GRANGER

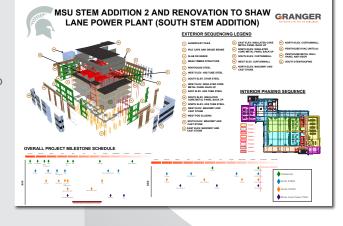
As part of our company's Lean Journey, Granger has developed new ways to improve the flow efficiency of every aspect of our work, including schedule management during construction.

One of the tools that we use to accomplish this is the Last Planner® System, a framework of recorded promises made by the "Last Planners," the foremen who lead the crews. By making promises to one another, monitoring the reliability of these promises, promoting transparency and striving for continuous improvement, our trade contract teams improve the dependability of our scheduling and, working together, resolve issues as they arise. Our team utilizes Touchplan® software to manage the process of pull planning, where the framework of milestones for a particular area of the work is defined based on the CPM schedule. The team collaborates to "pull" the work, working backward from the established milestones. Last Planner scheduling techniques and Touchplan® are cornerstones of our project planning efforts. Our overall scheduling method is summarized in the illustration that follows.

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	PULL	PLANNING
	WHY	Define the plan with everyone's buy-in/ov
	WHEN	Conducted in advance of each phase with a involved
	HOW	Reflect on what is needed from other trades work; how is it provided/at what consistent p effort is required to complete the work? Focu work that releases work - requested by other
	BENEFITS	Efficiency, empowered teams, better end pr
	TOOLS	Touchplan, whiteboard with Post-Its, Excel

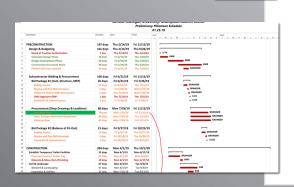
VISUAL PHASING PLANS

- WHY A plan for executing a specific phase of a project WHEN In design to demonstrate flow of large program elements HOW Work components are organized visually to
- represent the sequence of activities and their relationships to other work on the project to facilitate design hand-offs and milestone planning
- **BENEFITS** Improved communication, increased efficiency, transparency TOOLS Bluebeam, SketchUp





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BENEFITS	Cont
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MILESTONE SCHEDULES

- WHY Establish critical benchmarks to ensure project completion
- WHEN During pre-construction and prior to each phase
- HOW Create logic and associated high-level tasks reguired to meet critical dates
- **BENEFITS** Communicates big picture, creates short-term goals and focus for project team
- Microsoft Project, Excel, Visio TOOLS

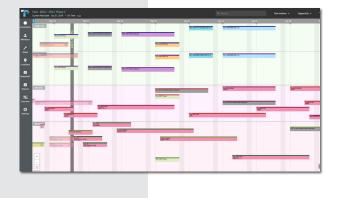


DAILY HUDDLES

WHY	Manage promises and daily improvement
WHEN	Typically conducted on-site at the end of the
HOW	Multiple trade foremen meet with an area s dent; What did we learn? What did we imp would make tomorrow better? <i>Limit to 15 r</i>
BENEFITS	Accountability, team engagement, improve communication, allows team to give and re escalates problem issues for resolution
TOOLS	Voice, clock and place to stand (no sitting!)

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MAKE READY PLANNING

ke work ready by defining specific work confor tasks and identifying and eliminating blocks

kly, at jobsite

tiple trade foremen and project engineers meet

general superintendents, planning confirm work he next week, reflecting backward from week 6 to k 2

tinuous improvement, responsiveness, increased out, empowered teams, better end product Log, Submittal Log

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superintenprove? What minutes.

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eceive help.

