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Material change for a better environment

Briefing Note

Material Logistics Plans

Delivering resource efficiency, cost control and carbon reduction

At Heathrow's Terminal 5 the implementation of a logistics strategy resulted in a 20-25% productivity increase compared with traditional build, and cost savings in the order of 2.5% on a £4 billion project.

The construction industry is the single largest user of material resources in the UK, with construction, demolition and excavation activities producing an estimated 120 million tonnes of waste every year. Applying efficient logistics principles to construction projects improves resource efficiency and reduces waste, CO_2 emissions and environmental impact. It also helps projects run more smoothly, cuts costs and can make your company more competitive in the construction industry.

WRAP (Waste & Resources Action Programme), in partnership with leading construction and logistics organisations in the UK, has developed and piloted the Material Logistics Plan (MLP). An MLP helps in the proactive management of material types and quantities to be used in construction. The MLP covers the management of materials from design to construction (including supply routes, handling, storage, security, use and reuse, recycling and disposal) through to project demobilisation and completion. Implementation of an MLP has a positive impact on the total lifecycle of a construction project from conception through design and construction to demobilisation and completion. An MLP also complements the actions construction projects are required to take as part of their Site Waste Management Plan (SWMP).

Making an MLP part of your normal operation will expand your logistics know-how and yield a number of benefits including:

- substantial cost savings;
- reduction of waste and management thereof;
- the smooth running of projects;
- improved supply chain relationships, leading to more efficient planning of projects and more competitive tendering;
- enhanced environmental credentials and adherence to Corporate Social Responsibility objectives; and
- the ability for construction firms to anticipate policy directives and satisfy local planning authorities.

Material logistics planning – what and why?

Material logistics planning is not an extra burden to be carried by already busy project managers. Implemented well it helps projects run efficiently and at a lower cost by ensuring the right material in the right place, at the right time, without damage and with minimum waste. Logistics planning concerns all parties – clients, design teams, contractors and subcontractors – and runs through all phases of a project. The schematic on the next page illustrates the main steps and participants. Material Logistics Plans are relevant for all kinds of projects:

- large or small – the MLP was piloted on projects ranging from £750,000 to £15 billion;
- housing;
- commercial property;
- public projects, schools and hospitals; and
- road and rail developments.

Logistics planning with impact

For greatest impact the logistics planning should be part of the project from the outset, integral to your overall strategy and involving a collaborative approach among supply chain partners. Some of the logistics strategies and techniques that can substantially reduce waste and enhance efficiency include:

- Just-In-Time delivery (JIT);
- demand smoothing;
- on site Market Places (MP);
- pre-assembled and off site fabrication;
- Information and Communication Technology (ICT) systems;
- Inventory Management Optimisation (IMO); and
- Construction Consolidation Centres (CCC).

Key Performance Indicators (KPIs) are used to target and measure the effectiveness of a process and follow up performance. KPIs can be set at different levels and by different stakeholders:

