

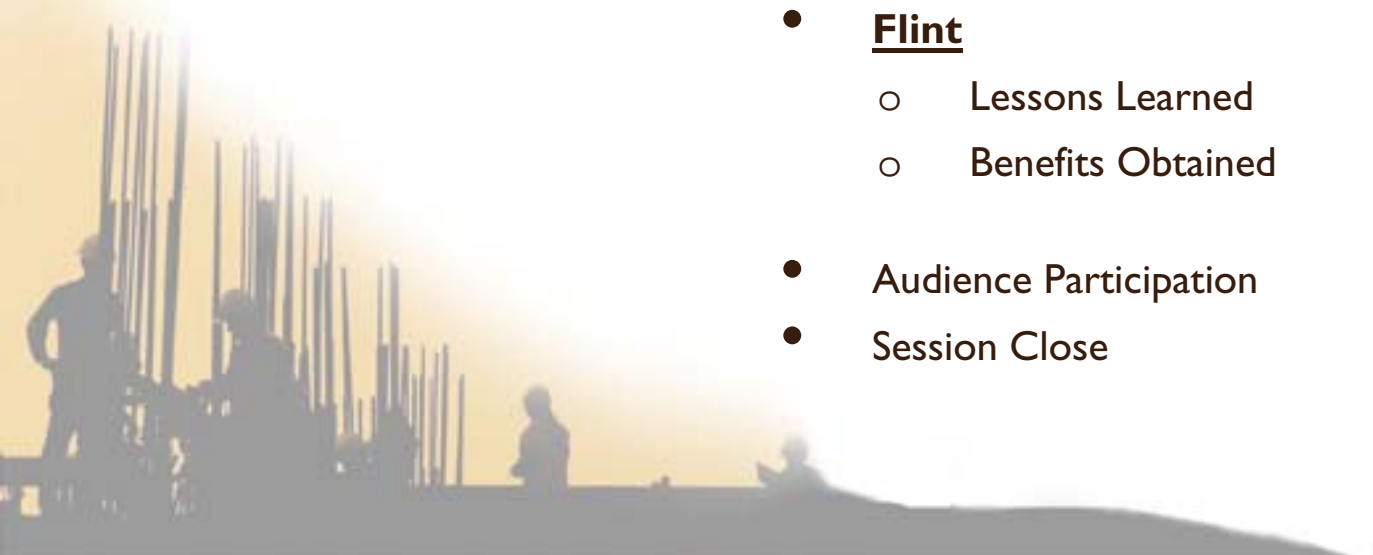


Lessons Learned and Benefits Obtained



Session Format

- **COAA**
 - Lessons Learned
 - Benefits Obtained
- **Kiewit**
 - Lessons Learned
 - Benefits Obtained
- **Jacobs**
 - Lessons Learned
 - Benefits Obtained
- **Flint**
 - Lessons Learned
 - Benefits Obtained
- Audience Participation
- Session Close





Introduction of Topic and Panel

Topic: Lessons Learned and Benefits Obtained

- **Facilitator**
 - Lloyd Rankin, Facilitator, ASI
- **Panel**
 - Theresa Hewitt, EPC Manager, Kiewit
 - Jim Craig, Director of Construction Operations, Jacobs
 - Darrell Coughlin, General Manager, Construction and Planning, Flint



