



WFP a Case Study

Implementation and Lessons Learned

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Construction Planning Manager
WorkFace Planning Conference
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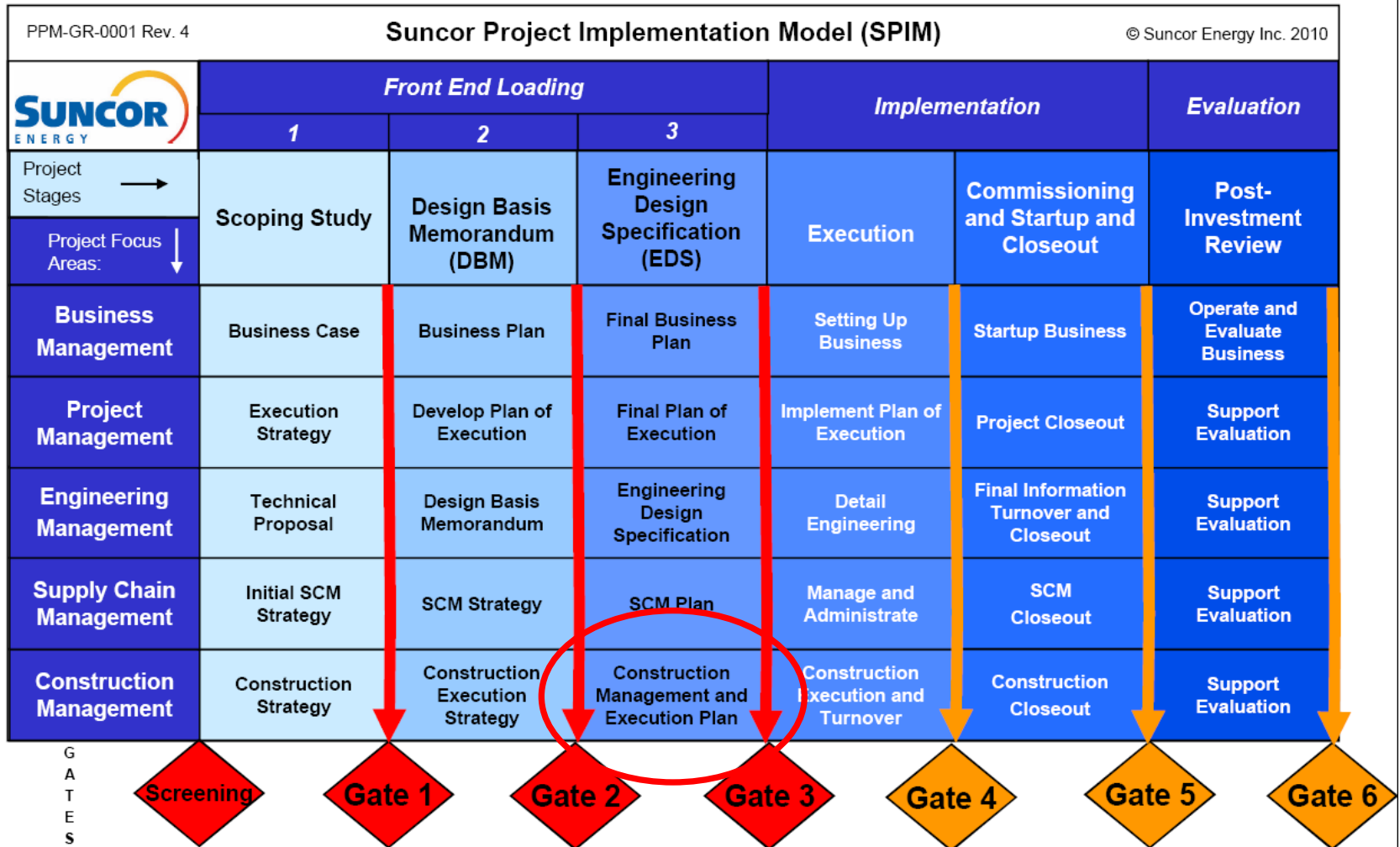
Implementation

- Implementing WorkFace Planning as an owner company requires a commitment to the development of new processes
- It also requires change to existing processes
- This is separate from Project Implementation that will ultimately follow the developed and changed processes to affectively implement WFP

