EXHIBIT N - Lean Production Planning System and Innovation

Turner is implementing an improved Production Planning System as well as other Innovations on the Great Wolf Lodge Project.

Production Planning and Control Systems

Turner will be using the Last Planner Planning System (LPPS) combined with Flowline Planning for improving the level of coordination, planning, and managing of the work on this project.

We seek collaboration and buy-in from all trades to create a detailed production plan to reach each phase's milestone. We will work together to develop a production plan so all trades may maximize their productivity.

Maximum productivity is achieved by increasing the reliability of task completions, and improving look ahead planning to remove constraints. We focus the team members' attention on collaborating to make a specific production plan to perform the work and reach the next contract milestone. Supervisors on projects using LPPS + Flowline Planning report (or similar software) that they spend much less time "fighting fires" and dealing with crises, allowing them to look ahead to better plan their work.

All parties shall make work that appears in the future six week rolling look ahead planning window "ready". All parties shall also coordinate specific tasks to be completed on specific days in next week's "Weekly Work Plan". The team will measure the <u>reliability*</u> of the team's production plan weekly and discuss opportunities for improving the team's reliability in the next week. *If a team promises to complete 10 tasks on specific days next week, and actually only completes 5 tasks on the dates promised, the team's planning is only 50% reliable. Sadly, 50% is the industry average and explains the fire drills we experience. We have a great team and process to improve our plan reliability.

All trades will be required to actively participate in the Production Planning System process. We require team members to make and keep commitments based on their confidence that prerequisite work, design information, materials, labor and equipment will be ready so they can start and complete installations meeting their commitments to reach milestones in the Master Project Schedule.

Each supervisor who assigns daily tasks to a crew is called a "Last Planner". Last Planners are to commit to perform work that they know can be made ready for their crews and to collaborate with the team to ensure this work can be started and completed without interruption. Last Planners must refuse to assign work they are not confident can be started and completed without interruption.

The Last Planner for your crew must be involved before you mobilize to the project in order to attend these Phase Production Planning meetings. Last Planners provide valuable input to develop a well-coordinated work plan ensuring the success for you and all other parties on the project.

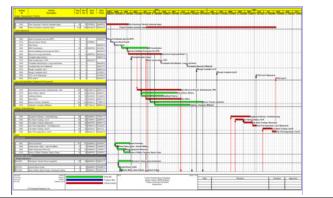
Page 1 of 10	Trade
_	Turner

A. Production Planning and Control Process:

1. First Important Step:

The bidding documents include the overall Master Project Schedule that provides an overview of the approximate timeline of your work. The specific start dates and the details to coordinate your work to reach a milestone date will be developed collaboratively about two (2) months before each phase starts.

Review and Understand Your Work In the Master Project Schedule



2. Second Important Step:

Using the Master Project Schedule & "Required On Job" (ROJ) dates, supervisors working in a phase meet to develop the work strategy & direction of flow to reach a milestone. The question they will answer at this meeting: "How will we do the work needed to reach this milestone?" and collaborate to develop their production plan for the phase.

Each sticky note represents a task & includes task description, duration, and predecessors. Data from sticky notes is entered into our Flowline Planning software and distributed to the team for review. Once reviewed and accepted, this Phase Production Plan summarizes the commitments made to reach the milestone for this phase, is the basis for the rolling six week look-ahead plan, as well as the basis for the more detailed weekly work plans.

Phase Production Planning meetings are intended to be no longer than 3 hours each and will occur at intervals of approximately 8 weeks.

The number of production planning meetings for each trade will vary depending on project duration and complexity. Mechanical, Electrical, Plumbing, Fire Protection and Framing/Drywall trades may be involved in every production planning meeting during the project. The Flooring trade may attend one or two production planning meetings.

The expectation is that supervisors of all parties working in a phase will support and value each other's time and meet to create a well coordinated work plan. Questions are always addressed and discussions about innovative ideas to improve the sequence and duration for everyone frequently occur at these meetings.

Meet to collaboratively develop a production plan for each Phase Milestone (includes designs, shop drawings, submittals, and construction tasks)



One by one, Last Planners post predecessor task tags of trades or designers, work from right to left – using the "pull mechanism". The question is: "What really allows me to start my task?" That is, "to start this task, someone must have 'Task XYZ' completed."



A group of specialists studies their Phase Production Plan.

3. Third Important Step:

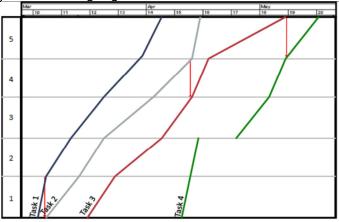
Turner enters the data planners place on sticky notes into a software which uses "location based scheduling" concepts to generate a visual graph of the flow of each trades' work through the project areas. For a reliable plan, we must level the output or capacities of adjacent trades keeping a steady cadence for smooth flow.