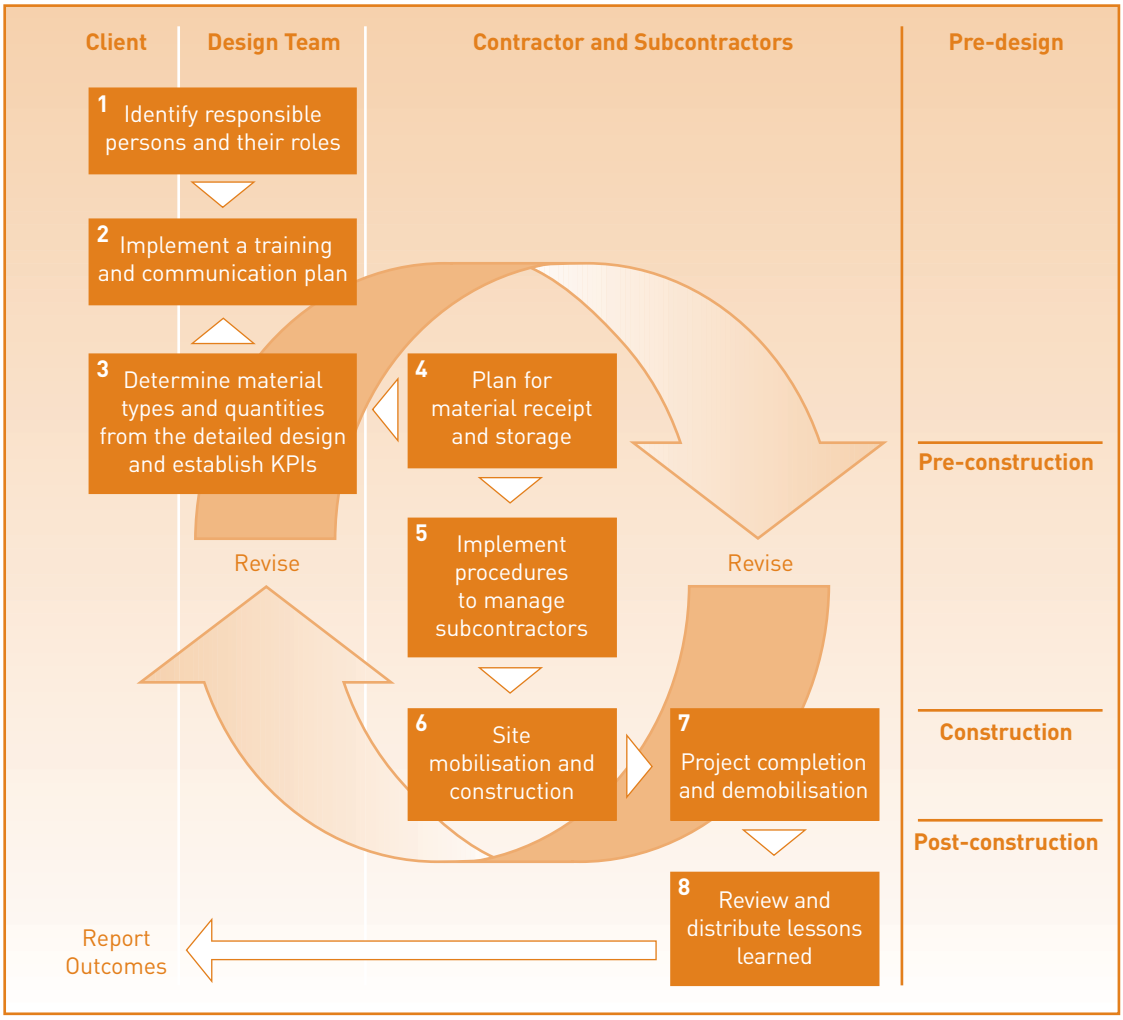
- clients may target, for example, material waste as % of total materials ordered;
- main contractors may focus on labour productivity levels (no waiting due to material shortages) and take-up of logistics services (as % of material used); and
- site-specific KPIs can include waste per material category, delivery accuracy of materials to site, and damaged materials received.

The London Construction Consolidation Centre (LCCC) (part funded by Transport for London (TfL)) is an excellent example of how lessons learned from other industries in the area of supply logistics can improve the performance of the construction sector.

The Centre serves many construction projects at once, storing materials centrally and delivering them to sites when needed. This cuts down on waste and the need for large quantities of materials to be stored on site. The LCCC is also able to reuse surplus materials rather than sending them to landfill. During the refurbishment of Unilever House, for example, over £200,000 of materials that might otherwise have ended up in a skip were returned to the LCCC and recovered. Use of the LCCC has also reduced the number of construction vehicles entering the City of London by 30% and cut CO_2 emissions by 70%.

At News International's new £190m printing facility the main contractor and all subcontractors followed a strict logistics strategy. Construction proceeded successfully thanks to carefully scheduled deliveries of materials and distribution to point of use. Material storage on site was minimised with no single trade having more than three days' worth of material on site, thereby avoiding congestion.

Key stages of an MLP within the construction process



Implement a Material Logistics Plan now

The WRAP MLP guidance document and templates were developed under expert guidance from an advisory group consisting of leading construction and logistics companies and organisations in the UK. The MLP has been piloted in a number of high-profile projects:

- Central Saint Giles in London by Bovis Lend Lease;
- Barts Hospital in London by Skanska;
- the A2/A282 project by Costain;
- Balls Road refurbishment in Wirral by Riverside Housing; and
- the Crossrail Maidenhead to Kent railway project.

The diversity of these projects illustrates the universal relevance of MLP.

Training

Training resources are available to enable successful implementation of MLPs from March 2009. From WRAP you can obtain presentation material and train-the-trainer material which will help you create your own workshops. Using this material, a typical one-day workshop will ensure delegates:

- understand logistics;
- understand logistics techniques and methods;
- understand the MLP including checklists and templates;
- can choose set and follow up Key Performance Indicators (KPIs);
- have knowledge of case-study illustrations and practical applications; and
- have an opportunity to discuss and exchange information with their peers.

Along with the MLP, WRAP provides other tools and guidance to ensure that the client and their supply chain:

- increases the recycled content of a project;
- reduces the waste on a project or ways in which the waste can be reused; and
- increases the amount of waste recovered and recycled.

The MLP and guidance materials are available from the WRAP website.

Help, information and guidance

The WRAP website **www.wrap.org.uk/construction** is a rich source of information which promotes the business case for change and provides free access to tools and guidance. Here you can find:

- an interactive MLP guide;
- complete MLP documentation with guidance notes, checklist and templates for downloading;
- case studies illustrating benefits and cost savings;
- SWMP templates and tools; and
- WRAP's Net Waste Tool – a free-to-use web-based tool for forecasting the value of wasted materials.

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