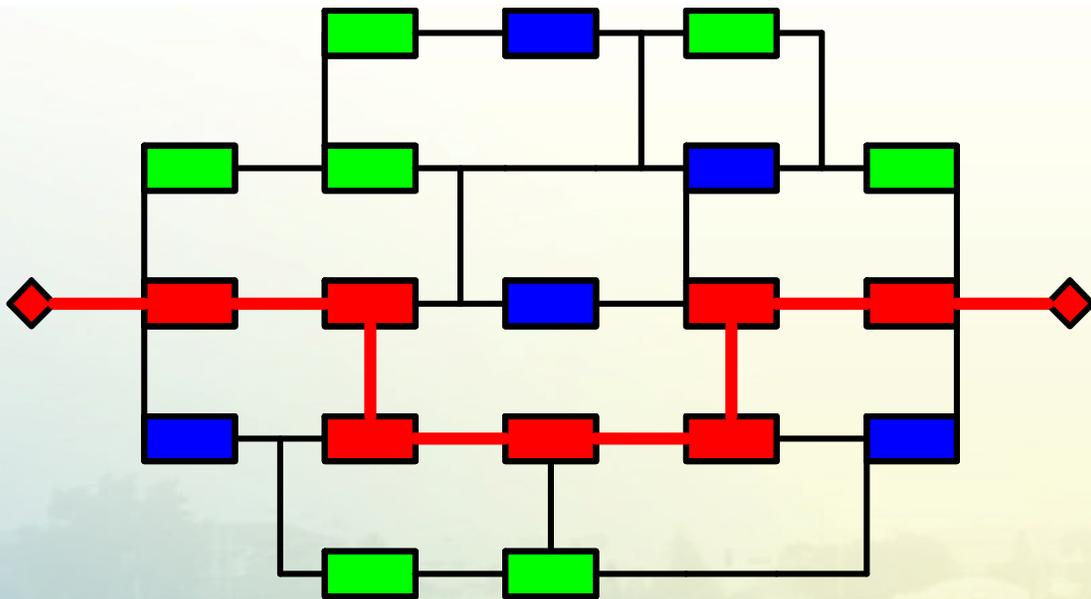




California Department Of Transportation

ADVANCED CPM SCHEDULING WITH SURETRAK

Class # G0C094



ADVANCED CPM SCHEDULING WITH SURETRAK

September 2003

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for Caltrans District 7

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COURSE OVERVIEW

(times approximate)