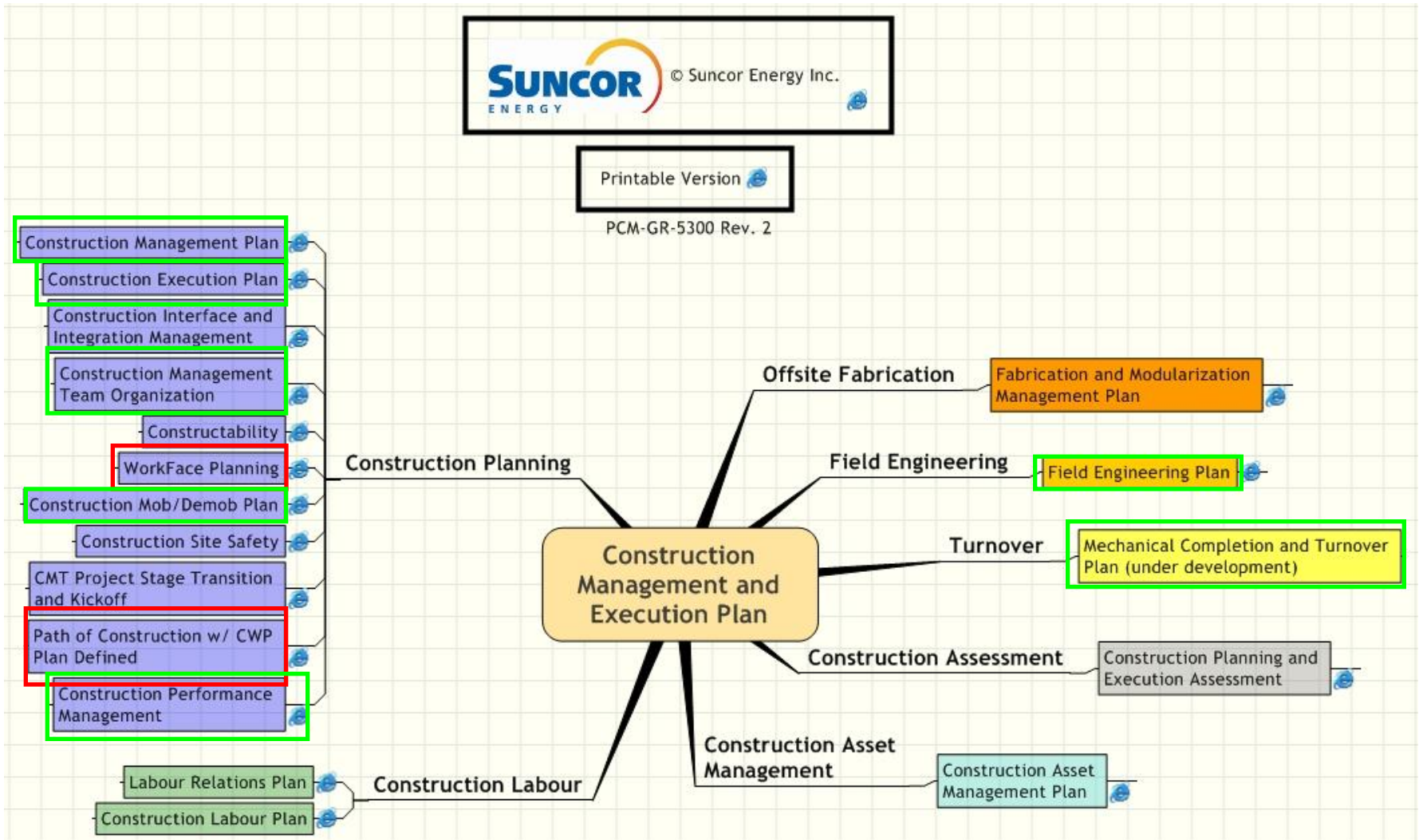
Examples of Processes Impacted

	Process/Standard/Procedure	Group
✓	Performance Management	Construction
✓	Construction Execution Plan	Construction
✓	Construction Work Package Template	Construction
✓	Coding (WBS) – Work Packaging/Systems/Tagging	Project Management
✓	Integrative Planning	Project Management
✓	Materials Management	Supply Chain
✓	Contract Formation	Supply Chain
✓	Performance Reporting	Project Controls
✓	Progress Payment	Project Controls

