



# Introduction to Environmental Project Management

## Part 1 – Pre Tender

Presented by: Jim Taylor, P. Eng.  
Date: October 2, 2014  
Location: Best Western Nor'Wester

# Presentation Content

- Introduction to Project Management
- Common steps in a project
- PMI/PMBOK – 5 processes
  - Initiating
  - Planning
- PMI/PMBOK – 10 Knowledge Areas

# Introduction

- PMI ( <http://www.pmi.org/> )
  - Project Management Institute
  - Certification body
- PMP ( <http://www.pmi.org/Certification/Project-Management-Professional-PMP.aspx> )
  - Project Management Professional
  - Certification process
- PMBOK ( <http://marketplace.pmi.org/Pages/ProductDetail.aspx?GMProduct=00101388701> )
  - Project Management Body of Knowledge
  - Provides knowledge for basis of certification

# Introduction

- Plan to Plan
- Concept of a Project
- 5 W's & How
- Apply to this conference
- Triple constraint
  - Time & Scope & Cost
- Plan > Do > Check > Act



# Common Steps in a Project

- Identify/Initiate project – Owner/Proponent
- *Perform feasibility study - Consultant*
  - *Approve study recommendations*
- Perform design - Consultant
- Tender - Consultant
- Construct - Contractor
- Close out project – Owner/Proponent

# PMBOK 5 Processes

- Experts in project management have identified 5 major processes that assist delivering a successful project.
  - Initiating
  - Planning