Kiewit

JACOBS™

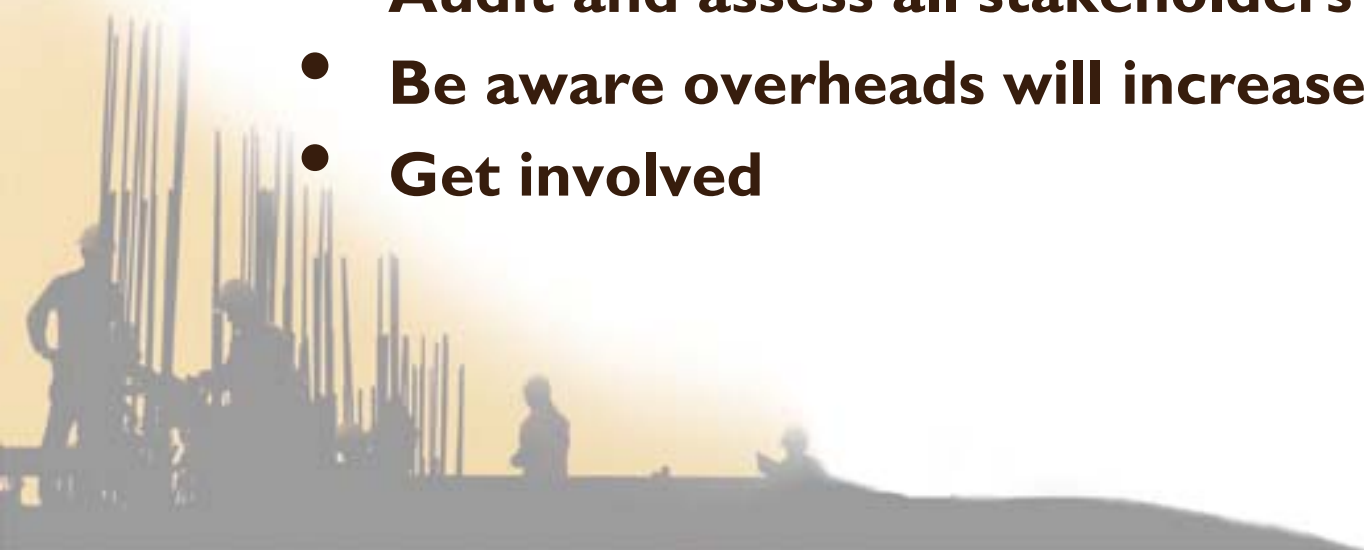


Lessons Learned

WFP initiatives need to be driven by the owner.

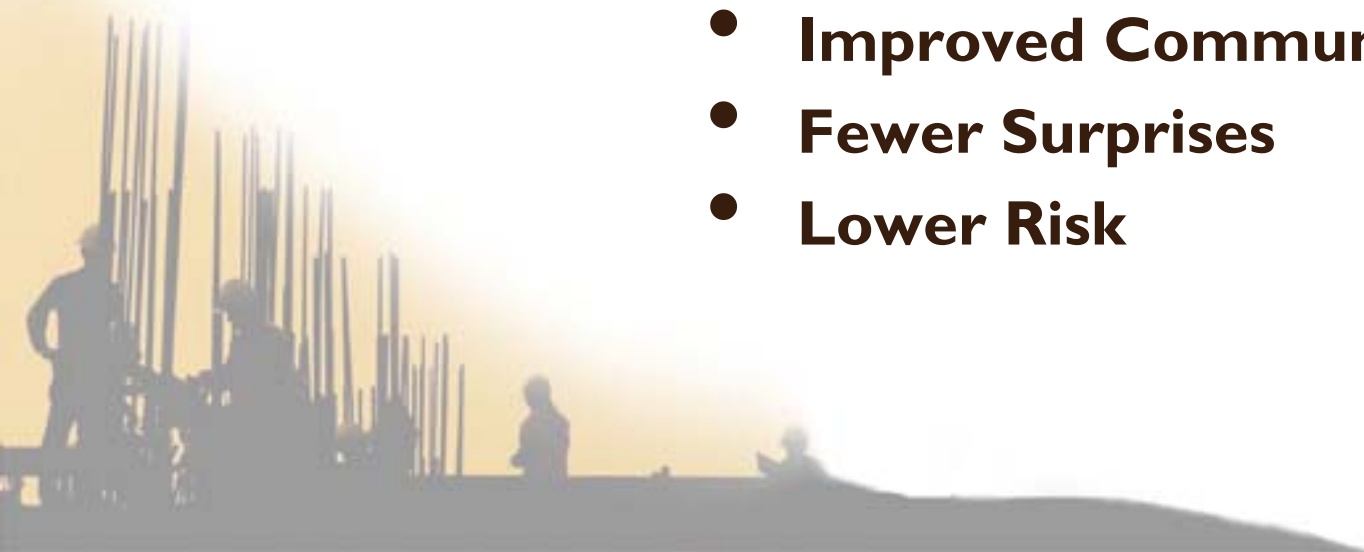
They need to:

- **Start early**
- **Assign a WFP Sponsor and Champion**
- **Understand what WFP is**
- **Assign clear deliverables to your contractors**
- **Audit and assess all stakeholders**
- **Be aware overheads will increase**
- **Get involved**



