

Open Problem Preconstruction Services February 6-8, 2014

Problem Statement Phase II: Preconstruction Services

Project "MUSTACHE"

This problem is provided as a representative example of what a problem can look like but does not limit the type of future problems to the same format, requirements, or topic of focus

Problem Sponsor:



PCL Construction Services, Inc. 500 N. Brand Blvd., Suite 1500 Glendale, CA 91203

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I. PRECONSTRUCTION PROBLEM TIME TABLE

CENTRAL PACIFIC ROOM ABC THURSDAY, FEBRUARY 6TH

Turn in Phase I RFQ	7:00 AM
Phase II Competition Kick-off Conference	
Written Questions (RFI's) Due	
Mandatory Problem Team Meeting to Discuss RFI's*	
Visits to Student Rooms	3:00 PM - 6:00 PM
Phase II Meeting Deliverables Due/Draft Order Selections*	<u>9:00 PM</u>

CENTRAL PACIFIC ROOM ABC

FRIDAY, FEBRUARY 7 th	
Presentation Materials Due (All Teams)	6:45 AM
Presentations Start	7:00 AM
Project Debriefing	6:00 PM - 6:45 PM
PCL Hospitality Event	7.00 PM - 10.00 PM

*(minimum of 1 representative from each team required)

II. PREFACE

Welcome to the 2014 ASC Student Competition. PCL Construction Services, Inc. is proud to be the sponsor of the Preconstruction Services Open Problem at the 2014 Competition in Sparks, NV. PCL Los Angeles District is hosting this year's problem and is one of 28 operating districts of PCL Construction Services, Inc.

We believe this problem will enhance each student's experience to the everyday occurrence of preconstruction services in today's construction environment. Clients require varying levels of preconstruction services including design coordination, budget development and construction planning.

The problem proposed will be typical to the services provided to a client including the proper selection of your construction team, and in some cases, consultants and subcontractor team. Other services include risk analysis, contracts, design creation, estimating, value engineering, logistics planning, constructability review, resource requirements, budgeting, scheduling, purchasing, safety and contracting.

This competition is an invaluable tool for your career development. It is designed to enhance and expose each team member to different facets of the construction industry. Each team members' technical knowledge of estimating, scheduling, planning, leadership, and communication skills will be put to the test during the next two days.

PCL hopes every team benefits from this 'real-life' experience. We are here to support the ASC and its members, so please ask questions after the competition is complete or any time throughout the school year.

Understand there are many dynamic elements to every project whether in design or under construction, including this actual project under construction by PCL. Please keep an open mind to the challenges that are presented during this event. Learn from our own project experience, as well!

At the end of the day, only three teams are awarded a placement and these teams will be recognized at the ASC Awards Ceremony on Saturday. Regardless of your final overall placement, each competitor is truly a winner when you combine the experience of the competition, coupled with the industry exposure you have gained throughout the event.

We look forward to great thinking, fellowship and sportsmanship throughout the week. We are proud to serve our great industry with this problem and advancing construction education to all the member schools, faculty and students of the Associated Schools of Construction! Good luck!

III. PROBLEM SCENARIO

Congratulations! The Owner project team of PRIHD Facilities (PRIHD) has selected your firm to provide preconstruction services based upon your response to the Phase I RFQ. We are excited to continue with the pre-construction process, and look forward to your input in making this project a success. The next steps in the process will be for your firm to assume the role of General Contractor during preconstruction, prepare the Phase II Preconstruction Services deliverables and conduct a weekly preconstruction meeting. Your team will develop the Phase II Preconstruction Services deliverables based upon the previous week's meeting minutes, and the provided attachments and design documents prepared by PRIHD and their consultants.

Your team will be asked to provide various deliverables as defined in the succeeding portions of this Problem Statement. You must submit your documentation to the Owner project team by 9:00 PM on February 6, 2014 and be prepared to present your work to the Owner project team in a weekly preconstruction meeting on February 7, 2014.

An interim progress meeting is scheduled for 11:30 AM on February 6, 2014. Any questions should be delivered in writing on the Request for Information (RFI) form provided to the Owner project team in the Central Pacific Room ABC by 10:00 AM on February 6, 2014. Do not include multiple unrelated questions on the same RFI. Utilize a separate RFI for each unrelated question. Each team is limited to five (5) RFI's. Responses to these RFI's will be provided at or before the 11:30 AM meeting. The RFI form is provided in Section X - Supplemental Information.

