## Work Planning

Cross discipline teams come together at regular intervals (weekly in design, daily in construction) to hold production meetings and create collaborative work plans in order to:

■ Individually commit to tasks and be measured on successful, reliable task completion

■ Understand dependencies with other team members

■ Capture reasons why tasks are not achieved for learning and improvement

Figure 2 The Plan-Do-Check-Act cycle

```
Plan → Do → Check → Act
                     At the
                     appropriate
                     time
```
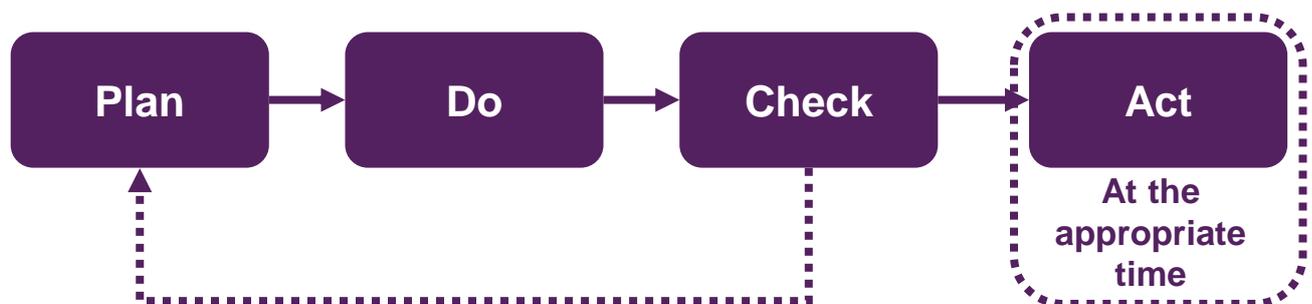
The Production Meeting

■ Projects are broken down into appropriate 'chunks' of production

■ Cross-functional team members are briefed and organised to attend

■ Individual team members rapidly report status of previous plan's tasks - task done / not done using a rigid yes / no criteria, eg 90% done is a no

■ Reasons for non-completion are captured, eg material unexpectedly out of stock

■ The team then sets the next period's tasks, ensuring they are realistic, specific and measurable, eg complete installation of 50 linear metres of kerbing on the northbound carriageway between chainages 250 and 300

■ Team members make realistic task commitments - only committing what is fit and ready to do

Production Control

■ Team debates commitments to ensure tasks are integrated and achievable

■ Meetings should last no longer than 25 minutes in construction and 45 minutes in design

■ Data is captured in an appropriate **Production Control** tool (see **Appendix A**)

The focus of the team is to maintain a high reliability of task completion whilst also maintaining, or improving, on programmed targets.

Key Measurements

The key measure taken from production meetings is the **Planned Percentage Complete** (**PPC**) or reliability measure. This effectively measures commitment reliability and is captured along with **Reasons for Non-completion** of tasks for learning and improvement.

$$PPC(\%) = \frac{Number\ of\ planned\ tasks\ completed}{Number\ of\ planned\ tasks} \times 100$$

The benefits of Work Planning

■ Teams immediately have transparency of work in hand & progress

■ Team members quickly become better integrated and better understand dependencies

■ Reliability (**PPC**) measure improves - more work getting done with the same resource

■ We start to understand, and improve, the blockers to getting work done

■ Communication and clarity of objectives improves

Make Ready

There are often numerous constraints that must be removed before a particular work activity can begin. In **Production Control** we refer to this as making tasks ready, or **Make Ready**.

Teams are facilitated in meetings to map and agree what enabling activities are required to un-constrain tasks and get production moving.

A task is made ready when all inputs (eg material), resource (eg labour) and controls (eg specification) are in place. **Make Ready** enables a 'workable backlog' of work that is fit to be included in work plans.