Benefits Obtained

- **Greater Productivity**
- **Greater Predictability**
- **More Reliable Progressing**
- **More Trust**
- **Less Rework**
- **Better Quality**
- **Shorter Punch-lists**
- **Improved Communication**
- **Fewer Surprises**
- **Lower Risk**



Lessons Learned: Kiewit

Set-up for successful WFP:

- ✓ **Early alignment between contractor, owner and engineer on roles and expectations for deliverables**
- ✓ **Construction drives breakdown of work areas**
- ✓ **Construction to develop a scoping document – communicate expectations**
- ✓ **Engineering allocates drawings against the CWP's in their progressing system**
- ✓ **Find a way to schedule engineering to release by CWP**
- ✓ **Method of knowing engineering % complete by CWP**

Execution of WFP:

- ✓ **Build WFP cycle into the project schedule**
- ✓ **Tailor the FIWP template by discipline**
- ✓ **Keep template simple – only include what you need to execute the work**
- ✓ **Get buy-in from General Superintendents and Construction Managers**
- ✓ **Plan in the engineers office – before going to site**
- ✓ **Plan FIWP documents for turnover – cross reference to system**
- ✓ **Sign off the FIWPs as you go – not all just before turnover**

Benefits Obtained: Kiewit

Execution of WFP:

- ✓ **WFP on all projects – even if not client mandated**
- ✓ **WFP can be applied to all work – all trades**
- ✓ **Scaffold**
- ✓ **Prep for heavy lift / module setting**
- ✓ **Material requirements are identified – minimize emergency orders**
- ✓ **Model shots give crews real visualization of the work**
- ✓ **Sets up for consistency/organization during turnarounds**
- ✓ **Work package updates make change management visible**

Lessons Learned: Jacobs

- ✓ **IT WORKS!**
- ✓ **Implement WFP orientation and education on future projects**
- ✓ **Include WFP checklist in construction readiness review**
- ✓ **Implement WFP during Phase I (FEED)**
- ✓ **Package design / procurement to match construction plan**
- ✓ **IFC drawings and material must support workface plans and FIWP sequence and Schedule**

Lessons Learned: Jacobs

- ✓ **First pass at FIWP complete prior to mobilization**
- ✓ **Implement WFP for all Craft (not just pipe/structural)**
- ✓ **Require workface planning in primary sub-contracts**
- ✓ **Revise work processes around material management systems' updates**
- ✓ **Integrate WFP into weekly Schedule meetings**

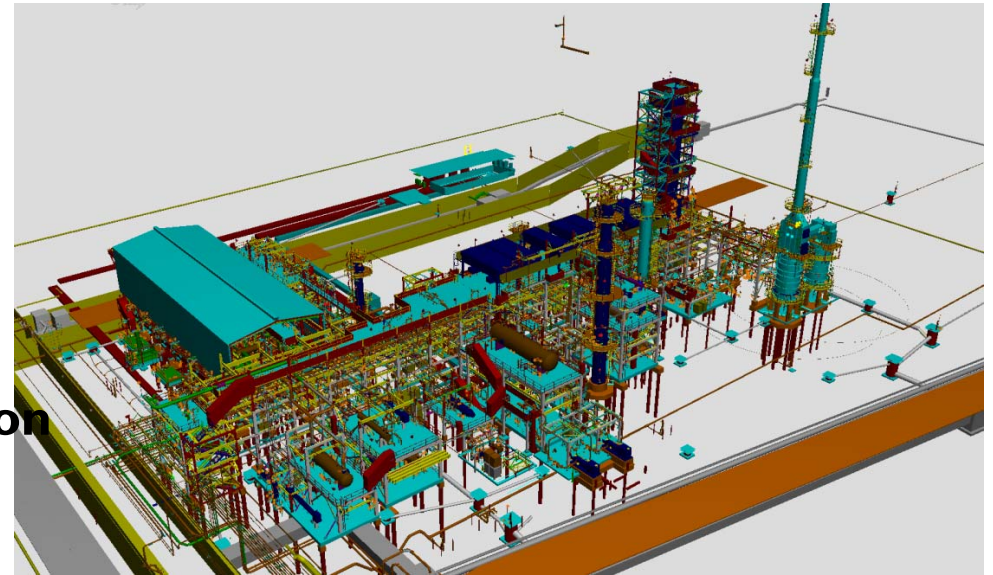
Benefits Obtained: Jacobs

- ✓ **Discipline Work Package Templates**
- ✓ **Standard work process**
- ✓ **Verified 100% material availability**
- ✓ **Increased productivity**
- ✓ **Early allocation of support craft**
- ✓ **Increased Scaffolding and Equipment utilization**
- ✓ **Synchronization with schedule**
- ✓ **Maintain critical path**
- ✓ **Controlled issuance of work**
- ✓ **Stay on schedule**