For the weekly preconstruction meeting on Friday February 7, 2014, all teams shall include students representing at a minimum your project executive, preconstruction or project manager, sr. estimator, project superintendent and scheduler. Your weekly preconstruction meeting will last 40 minutes, which includes 5 minutes to set up, 30 minutes for the meeting and 5 minutes of feedback from the judges. Each member of your team is expected to play a role during the meeting, and participate in the meeting discussion.

Electronic copies of ALL files to be used by your team during the presentations must be provided to the Owner Project team on a USB thumb drive by 6:45 AM on Friday, February 7, 2014. A laptop computer and projector will be available for your use during your presentation (meeting). This computer will have Windows 2007 operating systems, and the following software: Word, Excel, PowerPoint, Adobe Acrobat, Suretrak, Primavera P3 and P6, Navisworks Freedom 2013 Viewer, and DWG TrueView 2012. Your team is free to use your own laptop, but all files used during the presentation must be those provided to the Judges by the 6:45 AM deadline.

At a minimum, your team should cover the required topics as identified in the provided meeting minutes. As the General Contractor you will be expected to run the precon meeting, and ensure that time is spent on each of the required topics.

PROJECT INFORMATION

Project "MUSTACHE" is located in Southern California and will become a land mark entertainment destination. The Owner's budget for Construction of this Project is \$100 Million. The site sits on 100% reclaimed land, directly in the middle of an operating tourist destination. The project will consist of a Main Entertainment Facility and multiple retail buildings that support the guest experience at the Main Entertainment Facility.

The final project delivery and contract type will be a Guaranteed Maximum Price (GMP). Early knowledge of construction costs and schedule is extremely important to the Owner. Due to the fast pace of this project and critical opening date, the Owner wants to leverage the contractor's knowledge of potential alternative systems and constructability expertise.

The allowable construction working hours are from 6:00AM to 8:00PM Monday thru Saturday. All onsite labor must be performed by Union trades. Straight-time wages are paid for 8 hours of work per day, Monday thru Friday. Overtime wages are paid for over 8 hours of work per day and all day Saturday. Work on Sundays and Holidays is prohibited by local ordinances. There is a large residential community located within 2 miles of the Main Entertainment Facility. Public safety, noise, and road closures must always be taken into account.

The project Owner during construction is PRIHD Facilities; however, the facilities will be turned over to the Facility Operations Manager upon project completion.

IV. PROBLEM OUTLINE

Organize and tab your Deliverables submittal according to the following outline. Include only the information requested in **Section V**, **Submission Requirements**. Remember to be as brief as necessary to convey your points.

- 1. Meeting Minutes
- 2. **Project Schedule (Accelerated)**
- 3. Schedule Acceleration Budget/Cost Analysis
- 4. Accelerated Schedule Narrative
- 5. Logistics/Delivery/Storage Plan/Owner Furnished Contractor Installed (OFCI) Material

V. SUBMISSION REQUIREMENTS:

The appearance and organization of proposals and reports is important in our industry, as it is often our first opportunity to interact with a new client and/or impress the upper management in a company. We want them to see the professional image we are trying to portray and be able to find and understand the information we are presenting. Points will be awarded in this section based upon appearance and organization, as well as the clear and concise responses to the requirements of Exercises 1-5 listed below. One (1) paper copy in a 3-ring Binder and one (1) electronic copy on USB Thumb Drive of your Phase II documents are to be submitted.

If you utilize a new company logo for your submission, include it on the cover of the proposal book. **Also, include the school logo in the lower left hand corner of the proposal cover.** This assists the judging team with identifying your team's submission.

A USB drive has been provided to each team with some of the forms referenced so you do not have to recreate them. *Always, check formulas to ensure that proper extensions are made.*

1. Meeting Minutes

Exercise Narrative:

Meeting minutes are used in our industry at all formal meetings to track and document the action items expected to be performed by meeting participants. It is important to capture the action items in a clear and concise manner, and to include expected due dates where appropriate. In this exercise, your team will use the provided meeting minute template to complete the minutes from the previous week's meeting. There are line items and blank areas that are left out intentionally. It is up to your team to strategize what was discussed and fill in the details.

Your team will also create an agenda for the weekly preconstruction meeting to be held on February 7, 2014. Your firm has been tasked with conducting the weekly preconstruction meetings, and you are free to set the agenda how you see fit. Remember that PRIHD and their project partners are all valuable team members, and these meetings are intended to be interactive and collaborative.

Exercise Process:

Using the Meeting Minutes template provided, complete the meeting minutes from the previous week's preconstruction meeting. Include the following:

- Add names and info for each of your team members to the Attendees list
- Insert name of safety and logistics representatives to be proposed for Project "MUSTACHE"
- Insert the name of your firm in all locations marked (Contractor), and insert your firm's initials in locations of the Action column marked (GC)
- Your team may add items and details as your team deems appropriate.