Options to improve flow are discussed and mutually agreed adjustments are incorporated into the team's Phase Production Plan.

The team also compares the completion date of the milestone on the Phase Production Plan with the completion date of the milestone in the Master Project Schedule. If needed the team will meet to study improvements to meet dates in the Master Project Schedule.

The team also identifies "driver tasks". These tasks' actual production indicators will be measured and used proactively to forecast and manage the fine tuning and adjustments of our work plan. We use indicators all trades use to estimate their production like, crew size, unit install rate, and durations. This step helps us increase predictability and reliability.

Input info on sticky notes in Flowline Planning or similar soft-ware; Analyze ideas to optimize the plan; Pick "driver tasks" to measure and act as performance gauges.



Work areas/locations are labeled 1-5 on the left side. Four tasks & durations from the Phase Production Plan meeting. Task 1 starts at a fast production rate in area 1, task 2 starts at a slower production rate. We collaborate to find ways for rates to be similar, so lines of tasks are more parallel to each other. This fine tunes the "cadence" or rhythm of the parade of trades for smoother flow.

The "**Driver Tasks**" for the Great Wolf Lodge will be confirmed during Phase Production Planning meetings. For bid purposes, the list of milestones will be initial driver tasks on a zone by zone or batch by batch basis:

- 1. Structural components complete
- 2. Above Ceiling Mechanical, Electrical. Plumbing (MEP) Main duct, conduit pipe rough-in complete;
- 3. Wall framing complete
- 4. In-Wall MEP rough-in complete
- 5. Drywall, Taping, Sanding complete both sides
- 6. MEP equipment/PODs set in place
- 7. Case work / cabinets anchored-accessories done.
- 8. Above Ceiling final sign-off / OK to drop clg tile
- 9. Doors and hardware done

10. Final coat of paint.

4. Fourth Important Step:

After the team studies the Phase Production Plan, sets driver tasks, the agreed upon Phase Production Plan is issued for all parties to use.

The team uses this plan to study and ensure that future work tasks are "made ready" as well as using it to generate more detailed weekly work plans.

Past project success has shown the importance of posting the Phase Production Plan in the team's meeting rooms, job site work areas, as well as where ever trade supervisors have their desk or plan table.

Issue the agreed upon Phase Production Plan

The Phase Production Plan in gantt chart format is issued to the trade partners.

Make Future Work "Ready" - Make-Ready Planning

5. Fifth Important Step

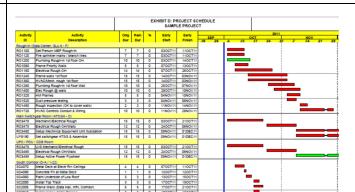
Last Planners and their Project Managers must continuously focus on making tasks out in the future rolling six weeks ready to start and finish on the dates promised in the Phase Production Plan.

"Ready" means that all information, materials, labor and other items needed to start a task are available when the task is planned to start. "Ready" means that the trade supervisor, project manager, and detailers have "built the job on paper" or built the details or assemblies virtually in the Building Information Model (BIM), shop drawings, and or built a site mock-up if appropriate to coordinate details.

Trades must identify any constraints or roadblocks in future weeks 5 and 6. When constraints are found, notify Turner's Superintendent Or Project Engineer immediately. Turner will get a promise from the person responsible to remove the constraint by the date needed.

Trades must also look at future weeks 2 through 4 to alert Turner if any new constraints or roadblocks have arisen since they last looked at these tasks in previous weeks.

Looking ahead and making future work "ready" reduces the fire - drills we frequently experience on jobs. It helps the flow of work be more reliable and predictable, and gives everyone a higher level of



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confidence that they can keep a large crew on site working efficiently and effectively.

Turn	er		Update Date:								
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Constraint Ac	ctivity	Constraint	Desci	ription	RFI No.	Responsible Person	Responsible Company	Date Identified	Date Need Resolution	Date Resolution Promised	Actual Date Resolved
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6. Sixth Important Step

Every Tuesday by noon, the last planner - (site supervisor) of each trade who will work on site next week must generate a Draft Weekly Work Plan for that upcoming week. The Weekly Work Plan should draw heavily on those tasks identified in the Phase Production Plan, adding details where necessary.

The Draft Weekly Work Plan is a commitment by each trade for the tasks that will be performed in the coming week. The weekly work plan shall include, at a minimum, a detailed description of each task to be performed, the days on which each task will be performed, the location in which each task will be performed and the planned crew size for each task.

Each week, the trades must also identify a few tasks in case their work goes faster, or someone is delayed slightly. These tasks are called "workable backlog" or a "My Plan B". These are additional tasks that are not "promised" for next week. If these extra tasks are "ready", they may be performed without impacting other trades work plans / zones.