---

  - Executing
  - Monitoring and Controlling
  - Closing

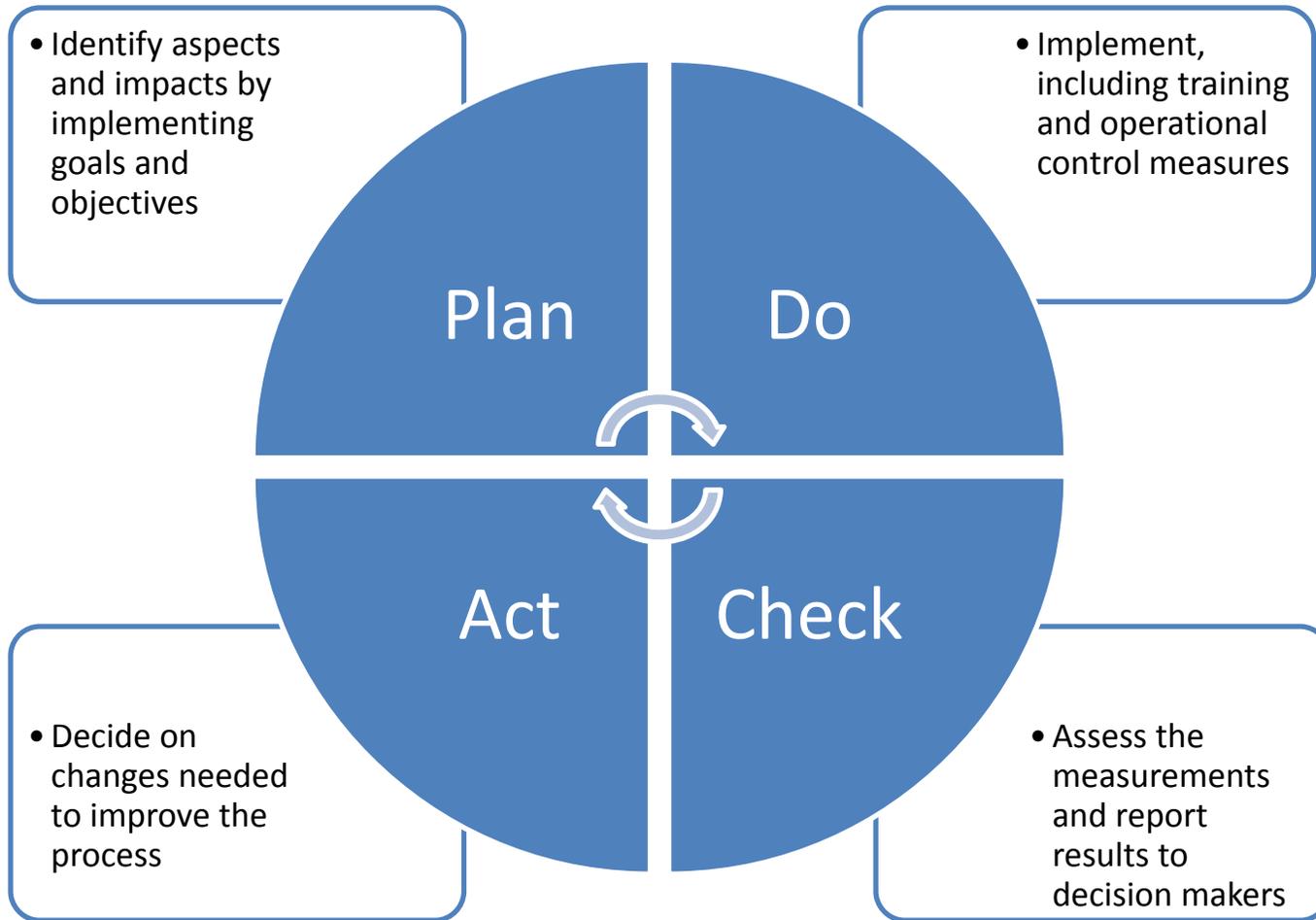
# 5 Processes - Initiating

- Using 2 knowledge areas
  - Project Charter
    - From previous: 5 W's and How
    - Authorizes the existence of project and PM to use organizational resources
    - sets out constraints – completion deadline, budget, resources
  - Identify Stakeholders
    - Very important
    - Direct (client, users, investors) and
    - Indirect (neighbours, authorities, environmentalists)

# 5 Processes - Planning

- Includes all [10 knowledge](#) areas
- Critical activity
  - “no planning is a plan to fail”
  - “Plan the work” concept
- Deal with 5 W’s and How
- Lets deal with this conference
  - Organizers have spent months and used professional conference planners, but:  
When?, Where?, Who?, Why? and What?

# Plan Do Check Act



# 10 Knowledge Areas

1. Integration Management
2. Scope management
3. Time Management
4. Cost Management
5. Quality Management
6. Human Resource Management
7. Communications Management
8. Risk Management
9. Procurement Management
10. Stakeholder Management ([Return](#))

# 10 Knowledge Areas – Project Integration Management

- A complex area of knowledge
  - Integrates all the other knowledge areas
  - Allows the PM to manage their knowledge resulting in a successful project
  - Applies the PM's knowledge to all 5 process areas
    - Initiating – develop the Project Charter
    - Planning – develop the Project Management Plan