Figure 3 Make Ready
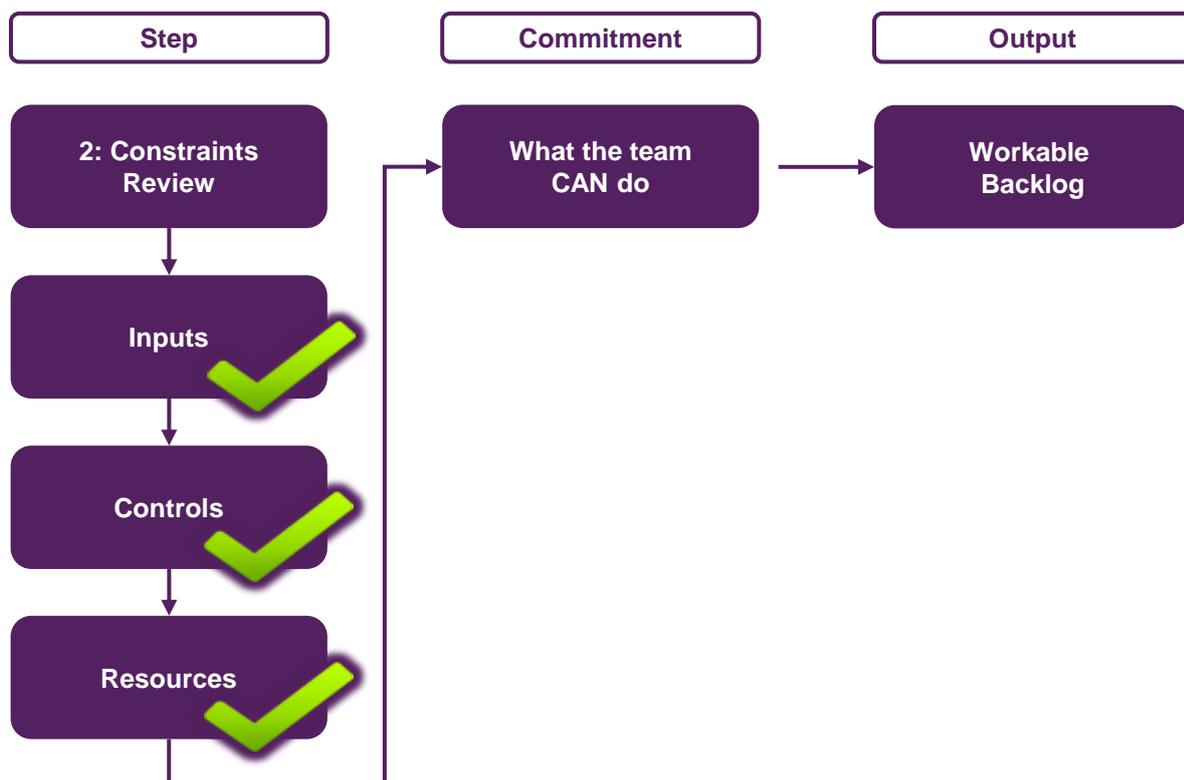
Make Ready activities are identified in facilitated **Collaborative Mapping** sessions (see page 15 of this guidance note) which help team members to map their processes and better understand constraints and what needs to be done to remove them. Actions to remove task constraints are added to **Work Plans**. Using, and re-using, standard processes with mapped and understood constraints (see the next section)

The benefits of Make Ready

◼ Reliability improves as tasks are 'fitter' to go and do

◼ Teams will really understand what they need to prepare and control to make their work fit to do

◼ Abortive work will be reduced

◼ More work will get done with the same resource

Standard Processes

Generally, the majority of highway construction activities can be demonstrated as being repetitive in terms of the steps taken to do them regardless of the volume of work involved. The opportunity therefore exists to standardise the steps and understand the constraints and enablers that respectively prohibit and allow work to be completed successfully and then repeat as required.

How does Standard Processes work?

Teams utilise **Collaborative Mapping** (see page 15 of this guidance note) to plan all of the steps they are required to take to execute standard work.

Once mapped the standard processes can be used, and re-used, with mapped and understood constraints to ensure dependencies and requirements are fully understood.

Teams capture and iterate the processes as improvements are suggested and implemented.

The benefits of Standard Processes

- Reliability improves as tasks are 'fitter' to go and do

- Teams really understand what they need to prepare and control to make their work fit to do

- Abortive work is reduced

- Design and construction processes will become consistent and robust as they become standardised across projects and organisations

- Learning is captured, iterated and consistently applied

- More work gets done with the same resource

Data Analysis

- The production control approach generates robust performance data

- This provides the starting point for process improvement (see page xx).

How does Data Analysis work?

As part of the production control process data is captured as follows:

- Reliability (**PPC**) information - running average & actual of tasks completed versus tasks planned

- Reasons analysis - data captured at the workface to describe the reasons category for why tasks are not complete, eg design awaited, weather, plant breakdown (See **Appendix B** for more information)

- Root cause analysis - the review of reasons for non-completion of tasks to establish underlying reasons (root causes) of failure. Typically uses **5 Why's** (see **Appendix C**)

The benefits of Data Analysis

- **Process Improvement** efforts will have real data with which to initiate analysis

- Trending is easy to do with data being highly relevant and specific to the teams at hand

- Data collected will rapidly point to where improvement efforts should be focused

- The data has been collected in a transparent, collaborative manner and should be regarded as accurate by the team