Provide an agenda for this week's preconstruction meeting. You may use the meeting minutes as a template, or provide an agenda in an alternate format.

Deliverable:

Meeting minutes from previous week's meeting, AND agenda for upcoming meeting.

2. Project Schedule

Exercise Narrative:

As part of your weekly preconstruction meeting with PRIHD and the design team, your team has been asked to review your team's 30 month preliminary baseline schedule, which was provided to PRIHD during our week #2 preconstruction meeting. Schedules created during the preconstruction phase of the project start out at a very summary level and expand as the preconstruction work progresses. Since the preconstruction work in this problem is at the 100% design development stage the schedule will have more detail than a summary level schedule. In this exercise, your team has been asked to review the provided 30 month preliminary baseline schedule. Your team's task is to accelerate the schedule from the current 30 months shown down to at least 24 months. Your team may add/delete activities, create/change activity relationships, add additional crews, etc. so long as the project schedule is accelerated to at least 24 months. Given that your team stays within the parameters identified below, your team is permitted to do anything to the schedule. When working on the accelerated schedule, your team must also keep in mind the budget/cost analysis and narrative required in sections 3 & 4. The accelerated schedule will be the focal point in the upcoming weekly preconstruction meeting.

A Suretrak, P3, and P6 format of your 30 month preliminary baseline schedule, and PDF copy has been provided to you on the flash drive. You are to assume that this is the current preliminary baseline schedule for construction that your firm has developed for the Owner. PRIHD has asked your team to revise and accelerate the schedule so project completion can occur in at least 24 months.

Exercise Process:

Your team's 30 month preliminary baseline schedule is attached in the form of Suretrak, P3, P6, and PDF.

- 1. General Schedule Criteria:
 - a. Presentation Criteria:
 - i. Format:
 - 1. Suretrak, P3, or P6 software will be utilized for this exercise.
 - 2. The template has the minimum formatting required: Activity ID, Activity Description, Original Duration (OD), Early Start (ES), and Early Finish (EF). Other columns can be added as your team determines necessary.
 - 3. At a minimum, utilize the organizational structure as already established in the template. Additional activity codes can be added as your team sees fit.
 - ii. Show the logic between activities, no open-ended activities are allowed (all activities must have a predecessor and successor, except project start and completion activities/milestones)

- iii. Clearly show the critical path of the schedule
- iv. Organize activities so they are easy to read, activities are grouped intuitively and the schedule flows well.

General comments:

- 1. Do not resource load or cost load your schedule.
- 2. Be sure to tie all activities to a predecessor and successor, open-ended activities are not allowed (except as noted above).
- 3. You may use RS Means or other productivity data resources to help if needed.
- 4. When it comes to scheduling, there may be more than one way to achieve the required results. Ensure that your team can substantiate and explain all of the assumptions and decisions made in the process of developing your accelerated schedule.
- 5. Your team's accelerated schedule may include overtime/shift work within the allowable construction ordinances.

Deliverable:

1. Updated Accelerated Project Schedule. Must include a paper copy, a .pdf copy and the electronic schedule file of your accelerated schedule. Be sure to add your firm's name and school to the Footer.

3. Accelerated Schedule Budget/Cost Analysis

Exercise Narrative:

In exercise #2, your firm was asked to accelerate Project "MUSTACHE" schedule completion from 30 months to at least 24 months.

In this exercise, your team is to create a rough order of magnitude cost analysis with complete and thorough back-up outlining the estimated cost to accelerate the schedule your team has already created. In order to do a true Cost/Benefit Analysis, your team must first complete a "General Conditions" analysis for the original 30 month schedule.

There is no formal format to this exercise, but the cost analysis should include the following:

- General Conditions cost for original schedule (Assume: \$15,000/week for a staff that consists of 10 members).
- General Conditions cost to accelerate schedule.
- Hourly trade costs: Assume: \$60/Hour of straight time per each union worker
- Base cost analysis for overtime premiums based upon construction industry standards and state your basis for overtime cost premiums if utilized.
- For shift work: Assume there is a 15% premium for 2nd shift workers
- Based on the accelerated cost above, provide summary level breakdown of costs if different methods or areas of work were affected.
- There is no format; however, graphs, charts, picture representations, etc. may help in explaining the team's reasoning in schedule acceleration/budget cost analysis. This is not intended to be a narrative.

Deliverable:

Completed "General Conditions" for the original 30 months, AND completed Budget/Cost Analysis to accelerate schedule.