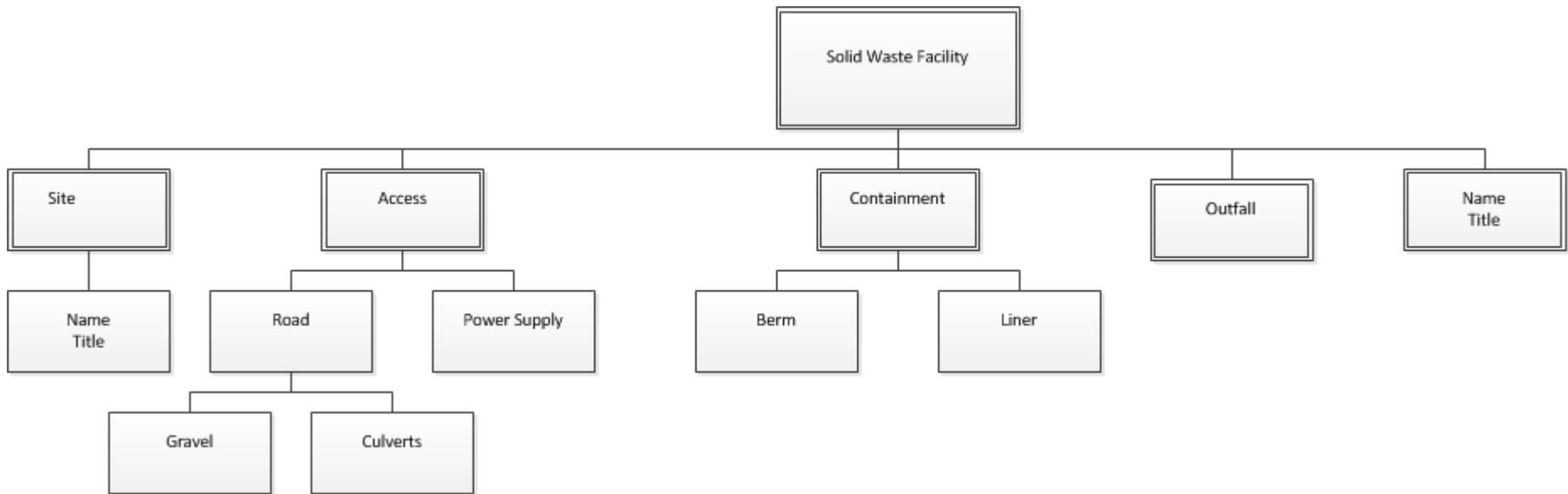
# 10 Knowledge Areas – Project Scope Management

- Collect and understand the project requirements
  - Focus groups, workshops, surveys, observations
- Define the scope
  - What the project consists of
  - What is involved to create the project
  - What is expected when complete
- Prepare Scope Statement
  - May include what is not in the project
  - Owner sign off on scope

# 10 Knowledge Areas – Project Scope Management

- Create a “work breakdown structure” – WBS
  - Major **deliverables** broken into smaller **deliverables**
  - Be cautious about size of deliverables
  - Hard to keep “activities” out of deliverables
- Can use project management software such as MS Project

# 10 Knowledge Areas – Project Scope Management (WBS)



# 10 Knowledge Areas – Project Time Management

- Planning Process
  - Define activities
    - Based on WBS
    - Consider the level of detail / time required
    - Recognize major milestones
  - Sequence activities
    - Foundation before walls before roof
  - Identify resources to carry out each activity
  - Estimate time required to complete each activity
  - Develop a schedule – baseline schedule

