC a written report will be provided on the results to TAG every 6 months.
14. The TPC will ensure that the monitoring is similar to and compatible with iTRACE<sup>1</sup>, and will liaise and coordinate with LB Barnet and TfL in setting this up. The routine monitoring of the development should concentrate on the use of iTRACE surveys, as proposed in the Framework Travel Plan, as this approach is entirely consistent with LB Barnet procedures, TfL Best Practice Guidance and current DfT Advice.
15. The TPC will provide details to the TAG as to the scope and scale of required monitoring and surveys. As some existing plots will be removed, or substantially replaced by new land-uses on this site; in these cases there will be little point in surveying the existing that is to be replaced land-uses. The baseline surveys will therefore be tailored towards the parts of the site where existing land-uses are being expanded and grown.
16. The TPC will gather the travel plan data from individual sites (plots) from their occupiers and will assess the overall performance against the specified targets.

### **1.4.3 Monitoring**

17. The Transport Matrix can be used to predict mode split at BXC. The RMA conditions and Triggers will deliver mitigation to enable the progressive improvements in mode split to occur. If the monitoring and transport surveys show any shortfall in the predictions to mode split the next Transport Matrix will have to address that shortfall.
18. As well as the monitoring of trips, the effectiveness and success of travel plan management and networks should be monitored against:
  - Growth in membership of the network.
  - Proportion of occupiers developing and actively implementing a travel plan.
  - Attendance at network meetings, seminars and conferences.
  - Media interest in the measures being implemented.
  - Level of resources committed to sustaining the network.

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<sup>1</sup> iTRACE is a Travel Plan project management software package that offers opportunities to standardise and simplify data collection and reporting. It is has been developed by solution providers iBase Systems Ltd, funded by TfL and managed by the West London Transport Strategy Group. It was rolled out across all 33 London boroughs in 2005.

- Level of interest and involvement in network activity among senior staff within member organisations.
  - Growth in the number of 'hits' on related web sites.
  - Progress towards achieving targets.
19. The DPs will underwrite the costs of the Travel Plan surveys needed in conjunction with the FTP. However, the DPs will be entitled to be reimbursed for those amounts through the service charge.
20. Other costs the individual owners/occupiers will need to meet themselves will include:
- Those associated with providing their own Individual Travel Plan (ITP) representative.
  - Staff and personnel time for meetings and implementation.
  - Publicity and marketing and other measures to promote their ITP.
  - The implementation and management of the measures that form part of their own organisation's ITP i.e. their ITP that fits into the overall FTP.
21. Monitoring will be an important consideration in the implementation of the FTP and associated ITP. Monitoring requirements will be agreed for each individual travel plan at the appropriate point in its development with the TPC, JTEB (LB Barnet and TfL.). Base transport patterns will need to be determined, which will be based on initial employee and visitor surveys. The TPC will analyse and review this data in the context of available transport provision, transport links and car parking availability. The monitoring of vehicle usage and use of other modes on a regular basis will allow the mode share targets to be reviewed and will identify the success or otherwise of any of the individual initiatives implemented under the ITP. This will be based on the defined indicators for measuring progress.
22. The surveys will be conducted to cover weekdays and Saturdays, unless otherwise agreed, e.g. it will not be necessary to survey the offices at the weekend as activity here will be significantly lower than on weekdays. If the progression to target is not being achieved on an individual plot, then the TAG may require additional surveys and data collection, which the TPC will arrange and commission, to ascertain how best the travel patterns could be influenced so as to achieve the required targets. Whilst the TPC will organise any additional surveys, any measures that might be required as a result of these will have to be provided via TAG and the Transport Fund.
23. The TPC will ensure that the travel surveys will record not just mode share, but also information about the uptake and effectiveness of individual measures. In this latter respect, it may also be desirable for the TPC to organise, conduct and fund focus groups where the effectiveness of measures can be more thoroughly examined. The monitoring process (see Section 5.3 also) will allow the individual travel plans to be amended, revised and fine-tuned in response to recorded user behaviour.
24. Bus service provision will be reviewed by the TPC in light of discussions with LB Barnet and TfL, and information derived from staff and visitor surveys and passenger data. Bus route data from iBUS as collected by TfL or data from the rolling programme of bus surveys performed by TfL will be used to assess any implications on the wider nature of the routes, as caused by BXC. The TPC will also arrange for the monitoring of bus journey times within the BXC site, and extending 400m beyond this. The TPC will collate and present this data to TAG so that any unforeseen adverse impacts created by the BXC scheme can be mitigated.