- Data is bespoke and specific to the project at hand - highly relevant

- Data provides factual basis for determination of Compensation Events

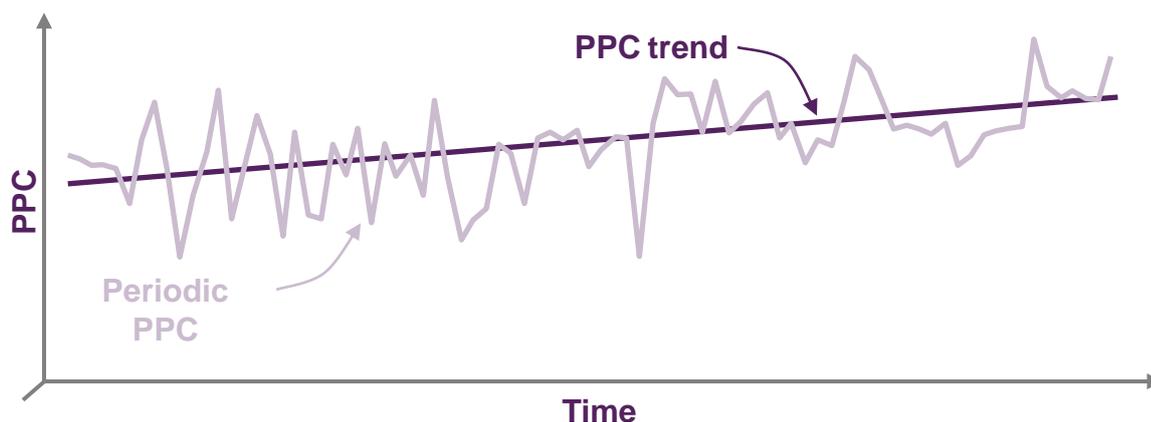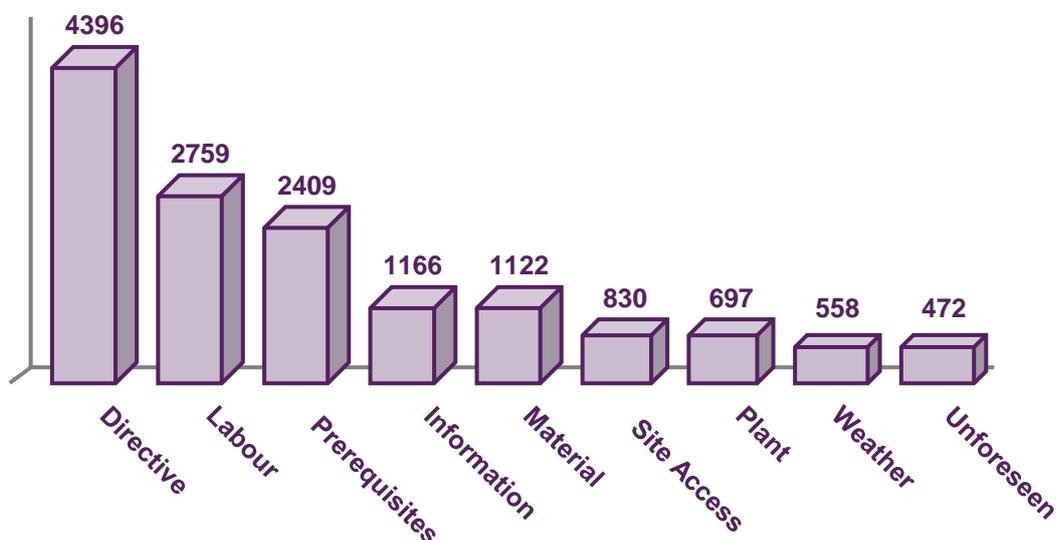**Figure 4 Planned Percentage Complete**

Figure 5 Reasons for Non-completion

Production Control - What's Different?

The team creates a plan together as an integrated team to:

- Get better transparency and understanding of who is doing what

- Make agreements and commitments as a team

- Create some peer pressure to get tasks done

Measurement:

- Simple and clear measurement encourages team members to make reliable commitments

- Reliability encourages a 'do what we say' culture

Additionally:

- Production control planning is done by the foremen / engineers and sub-contractor supervisors who deploy and manage the resource

- The process gives Foremen better process and tools to do their job

- Shorter planning cycle - by planning daily in construction and weekly in design variation and change in the plan is reduced, creating the chance of 'saying what we do - doing what we say'

- The system is a toolset to enable production improvement and is designed to be collaborative

- Encourages communication, trust and transparency from the team members around the table. Issues and problems are volunteered by all parties and dealt with collaboratively and in a timely manner - rather than uncovered as a major problem at the last minute

- The process drives better behaviours - openness, transparency, trust, teamwork and collaboration