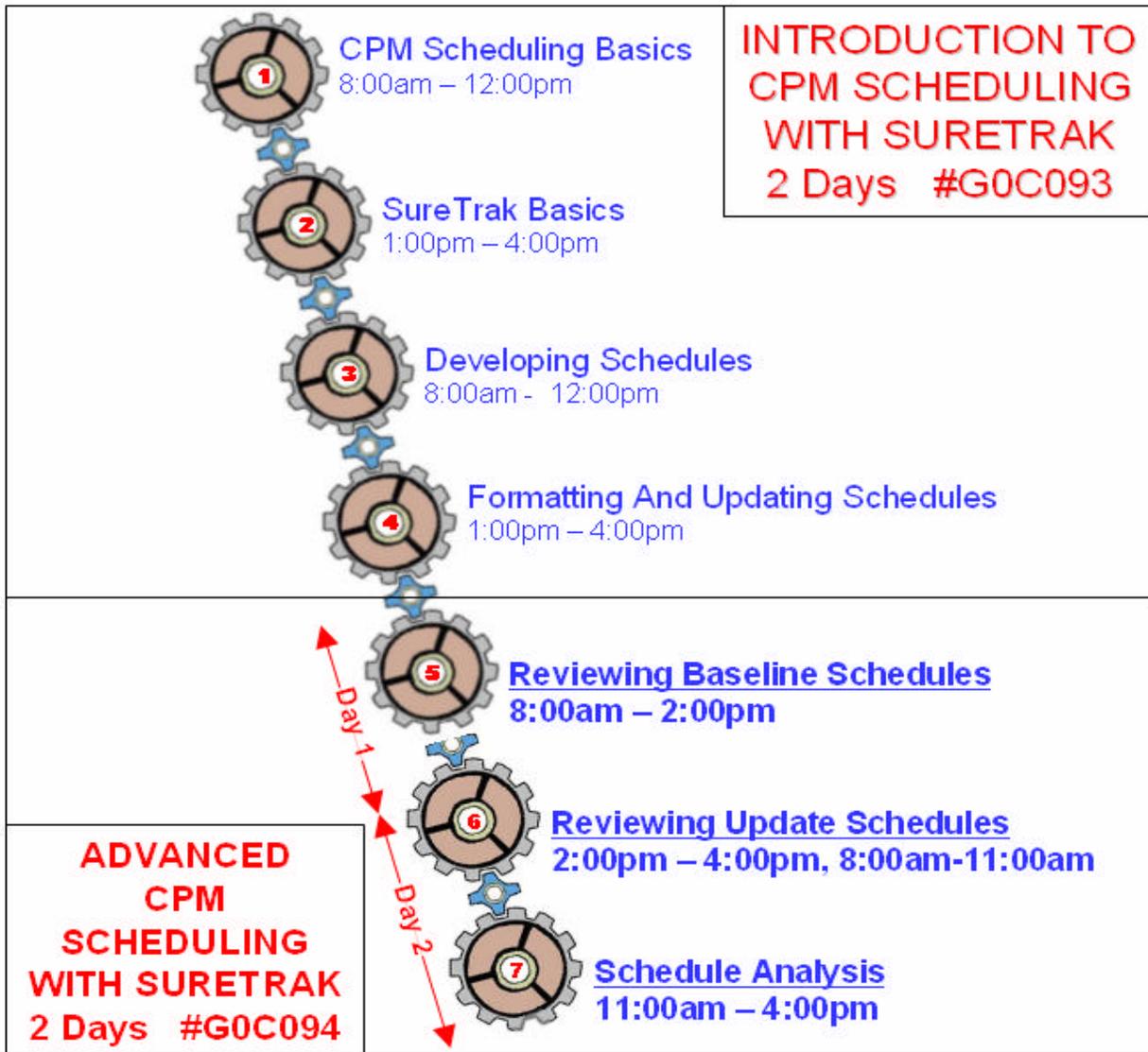


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GLOSSARY

TECHNICAL TIPS

CONTRACTOR TIPS

CD INSTRUCTIONS

LESSON 5: REVIEWING BASELINE SCHEDULES

In this lesson, you will learn the basic techniques for reviewing Baseline Schedules with SureTrak.

At the completion of this lesson, you will be able to:

- Identify the three different levels of schedule specifications
- Understand the difference in requirements for each level of schedule specifications
- Understand the requirements for establishing a Baseline Schedule
- Know the timeline for submitting the Baseline Schedule
- Utilize SureTrak to ensure that the Contractor's Baseline Schedule conforms to the criteria for CPM Schedules by:
 - Checking the Data Date and Diagnostics
 - Verifying Calendars, Coding Structures
 - Creating a specific layout to review the Baseline Schedule's compliance with the Specifications
 - Examining the Critical Path
 - Validating the Buildability of the Project

**This lesson will focus on the requirements for satisfying SSP # 08-015
(Most Demanding Requirements)**

SOURCE DOCUMENTATION

The source document for scheduling requirements is the **STANDARD SPECIFICATIONS (SSPs)** issued by the State of California, Department of Transportation in **JULY 1999**.