File Task Resource Project View Add-Ins Acrobat Format

Clipboard: Paste, Copy, Format Painter

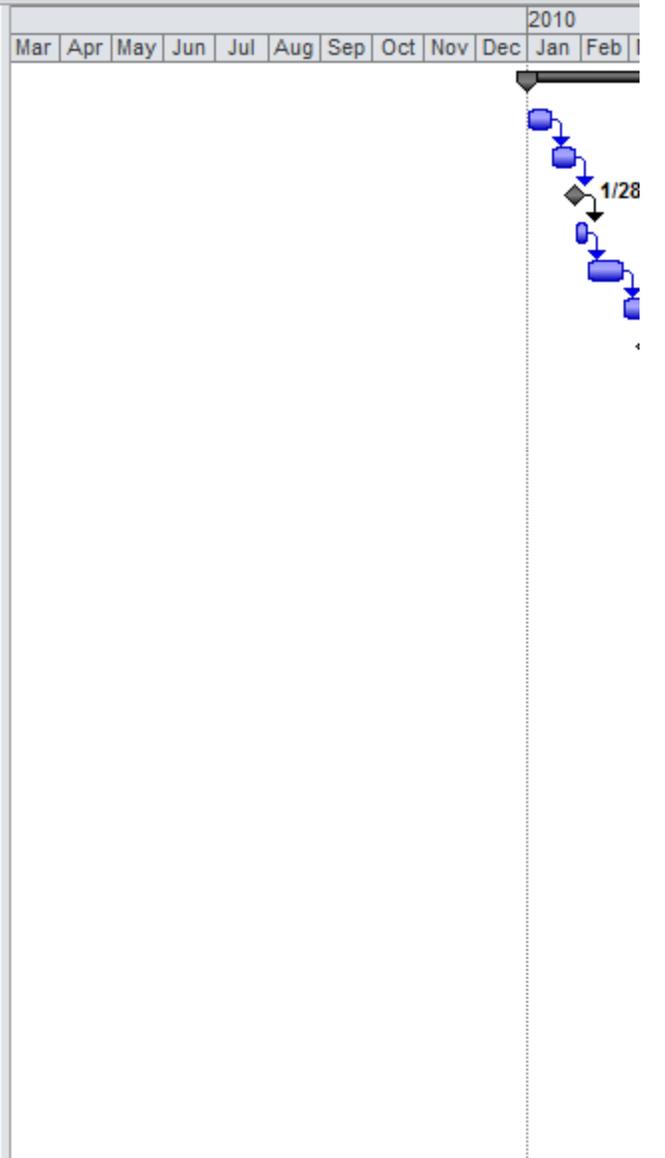
Font: Arial, 8, Bold, Italic, Underline, Color, Background Color

Schedule: 0%, 25%, 50%, 75%, 100%, Mark on Track, Respect Links

Tasks: Manually Schedule, Auto Schedule, Inspect, Move, Mode

Insert: Task, Summary M

	Task Name	Duration	Start	Finish	Predecessors
1	<b>Feasibility / Planning Study</b>	170 days	Fri 1/1/10	Thu 8/26/10	
2	Prepare consultant T of R	10 days	Fri 1/1/10	Thu 1/14/10	
3	INAC T of R review	10 days	Fri 1/15/10	Thu 1/28/10	2
4	Approved T of R	0 days	Thu 1/28/10	Thu 1/28/10	3
5	Call for consultant proposals	5 days	Fri 1/29/10	Thu 2/4/10	4
6	Consultant proposals prepared and submitted	15 days	Fri 2/5/10	Thu 2/25/10	5
7	Evaluate consultant proposals	10 days	Fri 2/26/10	Thu 3/11/10	6
8	Award consultant contract	0 days	Thu 3/11/10	Thu 3/11/10	7
9	Field soils and survey work	15 days	Fri 3/12/10	Thu 4/1/10	8
10	Prepare interim report and submit	20 days	Fri 4/2/10	Thu 4/29/10	9
11	INAC review of interim report	10 days	Fri 4/30/10	Thu 5/13/10	10
12	Prepare draft final report and submit	20 days	Fri 5/14/10	Thu 6/10/10	11
13	<b>Federal Reviews of Draft Final Report</b>	15 days	Fri 6/11/10	Thu 7/1/10	12
14	Health Canada	10 days	Fri 6/11/10	Thu 6/24/10	
15	Environment Canada	10 days	Fri 6/11/10	Thu 6/24/10	
16	Other departments (HRSDC)	10 days	Fri 6/11/10	Thu 6/24/10	
17	INAC	15 days	Fri 6/11/10	Thu 7/1/10	
18	<b>Provincial reviews of Draft Final Report</b>	10 days	Fri 7/2/10	Thu 7/15/10	17
19	MOE	10 days	Fri 7/2/10	Thu 7/15/10	
20	MNR	10 days	Fri 7/2/10	Thu 7/15/10	
21	Prepare final report and submit	5 days	Fri 7/16/10	Thu 7/22/10	18
22	First Nation acceptance of report by BCR	5 days	Fri 7/23/10	Thu 7/29/10	21
23	INAC acceptance of final report	10 days	Fri 7/30/10	Thu 8/12/10	22
24	INAC and First Nation consensus on phasing and pr	10 days	Fri 8/13/10	Thu 8/26/10	23
25	Final Acceptance of Study	0 days	Thu 8/26/10	Thu 8/26/10	24
26	<b>Design Phase Approval</b>	50 days	Fri 8/27/10	Thu 11/4/10	1
27	Prepare PPA submission	15 days	Fri 8/27/10	Thu 9/16/10	25
28	Submission to INAC	5 days	Fri 9/17/10	Thu 9/23/10	27
29	INAC PPA submission review	15 days	Fri 9/24/10	Thu 10/14/10	28