How WFP “fits” into Planning



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Title	PCM-SP-5109 Rev. 1 – WorkFace Planning
Objectives	<ul style="list-style-type: none">• Ensure implementation of WorkFace Planning on the Project. This shall be achieved by following the “WorkFace Planning Implementation Manual”.• Embed the “WorkFace Planning Implementation Manual” and the “Field Installation Work Package Development and Control Procedure” into the Project Technical Library. This allows for the development of Project Documents with sections identifying the inclusion and use of WorkFace Planning
Key Assumptions	<ul style="list-style-type: none">• Suncor Executive Management has established WorkFace Planning as required for all participants of Suncor Major Projects.• There is an operational Project Technical Library to be populated
Inputs	<ul style="list-style-type: none">• Suncor Construction Management End to End Process• WorkFace Planning Implementation Manual• Field Installation Work Package Development and Control Procedure

How WFP “fits” into Planning



Procedure No. PCM-GP-0003

**MAJOR PROJECTS
CONSTRUCTION MANAGEMENT**

**FIELD INSTALLATION WORK PACKAGE (FIWP)
DEVELOPMENT AND CONTROL**

SUNCOR ENERGY INC.

CANADA

How WFP "fits" into Planning



WorkFace Planning

The COAA Definition of Workface Planning:

The process of organizing and delivering all the elements necessary, before work is started, to enable craft persons to perform quality work in a safe, effective, and efficient manner.

Suncor Definition: 6 Degrees of Workface Planning

Degree 1 – Planning

The proposed facility is defined and viewed in its entirety. The major facets of the facility are acknowledged and its processes are defined through a system wide focus. Owner representation from Construction, Engineering and Procurement come together to discuss the initial plot plan, general arrangements and viewpoints on project management and execution. Strategically, the first draft of the start-up, turn-over and path of construction plans are struck. There is a possibility of long lead items being secured at this point of time.

Degree 2 – Development

The systems view of the facility is decomposed into work packages starting with the definition of Construction Work Areas and then into Construction Work Packages. Definition of the Construction Work Packages begins to fix the scopes for the Field Installation Work Packages. A delivery schedule will be developed for the Construction Work Package development. This too will further define the Field Installation Work Package scopes as well as their delivery schedule. Work will start on the identification of the individual Field Installation Work Packages. The Field Installation Work Packages will be mapped back to their respective facility system. System lists will be dependant on P&ID development. The procurement group will have identified the long lead items and started requests for vendor data and technical information.

Degree 3 – Into EDS

From the development of the Construction Work Packages and the identification of the Field Installation Work Packages the supporting Engineering Work Packages and their release schedule is developed. The engineering house(s) will begin work on their technical data allowing for population of the Field Installation Work Packages. Details such as work scope, engineering drawings, engineering specifications, vendor documentation, model captures, work constraints and so forth are available to the development of the Field Installation Work Package. The Field Installation Work Package development is performed by the Suncor Construction Management Team. The Construction Management Team will be responsible and accountable for the mapping of full systems definition to Construction Work Packages and Field Installation Work Packages through Tag and Line numbers. The Construction Management Team also identifies the Workface Planning requirements of the Construction Contractor and places the requirements in the contract language. In the contract it will clearly state the Contractor is required to make use of Workface Planning and the Contractor will progress and receive payment based on Field Installation Work Package Completion.

Degree 4 – Ensuring Success

The Field Installation Work Packages are handed off from the Construction Management Team to the Construction Contractor for Completion. The Contractor will complete the Field Installation Work Package with the field and site specific information such as equipment and craft resource loading. All work shall follow the 80/100 rule where:

- A) Unit overall detailed engineering shall be 80% complete prior to the start of major construction work.
- B) No work will start in the field on a particular work package until 100% of detailed engineering is available and 100% of the equipment and material required to construct that particular package is available and at site.

The work will also follow the Ready For Fabrication & Construction Rule:

- A) 100% of the Engineering Work Packages for and construction Category of a process unit or area must be Issue For Construction at least 4 weeks prior to the Issue For Construction issue date of the associated Construction Work Package.
- B) The Construction Work Package, in turn, will be issued 4 to 8 weeks prior to the required Field Installation Work Package Issue For Construction date to allow time to develop the Field Installation Work Package.
- C) The Field Installation Work Package will be issued for construction 2 to 4 weeks prior to start of construction, module fabrication for shop fabrication.
- D) 100% of the material required for and Field Installation Work Package must be at site or have confirmed availability for installation 4 weeks prior to the start of Construction or Shop Fabrication of that category.

Degree 5 – Execution

The Construction Contractor uses the Field Installation Work Packages in execution of the erection of the work. The Contractor reports progress via completed Field Installation Work Packages. The Contractor will also invoice and receive payment via completed Field Installation Work Packages. The Contractor will complete the Quality and Turnover documentation as the Field Installation Work Packages are installed.