If all of the "promised" or planned tasks are done early or a team can not start their primary planned tasks, these tasks allow each trade to remain on site and be productive if our plan is not 100% on-track.

The quality of the supervisors' planning efforts, the drafting of a weekly work plan, and coordination of the details with others are at the heart of improving the reliability of our plan.

Weekly work plans will be submitted using the format as distributed by Turner. Two methods will

Trades' Supervisors Make a detailed work plan & Draft a Weekly Work Plan for next week's work:

We have two methods for your Supervisor to create your work plan in a Turner WWP template:

A. Filling out a hard copy blank WWP - hand printing info - keep original and submit a copy to Turner;

OR

B. Filling out the WWP by keying in the planning data in the digital WWP template available on Turner's computer at the field office plan table or at Turner's computers at the job site plan kiosks.

Either method is acceptable as long as the trade's job site supervisor is the person developing the detailed plan.

Option A: hand print plan

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Option B: Enter Your Plan into Turner template

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be available - filling out a hard copy by hand, OR filling out the WWP by keying in the data in the digital WWP template available in the field office plan table computer and at computers at job site kiosks/plan tables. Either way is acceptable as long as the trade's job site supervisor is the person making the detailed plan.

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7. Seventh Important Step

Turner collects the weekly work plans on Tuesday at noon from all trades working next week, makes a copy of each and gives all draft WWP's to each trade (jobsite mailbox and e-mail to trades' office).

Each Last Planner must review their peers' WWP's and discuss any issues or seek clarification with them about next week's work. What ideas do you have to make your tasks safer, simpler? How might this help other trades? Communicate, collaborate!

The expectation is that the Last Planners discuss their WWP's prior to the Thursday Weekly Production Planning meeting such that more detailed coordinated actions and innovations may be developed and brought to discuss at this meeting.

8. Eighth Important Step

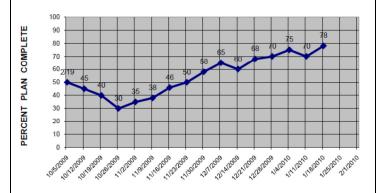
Trades' Last Planners shall participate in Thursday's Weekly Production Planning meetings. When each person comes prepared, these meetings last about 60 minutes, sometimes less. Sometimes specific project issues that may impact the project may be discussed and resolved to closure.

The team will be asked if an additional 30 minutes can be added after a short break, or asked to suggest an alternate time later in the day for this issue.

Trades shall bring a hard copy of their 6 week Lookahead Plan 11X17 with any new constraints noted / red-lined, and a copy of their Draft Weekly Work Plan- 8.5 X 11.

Trades Review Peers' Draft Weekly Work Plans(wwp's)

When we communicate we are planning and the result is more reliable production plans, higher PPC.



Attend Thursday Coordination Meeting to Develop **Final** Weekly Work Plan for Next Week.

Any adjustments made to Draft Weekly Work Plans are agreed to in the meeting. A "Final Weekly Work Plan will be issued and posted after the meeting.

All parties must actively participate in coordinating work with each other with facilitation, coordination, and direction of Turner's Superintendent.

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The focus of this meeting is to fine-tune next week's plan. You have seen your peers' plan and discussed improvement ideas or concerns with them. Tasks are reviewed to the level of detail needed for each person to have confidence they will complete tasks on the date promised. Then others can reliably start their follow-on tasks. Turner helps clarify the work zones occupied by each trade, the requirements of the work and considers innovative ideas that benefit the project. Turner helps coordinate the work so work flows safely, smoothly, and reliably.

9. Ninth Important Step

Follow the Final Weekly Work Plan and ask for help as soon as you see issues arise. For each trade to finish as promised, all parties must collaborate and help other trades with minor adjustments to our work plans.

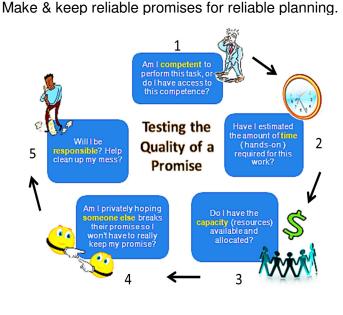
Industry research reports that only *54% of promised completions actually occur on the day promised in the planning meetings. * "Percent Plan Complete" (PPC)

The Last Planner Planning System + Flowline Planning have helped teams quickly reach 70%, 80%, and, over time, 100% plan reliability each week. Together we can achieve 90 Percent Plan Complete (PPC), and frequently reach 100 PPC.

It may seem impossible to have reliable hand-offs every day. We will gladly refer you to peers who have had success following these processes. It requires an open mind and willingness to help others with detailed planning which helps everyone.

10. Tenth Important Step

Do the Work According to the team's Final Weekly Work Plan - complete your work as promised.



Last Planners attend a "Daily Huddle" for detailed coordination; and learn how to improve.