Gantt Chart

# 10 Knowledge Areas – Project Cost Management

- During Planning
  - Estimate the costs - consider
    - Direct – equipment, labour, fuel
    - Indirect – rent, phone
    - Fixed - mobilization
    - Variable – measured quantities
  - Determine the budget
    - Sum of above for all project deliverables
    - Add contingency (10%)
    - Class A, B, C and D in AANDC projects
  - Life Cycle Cost – includes estimate of operating cost

# 10 Knowledge Areas – Project Quality Management

- You “get what you pay for”
  - e.g.: Wastewater treatment
    - Primary treatment vs Secondary vs Tertiary
    - Basic vs medium vs high quality treatment
  - Car example? Other examples
- During Planning
  - Develop a quality management plan
  - Quality metrics, checklists
  - Process improvement plan

# 10 Knowledge Areas – Project Human Resource Management

- You need the right team
- Planning
  - Develop an HR plan
    - What people do you need to carry out the activities from your schedule?
    - How many people?
    - Where will they operate from?
    - Internal or external to your firm?
    - Rewards?

# 10 Knowledge Areas – Project Communications Management

- Often overlooked but so important
- Types
  - Formal
    - Legal, official presentations
  - Internal – to team
  - External – to customer, media, public
  - Official – newsletters, annual reports, submissions
  - Unofficial
  - Verbal vs non verbal

# 10 Knowledge Areas – Project Communications Management

- Identify stakeholders – all stakeholders
  - Also discussed in stakeholder management
  - Register of stakeholders
  - How will you manage the stakeholders?
    - How do you report to a Chief? AANDC? A trapper?

They all require different levels of information.
- You do need to plan communications
  - Develop a plan
  - Allow for document updates
    - Static website is not good

# 10 Knowledge Areas – Project Risk Management

- During planning
  - Identify risks
    - Weather, funding, deaths, spill
  - Perform analysis to evaluate the level of risk
    - Surface water supply – what are some risks?
  - Plan risk responses
    - What do you do if a spill occurs in your watershed?
      - Fuel truck flips into lake – shut down intake? Are you ready for this?