25. If any potential areas of passenger demand are identified that are not well served by buses, service routing and frequency will be reassessed, in consultation with the transport operators. The use of pedestrian and cycle facilities will be derived again from staff and visitor surveys and volumetric counts of usage of the facilities.
26. The TPC will also review the effectiveness of the various strategies (Pedestrian and Cycle, Freight and Delivery, Car Parking). Individual occupiers will be required to monitor their car parks to ensure that there is no double parking and that spaces allocated to the disabled, car sharers and other priority users are being used effectively.

## **1.5 Matrix Inputs**

27. The monitoring strategy presented above will establish the primary data sources required to assess a quantum of development through the Transport Matrix, as set out in this document. The specific details of the data collection will be agreed by the JTEB (LB Barnet and TfL) prior to the running of the Matrix.
28. To ensure a consistent set of data sources it may be appropriate that data which has also been collected by TfL and/or the London Borough of Barnet in specific regard to the BXC developments could be used to feed into the Matrix.

### **1.5.1 Measurement of Trips**

29. Monitoring and reviewing of trips is a key element of the FTP, and is required to establish the number and mode split of trips to the BXC site. It is recommended above that the final/initial mode is used in the assessment of mode split, as these represent the modes by which travellers arrive at/depart from the site. In doing so, the distinction needs to be clearly made between travellers who walk for most of their journey and those who are walking from a public transport stop. The detailed scope for the surveys will be discussed with the authorities prior to their commissioning.
30. The issues to be considered in measuring trips as part of the monitoring process are summarised below:
  - Different survey methods will be appropriate for different land uses, these are likely to include:
    - travel diaries;
    - household interviews;
    - staff surveys;
    - customer surveys;
    - traffic counts at key locations (plot or development zone based);
    - automatic traffic counters e.g. on key local roads so any impacts of rat-running could be identified;
    - public transport passenger counts;
    - counts of goods vehicles, number and timing;
    - use of cycle parking spaces;
    - use of car parking spaces; and
    - occupancy surveys of cars and PT vehicles.

- Detailed surveys will allow the identification of the amount of cross visitation that occurs on-site.
- Details of multi-leg journey elements should be recorded and identified from the surveys.
- Construction vehicle flows.
- Monitoring of queue lengths and signal timings at the same time as when junction counts are performed to inform the detailed design process. If queues exceed those predicted in the TA then the TPC will alter LB Barnet and TfL who may then choose to examine and retime, rephase the lights.

## **1.6 Reporting Process**

31. The outputs from the Matrix runs will be reported by the Travel Plan Coordinator (TPC) to the TAG, and will be undertaken at each necessary operation of the Matrix. It will clearly set out the evidence base including data sources and data availability which has been used. It will identify the impacts of individual measures which have been delivered in the previous phase of development. The DPs will engage fully with the London Borough of Barnet and TfL throughout the process.
32. The monitoring report will clearly set out links to data sources from the FTP monitoring process and the Construction Monitoring Strategy, which have been used as inputs into the Matrix. It may also be appropriate to use the outputs from this monitoring strategy to feed into other monitoring / delivery processes to ensure that targets are being met.
33. It will be for TAG and the JTEB to formally sign off the run of the Matrix process.