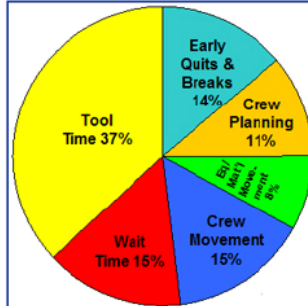
Degree 6 – Completion

Upon the completion of the bulk construction Field Installation Work Packages the focus of the facilities construction will return to a systems level view. Field Installation Work Packages will be created to describe the punch out, commissioning and turn over of each system from the contractor to the owner.

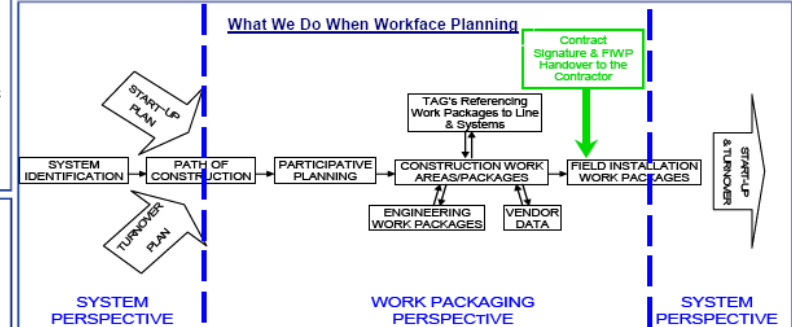
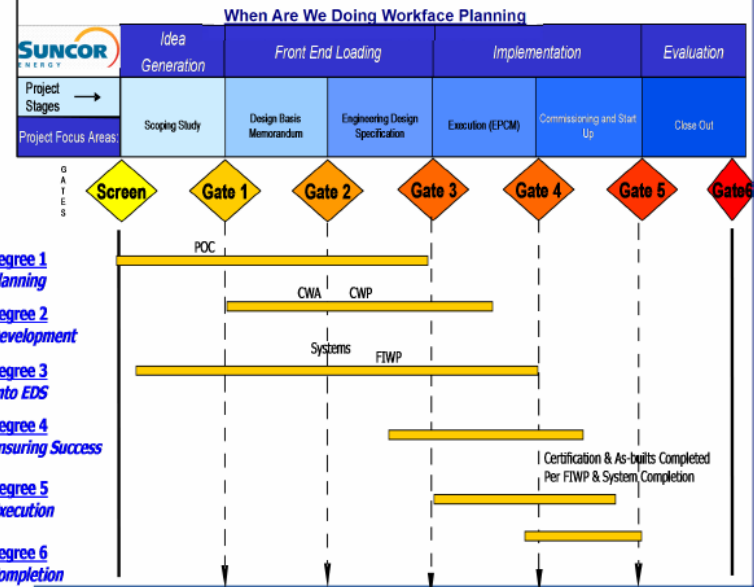
How Do We Plan To Implement Workface Planning

- Propose to identify a new project where we can apply Workface Planning through its' entirety
- Identify 1 project in EST&D & follow it through with WFP
- Ensure Path of Construction and Participative Planning are executed
- Make sure the system identification and TAG references happen
- Decompose the scope into work packages
- Establish contract requirements (language) for the Engineering and Construction contractors to follow
- Execute, Audit & Support
- Driver:** Progressing & invoicing only to FIWP completion

The Reason Behind the Implementation of WFP



Productivity on large oil & gas construction projects is typically quite low (about 35 to 40%).



How WFP “fits” into Planning



Quick Reference Guide

WorkFace Planning (WFP)

The COAA Definition of WorkFace Planning

The process of organizing and delivering all the elements necessary, before work is started, to enable craft persons to perform quality work in a safe, effective, and efficient manner.

Where to Access WorkFace Planning Information

WorkFace Planning material can be accessed through the sunnet project center > Major Projects > MP Functional Areas > Construction Management

Additionally, you can contact Anthony Van Tol if you have any questions or feedback regarding WorkFace Planning.