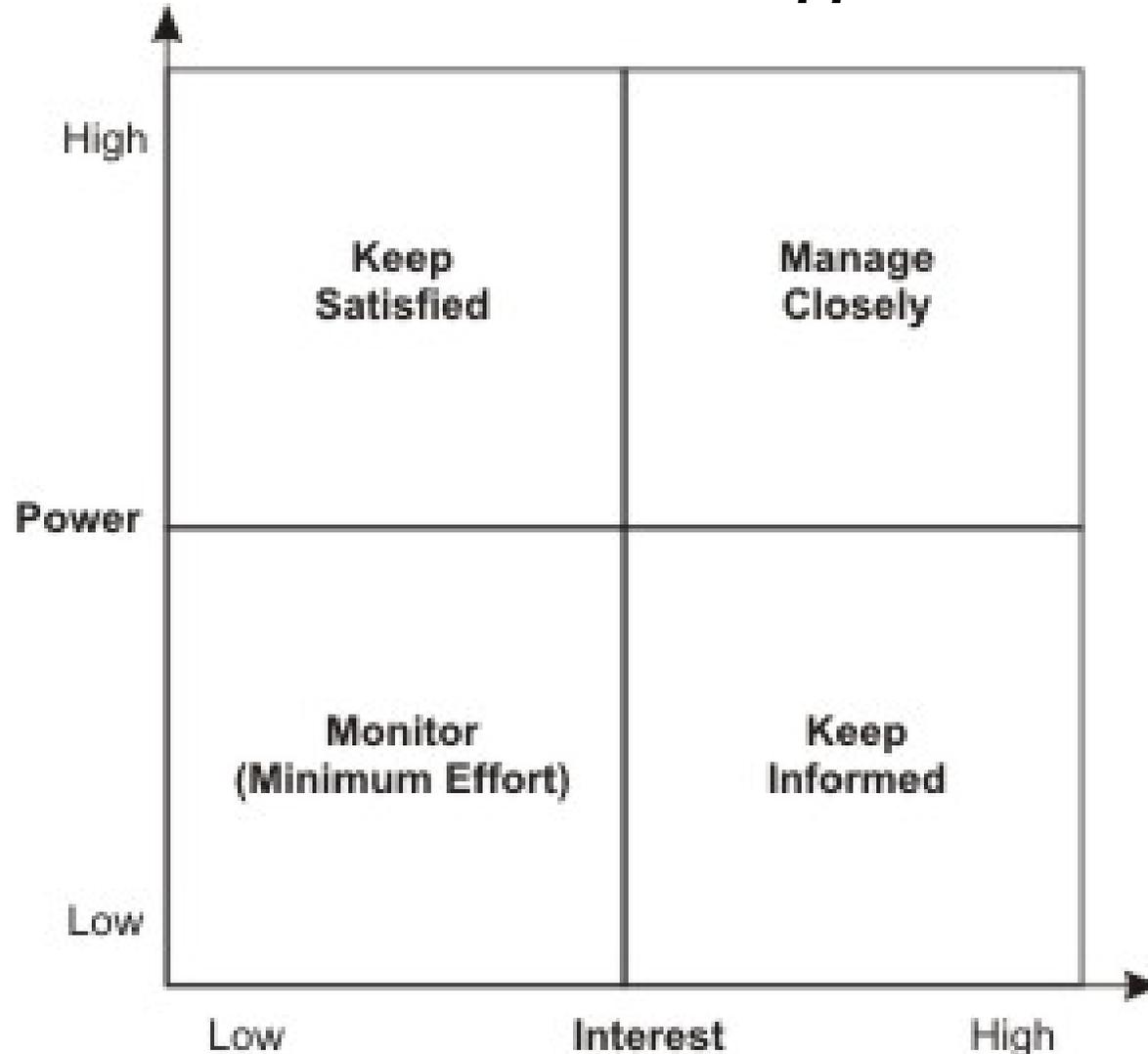
# 10 Knowledge Areas – Project Procurement Management

- Necessary during planning
  - Do you make or buy?
    - Easy – make or buy a pump? Probably buy.
    - Hard – make or buy the liner of a lagoon?
    - Hard – make or buy concrete?
  - Do you perform the work or sub contract the work?
    - Consider the use of subject matter experts, construction expertise.
- Prepare procurement documents
- AANDC tendering policy

# 10 Knowledge Areas – Project Stakeholder Management

- New knowledge area
  - Such and important item
  - Has caused “failures” of projects
  - Thunder Bay wind farm project
- Identify stakeholders
  - People groups or organizations the could impact or be impacted by a decision, activity or outcome of a project

# 10 Knowledge Areas – Project Stakeholder Management



# Summary

- Pre tender activities:
  - Initiate the project
  - Plan the project, plan the project
    - “Failing to plan” is like “Planning to fail”
    - This conference is going well. It was planned over many months.
    - What? Who? When? Why? Where?
    - How?

# Closing

## Questions?

## Comments

Jim Taylor, P. Eng.

Senior Engineer, OFNTSC

[jtaylor@ofntsc.org](mailto:jtaylor@ofntsc.org)

Phone: 807-623-9595 (w) and 807-628-2309 (c)