SECTION 8-1.04 PROGRESS SCHEDULE

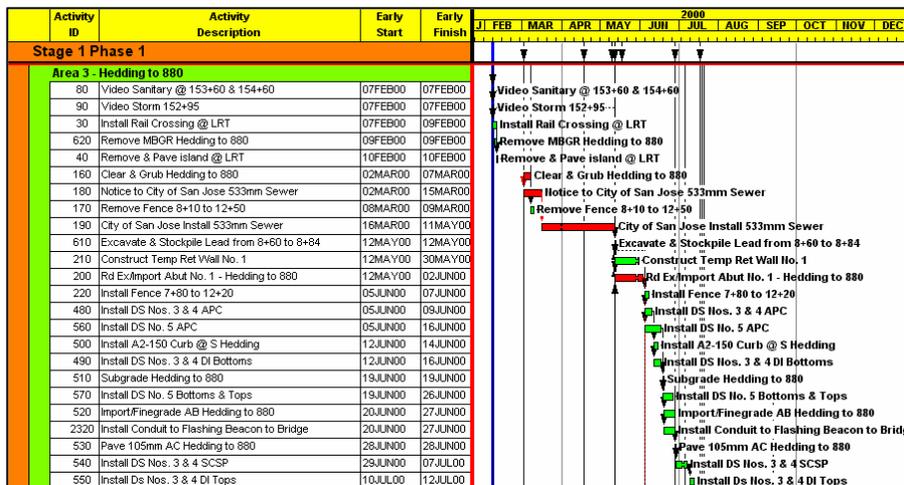
“When required by the special provisions, the Contractor shall submit to the Engineer a **practicable progress schedule** within 20 working days of approval of the contract, and within 10 working days of the Engineer’s written request at any other time.

The Contractor may furnish the schedule on a form of the Contractor’s choice or, if requested, the Engineer will furnish a form for the Contractor’s use. If the Engineer furnishes a form, the Engineer will also furnish to the Contractor, on request, on or before the last day of each month a copy of the form showing the status of work actually completed during the preceding estimate period.

The schedule shall show the **order** in which the Contractor proposes to **carry out the work**, the **dates** on which the Contractor **will start** the several salient features of the work (including procurement of materials, plant, and equipment), and the contemplated **dates for completing** those salient features.

The progress schedules submitted shall be **consistent** in all respects with the time and order of work requirements of the contract.

Subsequent to the time that submittal of a progress schedule is required in accordance with these specifications, no progress payments will be made for any work until a satisfactory schedule has been submitted to the Engineer.”



THREE LEVELS OF PROGRESS SCHEDULE SPECIFICATIONS

BASIS



Least amount of requirements

- **SSP NUMBER 08-010**

Use on all projects of \$750,000 or less

AND

between 60 – 250 working days

(This SSP may be used for projects less than 60 days at the request of the District Construction)

Moderate amount of requirements

- **SSP NUMBER 08-012**

Use on all projects between \$750,000 and \$5 Million

AND

between 60 – 250 working days and when SSP 08-010 “Progress Schedule” or SSP 08-015 “Progress Schedule” (Critical Path Method) are not used

Most amount of requirements

- **SSP NUMBER 08-015**

Use on all projects with an Estimate of Cost of \$5 Million or more

OR

with 250 or more working days

PROGRESS SCHEDULE REQUIREMENTS MATRIX

SUMMARY	SSP # 08-010	SSP # 08-012	SSP # 08-015
CONTRACT ITEM	X	N/A	N/A
SCHEDULES:			
BASELINE SCHEDULE	N/A	X	X
CURRENT SCHEDULE UPDATES	N/A	X	X
FINAL UPDATE SCHEDULE	N/A	X	X
STATE-OWNED FLOAT	N/A	N/A	X
NETWORK DIAGRAM	N/A	X	X
REPORTS	N/A	N/A	X
PRE-CONSTRUCTION SCHEDULING CONFERENCE	N/A	X	X
TIME IMPACT ANALYSIS	N/A	N/A	X

SCHEDULES - GENERAL REQUIREMENTS	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ Consistent with time and order of Contract Work Requirements	N/A	X	X
✓ Project Work shall be performed in sequence as indicated on current accepted schedule	N/A	X	X
✓ Schedule to show work performed by the Contractor, Subcontractors and Suppliers	N/A	X	X
✓ Schedule to have logical links between work activities	N/A	X	X
✓ Project Schedule shall have not less than 50 activities nor more than 500 activities, unless otherwise authorized by the Engineer	N/A	N/A	X
✓ Activities shall have clear and legible descriptions	N/A	X	X
✓ Minimum 1 Working Day (except for Milestones/Events) and Not More than 20 Working Days, unless otherwise authorized by the Engineer	N/A	X	X
✓ Each Activity shall have at least one Predecessor AND one Successor (except for Project Start and Finish Milestones)	N/A	X	X
✓ Required Constraints	N/A	X	X
✓ Schedules that are rejected by the Engineer shall be corrected by the Contractor and resubmitted within 5 working days of notification by the Engineer at which time a new one week review period will begin	N/A	X	X
✓ Errors or omissions on schedules shall not relieve the Contractor from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either the Contractor or the Engineer discover that any aspect of the schedule has an error or omission, it shall be corrected by the Contractor on the next update schedule.	N/A	X	X
✓ The Contractor may show an early completion time on <u>any</u> schedule provided that the requirements of the contract are met. Early completion time shall be considered a resource for the exclusive use of the Contractor. The Contractor may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently or by completing activities earlier than planned. The Contractor may also submit for approval a cost reduction incentive proposal in conformance with the provisions in Section 5-1.14, "Cost Reduction Incentive", of the Standard Specifications.	N/A	N/A	X