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403-269-5692

Suncor Definition: The 6 Degrees of WorkFace Planning:

Degree 1 – Planning

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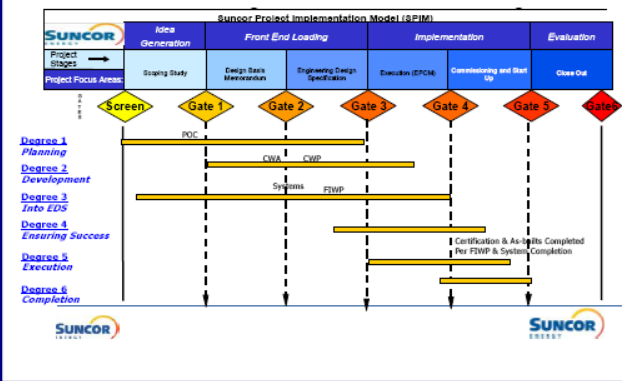
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When Are We Doing WorkFace Planning



Project Implementation

Front End Planning

- Path of Construction
- CWPs
- WorkFace Planning Contract Language for Engineering and Construction
- Support Contractor development of FIWPs before mobilization to ensure templates are complete and a realistic backlog is created
- Tracking log (ensure their system supports FIWP tracking and reporting)

Project Implementation

Engineering

- WorkFace Planning Contract language
- Participate in integrative/participative planning and drive the path of construction with engineering
- Ensure Path of Construction is communicated to Engineering and the EWP Schedule reflects the Path of Construction

Procurement/Material Management

- Participate in integrative/participative planning and drive the path of construction with procurement
- Ensure procurement plan is also in line with the Path of construction
- Ensure materials management understands WorkFace Planning and releases bagged and tagged items according to the FIWP schedule

Project Implementation

Project Controls

- Tracking by FIWP
- Progressing by FIWP
- Paying by FIWP

Before contractor mobilization to site to check:

- Their WorkFace Plan
- Their FIWP template and backlog
- Number of Planners
- Planners experience
- Constructor CMTs understanding of WFP
- Supporting roles, Scaffold, Material and Equipment Coordinators
- Audit Constructor, Engineer and Project Team

KEY Lessons Learned

- Owner must change and or develop processes that support WorkFace Planning BEFORE projects start
- Not only must the field level process of WorkFace Planning be implemented correctly but ALL project support services must understand and do their part to support the success of WorkFace Planning
- Training for all project personnel
- Training for all support functions

COAA Update – Who was missing?

OLD MODEL

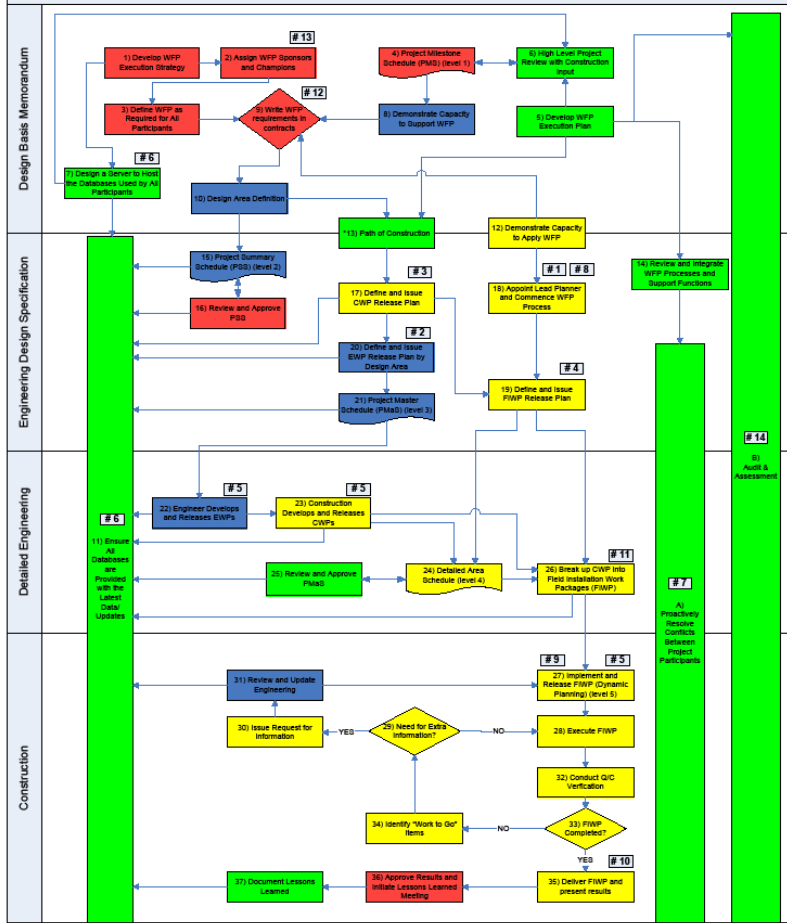
- Owner
- Construction Management
- Engineering
- Construction Contractor