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On a daily basis, Last Planners shall record actual crew size on their Weekly Work Plan Sheets. This information will be reported to the team in an approximately 15 minute "Daily Huddle".

This "Daily Huddle" is a short stand-up meeting in the work area <u>ONLY</u> to ask: *Are the tasks promised to be complete today done? Yes or no?*

If a task promised that day will <u>not</u> be completed, Last Planners of the impacted trades will work out a short recovery plan seeking to catch up and if possible complete the missed task by 9AM the next day. Daily recovery ensures other trades start their tasks as close to the promised date as possible.

IF a "driver task" was to be completed on a given day, that trade will note the actual production indicator data on their Weekly Work Plan and share this data with the Turner Superintendent.

This process is where we measure how many of the "planned tasks" are completed as promised, measure daily and averaged weekly. "Percent Plan Complete" (PPC) is intended to foster continuous improvement so the team will continually improve the reliability & predictability of the team's work plan.



Last Planners huddle with a Turner Superintendent at a kiosk or bulletin board in the work area.

- Are tasks promised for today done? Yes? No?*
- 2. What is the actual production rate data of "driver tasks" promised for completion today?

IF "No", the impacted trades stay to brainstorm a short recovery plan and how they may use their "Plan B" tasks.

Exploit applications of lean principles!

deliveries before they are dispatched.

Call the Turner Superintendent for approval of

B. INNOVATIONS

1. Deliver materials to the job site in a quantity that is ONLY what you will install completely within 48 hours or less from delivery.

We do not have room on the site for everything to be delivered for each trade all at once. We also have very limited access to the 2nd Floor.

Use "bread truck runs" like a bread truck makes daily deliveries of fresh bread and drops off only the quantity needed or "pulled" by the customer. Deliver only materials needed and only when "pulled" by your installers

Innovators are finding it much less waste to delivery in small quantities which will get moved less, get damaged less and get installed quickly.

2. Buffer Warehouse Options

Keep in mind that your crews make money when they are actually "Installing materials". The more time they spend moving things, then the less time they are installing things. Moving is considered "Waste". Seek to minimize or eliminate waste.

Buffer warehousing is a way to ensure quality materials are ready for install. People can confirm quantity and quality, bill of materials and mark it ready for install... OR correct the kit so it really is ready for direct install in final location.

- a. Keep materials in kits (1 kit for each "batch" or work area) stage the kits in your shop.
- Stage kits in "de-certified ~20 foot ocean containers" at your shop - delivery the containers to the jobsite when Turner Superintendant allows your delivery.
- c. Stage kits on the first floor in designated areas

3. If you move it on site - it must be a "kit of

This picture is what we mean by "everything on

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parts" and be "on wheels"

Minimize material movement - minimize waste and improve productivity.

If material must move, make it easy for everyone.

Placing stretch wrapped protected materials on carts nearly eliminates the potential for damage. Nearly!

If someone must move your materials, it is easy to push it out of the way and return it to its staging area when they are done.

Study your insurance data for injuries from lifting and bending to move materials. How will carts improve this form of waste in our industry?

If carts are to be rolled easily, the floor will need to be clear of debris. A cleaner site is a safer, more productive, higher quality work zone.

Many trades first exposure to use carts met with resistance and requests for change orders for carts. We have not processed a change order as they realize the savings offset the cost of carts quickly.







This is an example of materials for one area of job all on one cart. Ensures quality before it leaves shop. Avoids damage when it is on site.

4. Overhead temporary power supply will prevent cords on the floor.

Spider boxes will be installed 6'-7' off the floor. Trades must run short task power cords and manage cords, hang cords, secure cords in a manger to reduce or eliminate trip hazards. A clean job free of trip hazards is more likely to be injury free, and very productive.



5. Remote access to current "posted" drawings via tablet computers and on-site kiosks, Level of technology to be determined

The entire project team will be given access to use SharePoint or some equivalent Project Document Control software as the platform for sharing documents. These systems are web based with features to simplify review and transmission of documents.

All submittals must be in Adobe PDF's format and loaded up via SharePoint or the assigned system for

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the project. This system will also include the data base of RFI's, submittals, Contract Documents and reference documents and will be housed on site and available electronically via personal computers, Tablet Personal Computers (PC's) I-Pads, and at remote Field Kiosks located where the largest numbers of crafts are working. Printers included in the Field Kiosks, *Level of technology to be determined*, will allow team members to print the information they need immediately. Each trade foreman / superintendent is encouraged to use the best technology platform for their skills and needs.



Tablet PC's will be carried by Turner Staff - access to BIM model, "posted drawings", RFI's and approved submittals.



Kiosks will be located where work is taking place to allow for contract documents and BIM models to be reviewed in the field. Level of technology to be determined.

6. What are your innovations??

Your great proposal keeps adding to this list...