PROGRESS SCHEDULE REQUIREMENTS MATRIX (Continued)

SCHEDULES - SPECIFIC REQUIREMENTS	SSP # 08-010	SSP # 08-012	SSP # 08-015
<u>Schedules To Show:</u>			
✓ Project Start Date, Completion Date and other pertinent Milestones	N/A	X	X
✓ Submittal Development, Delivery and Review/Approval Periods	N/A	X	X
✓ Procurement, Delivery, Installation and Testing of Materials, Plants and Equipment	N/A	X	X
✓ Testing and Settlement Periods	N/A	X	X
✓ Utility Notification and Relocation	N/A	X	X
✓ Erection and Removal of Falsework & Shoring	N/A	X	X
✓ Major Traffic Stage Switched	N/A	X	X
✓ Finishing Roadway and Final Cleanup	N/A	X	X
✓ Other events/activities that could affect the Contract Completion	N/A	X	X
✓ Activity Codes for Responsibility, Stage, Work Shifts, Location and Contract Pay Item Numbers	N/A	N/A	X
✓ State-owned Float as the predecessor to the scheduled completion date (see STATE-OWNED FLOAT)	N/A	N/A	X

STATE-OWNED FLOAT	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ State-Owned Float is a resource for the exclusive use of the State	N/A	N/A	X
✓ The Engineer may accrue State -owned Float when a review of any type of Submittal is completed early and such early completion will save time on the Critical Path	N/A	N/A	X
✓ When requested by the Engineer, the Contractor shall prepare a Time Impact Analysis to determine the effect of any early completion	N/A	N/A	X
✓ The Contractor shall update any change to the State-owned Float activity in the next update schedule	N/A	N/A	X
✓ the Contractor shall maintain a log of actions [changes] to the State-owned Float and discuss in the Monthly Narrative Report	N/A	N/A	X
✓ The Engineer may use State-owned Float to mitigate past, present or future STATE DELAYS by offsetting potential time extensions for Contract Change Orders	N/A	N/A	X

NETWORK DIAGRAM	SSP # 08-010	SSP # 08-012	SSP # 08-015
<u>Time-Scaled Network Diagram Requirements:</u>			
✓ Be based on the activities' early start and early finish dates	N/A	X	X
✓ Clearly show the primary paths of criticality	N/A	X	X
✓ Show a continuous flow of information from left to right	N/A	X	X
✓ Include a title block and a timeline on each page	N/A	X	X
✓ A Time-scaled Network Diagram (2 sets) on E-Sized sheets is to be included with each schedule submittal	N/A	N/A	X
✓ A Time-scaled Network Diagram (2 sets) on B-Sized sheets is to be included with each schedule submittal	N/A	X	N/A

ELECTRONIC MEDIA	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ One 1.44 megabyte (3.5 Inch) floppy disk containing the schedule data shall be submitted with each schedule submittal	N/A	X	X

PROGRESS SCHEDULE REQUIREMENTS MATRIX (Continued)