4. Accelerated Schedule Narrative

Exercise Narrative:

In conjunction with exercises #2 & #3, please provide a detailed narrative of how your team was able to accelerate the schedule. Provide any appropriate assumptions made during the process, reasons why your team chose a certain process versus another, schedule highlights, cost analysis explanation, pictures, graphs, etc. Most importantly, clearly state why your team believes your accelerated schedule makes sense and will work to complete the project earlier than the original 30 month preliminary baseline schedule provided. It is acceptable to use any and all material given for this problem along with any information your team developed in the previous exercises.

Deliverable:

Accelerated Schedule Narrative including back-up as to why the team feels the schedule will work and why the cost to do so is beneficial to the Owner.

5. Owner Furnished Contractor Installed (OFCI) Logistics and Delivery Schedule

Exercise Narrative:

PRIHD has engaged a scenic supplier/manufacturer to prefabricate the majority of the themed elements for the project. The materials which will be prefabricated include Scenic Doors and Windows, Cast GRFC molding and trims, wood ceiling planks and beams, exterior doors, FRP shingles, and Casework. These materials are currently being fabricated and stored on the east coast. The estimated quantity of material for the project is 130 trucks. The project has limited lay down space for this material and can only have 5 trucks stored on property, but outside of the limits of construction, at any given time during construction. PRIHD needs a logistics and delivery schedule to validate the construction schedule can be maintained with the constraint of having a maximum of 5 trucks on property.

Deliverable:

Provide a delivery schedule for the prefabricated materials that is coordinated with the 1) Preliminary Baseline Schedule, and 2) The accelerated construction schedule developed by your firm. The goal of the analysis is to validate the storage area for trucks is sufficient. Should the analysis determine the construction schedule is not achievable using the on property storage area, an alternate plan for off property options is required. The plan for off property storage should include the location, duration, and cost for the facility. The format of the deliverable is flexible and can be developed using a variety of scheduling and data base software.

Guidelines:

- Assume the start date for the applicable construction activity is the same date the first delivery will arrive.
- All trailers will be dropped in the designated storage area on the Owners property and will take 5 calendar days to off load and be removed from the property.
- Assume the subsequent deliveries for each of the individual theming activities will be spaced at equal intervals. For example: Main Attraction Scene 1 has a duration of 71 calendar days. 71CD/3Del = 23.67 or a 24 day delivery interval. Delivery dates for this activity will be 10/20/2015, 11/12/2015, and 12/6/2015.
- For the purpose of this exercise it is acceptable to deliver and remove trailers on weekends and holidays.
- Should offsite storage be required, cost for this storage should be accounted for in the accelerated schedule analysis.
- Off property storage locations within either Los Angeles or Orange counties are acceptable.

Truck per Activity Table:

Truck per Activity Table.			# of
Building / Area	# of Trucks	Building / Area	Trucks
Main Attraction: Scene 1	3	Restroom Building: Interior	3
Main Attraction: Scene 2	2	Restroom Building: Exterior	5
Main Attraction: Scene 3	3	Main Restaurant: Interior	6
Main Attraction: Scene 4	4	Main Restaurant: Exterior	6
Main Attraction: Scene 5	6	Building A: Interior	3
Main Attraction: Scene 6	4	Buidling A: Exterior	5
Main Attraction: Scene 7	2	Buidling B: Interior	2
Main Attraction: Scene 8	5	Building B: Exterior	5
Main Attraction: Scene 9	3	Building C: Interior	2
Main Attraction: Scene 10	3	Building C: Exterior	5
Main Attraction: Scene 11	3	Building D: Interior	2
Main Attraction: Scene 12	3	Building D: Exterior	5
Main Attraction: Scene 13	5	Building E: Interior	2
Main Attraction: Preshow	8	Building E: Exterior	5
Main Attraction: Exterior Façade	11	Building F: Interior	2
Main Attraction: Entry	2	Building F: Exterior	5

VI. COMPETITION SCORING SYSTEM:

ltem	Description	Points
	Phase I Request for Qualifications (RFQ)	20
	Phase II Preconstruction Services Deliverables	40
	Phase III Presentation (Meeting)	40

Note: Late Submittal Point Deductions Below

Time Adherence Scoring

It is critical to submit materials on time. For those who do not adhere to the published times, points will be deducted according to the following schedule:

- Phase I Submittal
 - \circ (on time = 0, up to 1 min late = -1, up to 10 min late = -2, later = -4)
- Phase II Submittal
 - All teams submitting late on Phase II <u>will automatically be deducted 20 points from</u> this section.
- Phase III Presentation
 - \circ (on time = 0, up to 1 min late = -1; up to 2 min = -2; 3 = -3; 4 = -4; later = -5)

VII. LIST OF JUDGES:

Panel:

Jeff Miller, Construction Manager (818) 246-3481 *Acting as PRIHD Project Director*

Mark Schneider, Project Engineer (818) 246-3481 Acting as PRIHD Project Manager

Jesse Wingate, Project Manager (818) 246-3481 *Acting as PRIHD Creative Director*

Bob Hayes, District Scheduler (818) 246-3481 *Acting as PRIHD Manager of Logistics and Scheduling*

Thai Nguyen, Project Engineer (818) 246-3481 Acting as Facility Operations Manager

Scott Viola, Construction Manager (805) 541-9101 Acting as Project Architect

Alternates:

TBD

Los Angeles District 500 N. Brand Blvd., Suite 1500 Glendale, CA 91203

Los Angeles District 500 N. Brand Blvd., Suite 1500 Glendale, CA 91203

Los Angeles District 500 N. Brand Blvd., Suite 1500 Glendale, CA 91203

Los Angeles District 500 N. Brand Blvd., Suite 1500 Glendale, CA 91203

Los Angeles District 500 N. Brand Blvd., Suite 1500 Glendale, CA, USA 91203

Hawaii District 1099 Alakea St., Suite 1560 Honolulu, HI 96813

VIII. COMPETITION RULES:

The rules for the competition are designed to provide each team with an equal opportunity to apply their knowledge in developing their respective solutions and an equal opportunity to present their problem solutions to the judges. The following rules apply to the Preconstruction Services Open Problem and supplement the ASC Competition Rules:

- 1. While the competition is in progress, only the six students identified as being team members shall be present in the teams' room. Faculty advisors may not interface with their team once the competition has begun.
- One (1) paper copy and One (1) electronic copy of the proposal must be turned in at the prescribed time. <u>Proposals will not be returned to the teams.</u> If you require some of the material in your proposal for your weekly preconstruction meeting, please make the appropriate copies prior to your submission of the written problem for your use.
- 3. The number of computers per team and use of the internet is to be as outlined in the ASC Competition Rules.
- 4. Once the presentations begin, only the teams who have presented their solutions may be present at the presentations of subsequent teams. This will mean that the first team up gets to see them all, while the last team does not get to see any of the others. The purpose of this rule is to prevent those participating in later sessions from gaining an advantage as to the contents of previous sessions.
- 5. Presentation materials for all teams are to be turned in to the judges prior to the first interview, by 6:45 AM on Friday, February 7th. No other presentation material will be allowed into the presentation that is not turned into the judges by this time. NO EXCEPTIONS.
- 6. All decisions of the judges are final.
- 7. The problem presented was an actual project built and/or under construction by PCL. To avoid any conflict of interest or unfair advantage, any student who may have potentially worked on the project in any way shall identify themselves to PCL immediately. This issue will be reviewed, and if appropriate we may request that an alternate be assigned to the project. PCL shall make the final decision as to equity in such a case.
- Points will be deducted if proposals are submitted late per the Scoring System noted in Section VI. Written proposals will be due as indicted in Section I. The submission location will be announced at the commencement of the competition. Other deliverables will be as noted elsewhere in the Problem Statement.
- 9. No phone calls, emails, or communication of any kind shall be made to the Owner, Architect, Engineer or design consultants that may be listed in the documents provided for this competition. They are aware that no team is to contact them and have been notified to contact the judges if any contact occurs. Contact with the any of the above shall disqualify team from the competition.
- 10. Do not submit any extraneous materials with your written proposal, including company profiles, marketing materials etc. Please limit your response to the information requested. Be brief, clear and concise.
- 11. Any information concerning the size and scope and timelines provided in previous correspondence has been superseded by the information provided in the written problem statement and is not to be used in response to Phase II.
- 12. The last and most important rule: Have fun, learn, and develop new relationships.

Violation of any of these rules will be grounds for disqualification from the competition

IX. COMPETITION EVALUATION FORM:

At 4:00 PM on Friday 2/7/14, following the completion of the final team's weekly preconstruction meeting, your team will receive an email with a link to our Preconstruction Problem Evaluation Form which will be done through Survey Monkey.

Your feedback is important to our team as we strive to continually improve the problem in years to come. Please be honest and forthright with your responses.

Please complete one evaluation per team before Friday 2/14/14.

X. SUPPLEMENTAL INFORMATION

<u>Description</u>		Electronic Form on USB Thumb Drive
0.0	RFI Form	Х
1.0	Meeting Minutes template	Х
2.0	Preliminary 30 Month Project Schedule Electronic Schedule File - Suretrak/P3 Electronic Schedule File - Primavera P6 PDF Preliminary 30 Month Project Schedule	X X X