NEW MODEL

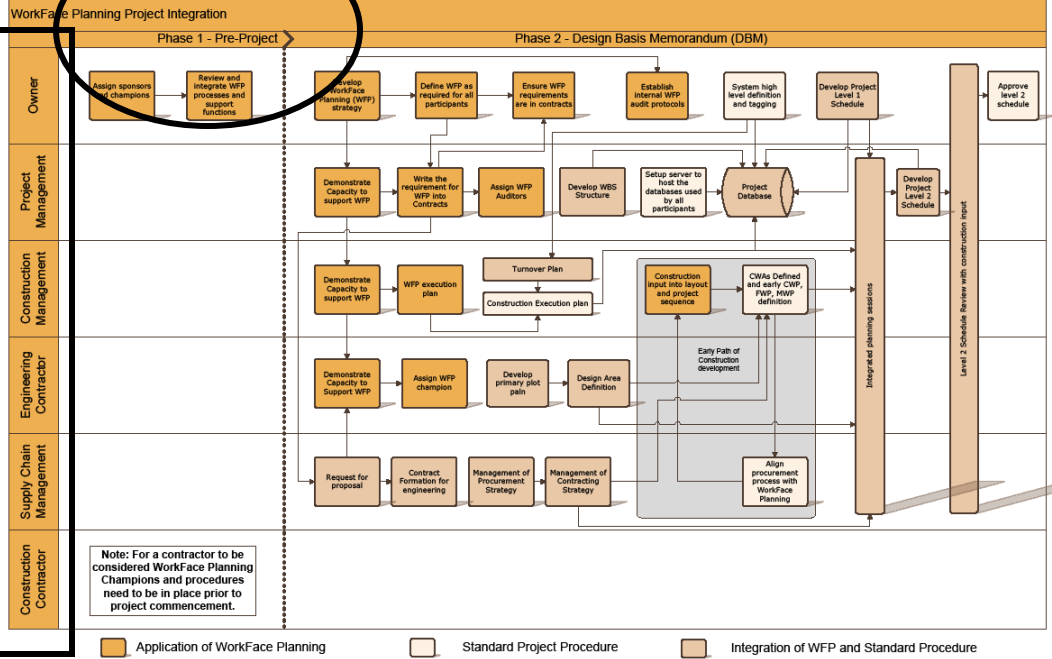
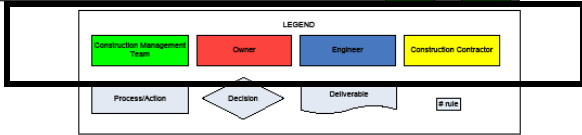
- Owner
 - Operations
- Project Management
 - Project Controls
 - Document Control
- Construction Management
- Engineering
- Supply Chain
 - Contracts
 - Materials Management
 - Procurement
- Construction Contractor

WorkFace Planning Flowchart:
An Example of the Processes that are Involved in WorkFace Planning

Contract is Cost Reimbursable



*13) Path of Construction activities are led by the Construction Management Team and involves the Construction Contractor, Owner and Engineer. This means the Construction Contractor is engaged in late CD/Early EOI. In the absence of the Construction Contractor the Construction Management Team will take his role.



Group Activity

What if.....

- Project Controls was not involved in or aware of WFP?
- Engineering doesn't know what the Path of Construction is and how it impacts construction execution?
- Document Control doesn't know what an FIWP is or who needs what information to complete one?
- Contracts doesn't know what WFP is or what the requirements are for Engineering or Construction Contractors?
- Supply Chain Materials Management doesn't know how to bag and tag by FIWP?
- IT didn't know you what WFP software was?

Groups

1	Information Technology
2	Project Management
3	Project Controls
4	Materials Management
5	Contracts
6	Engineering
7	Document Control
8	Owner

Objective

- Top 3 consequences of your group not being aware of WorkFace Planning...What if?
- Share with the rest of the groups
- You have 10 minutes.



What's Next for Suncor?

- A Task Force
 - to make sure we “connect” to all the stakeholders and support functions
 - to ensure we have a common understanding and commitment
 - to scope what process changes are required
 - to action an implementation plan that will effectively implement WorkFace Planning into Suncor processes, standards and procedures to reflect our unique owner needs and clearly define integration requirements, roles and responsibilities, procedures, process training and metrics.

Partial Commitment



Partial Results

Thank You!