Bottom Line – Improved Productivity & Workforce Utilization

Sample Project: Jacobs

- ✓ **TRIR .21**
- ✓ **Productivity factor 11% better than budget**
- ✓ **Cost below budget +/- 10%**
- ✓ **Rework < 2%, < 0.5% on construction**
- ✓ **Beat original schedule**



Lessons Learned: Flint

- ✓ **Need clear scoping narrative for estimating group and sub-contracts.**
- ✓ **Construction needs clear understanding of their role as it pertains to **WorkFace Planning****
- ✓ **Need a backlog of FIWPs before ever going to the field to start construction (always seem to go to early)**
- ✓ **Better communication between fab/mod and the site (**RAS Dates**)**
- ✓ **Daily productivity reports help keep the superintendents and construction manager on top of what is happening and any recovery required.**
- ✓ **Involve quality in the planning process.**

Lessons Learned: Flint

- ✓ **The sooner you start to plan the work the more benefits will be realized (involve Work Face Planning / Construction and Operations as early as possible)**
- ✓ **Need to develop the release plan both EWP and FIWP early (Once the equipment is identified and the areas plotted a EWP list can be built, from here break the EWP's into FIWP's)**
- ✓ **Size of the work package is not as important as the content, need to cut scope where it makes the most sense. (As long as the package is by Foreman.)**
- ✓ **Need good scoping narrative, make the scope clearly understood (Use plan view to identify scope location.)**
- ✓ **The more detailed the Construction Schedule is the easier it is to forecast completion.**

Benefits Obtained: Flint

- ✓ **WorkFace Planning early involvement gives the ability to affect constructability and timely procurement**
- ✓ **Detailed level 5/6 plan gave us the ability to forecast finish dates with accuracy.**
- ✓ **Daily productivity reporting gives construction management confidence in finish dates. Allows timely reacting to items that are lagging**
- ✓ **Proper scoping narratives for subs gives cleaner request for quote responses.**
- ✓ **Detailed planning lead to easier turnover to client (painless!)**

Benefits Obtained: Flint

- ✓ **Level 5/6 plan (detailed plan) leads to better cost control – no over-runs.**
- ✓ **Morale on job is much higher leading to a happy/productive work force.**
- ✓ **Quality and Construction worked together as a unit towards a common goal. (Planning for turnover starts when planning starts!)**
- ✓ **Cutting the scope in the proper place leads to smoother work flow.**
- ✓ **Productivity Improvement.**
- ✓ **Work Face Planning works on all sizes of jobs...the key is to be planned and have all your deliverables in place prior to execution!**

AUDIENCE FEEDBACK

NOTE: The information collected is anonymous and may be used for research purposes. By participating, you are giving your consent for the use of this data.



Audience Participation

- I. **Based on your experience, what is the expected % improvement in labour productivity an effective WorkFace Planning System will provide?**
 - a) **Less than zero**
 - b) **0 to 10%**
 - c) **10 to 20%**
 - d) **20 to 30%**
 - e) **More than 30%**
 - f) **Can't comment**





Audience Participation

2. Does your organization use WorkFace Planning?
 - a) Yes
 - b) No



Audience Participation

3. **Who should the primary driver for WorkFace Planning be?**
- a) **Owner**
 - b) **Construction Contractor**
 - c) **Engineering Contractor**
 - d) **Don't know**



Audience Participation

4. **Do you believe projects should be construction-driven?**
 - a) **Yes**
 - b) **No**



Audience Participation

5. **Is there enough time provided to effectively implement WorkFace Planning?**
 - a) **Yes**
 - b) **No**





Closing Comments

- **The presentation slides and voting results will be posted on the **COAA** website following the conference**
- **Please take a minute to evaluate our session**
- **Thank you for attending this session**
- **If you have any questions please talk to our panel after the session**