BASELINE SCHEDULE REQUIREMENTS	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ Due within 20 working days of contract approval	N/A	X	X
✓ The Contractor shall allow 3 weeks for the Engineer's review after the Baseline schedule and all support data are submitted	N/A	X	X
✓ Weekly meetings between the Contractor and Engineer will occur after the initial Pre-Construction Scheduling Conference until the Baseline schedule is approved by the Engineer	N/A	N/A	X
✓ Shall show the Critical Path	N/A	X	X
✓ Multiple Critical Paths and Near-Critical Paths shall be kept to a minimum	N/A	X	X
✓ A total of not more than 50 percent of the baseline schedule activities shall be critical or near critical, unless otherwise authorized by the Engineer	N/A	X	X
✓ Shall not extend beyond the number of working days specified in these Special Provisions	N/A	X	X
✓ The Data Date shall be the first working day of the contract	N/A	X	X
✓ Any completed work to date shall not be included	N/A	X	X
✓ The Baseline Schedule shall not attribute negative float or negative lag to any activity	N/A	X	X
✓ If the contract completion is less than 85 percent of the working days specified in these Special Provisions, Resource allocations for each activity is required along with time-scaled Resource Histograms that display labor crafts and equipment classes to be utilized on the contract	N/A	N/A	X
✓ General Schedule Requirements as shown below	N/A	X	X
✓ Specific Schedule Requirements as shown below	N/A	X	X

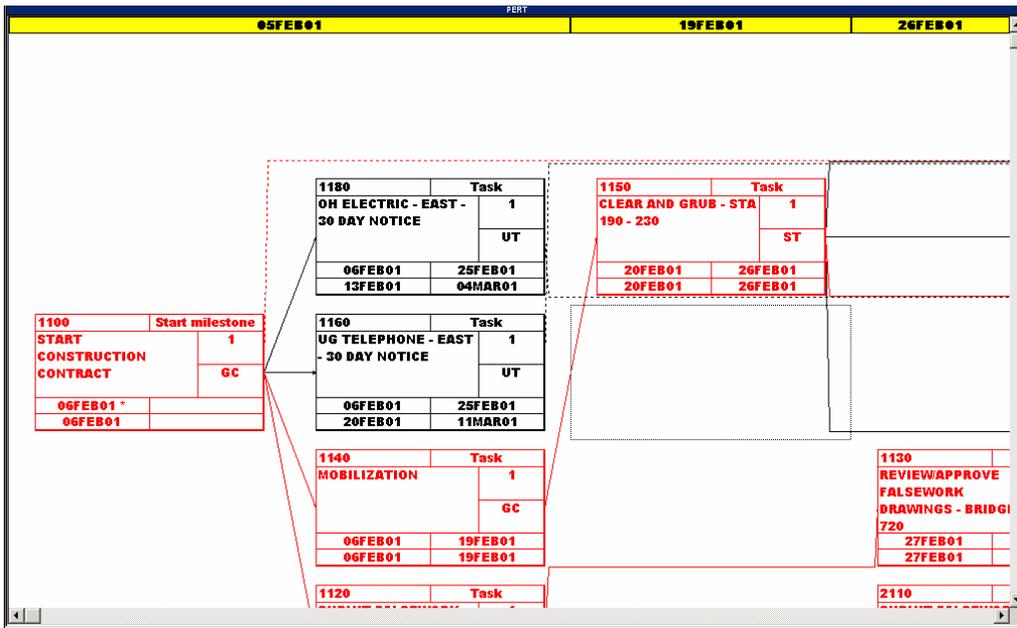
PRE-CONSTRUCTION SCHEDULING CONFERENCE	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ Shall be arranged between the Engineer, the Contractor's Project Manager and the Construction Scheduler within 10 working days of contract approval	N/A	N/A	X
✓ The Contractor shall provide a general time-scaled logic diagram displaying the major activities and sequence of planned operations	N/A	N/A	X
✓ The Contractor shall be prepared to discuss the proposed work plan and schedule methodology that complies with the requirements of these special provisions	N/A	N/A	X
✓ The Contractor shall also submit an alphanumeric coding structure to be utilized for the schedule. The descriptive activity identification system for labeling the work activities shall also be included	N/A	N/A	X

PRE-CONSTRUCTION SCHEDULING CONFERENCE

- The Engineer and the Contractor shall meet within 10 working days of the Contract approval the Contractor shall be prepared to provide and discuss the following:



- **Time-scaled Network / Logic Diagram** displaying the major activities and sequence of planned operations



- The **proposed work plan and schedule methodology** that complies with the requirements of the Contract Special Provisions
- An **alphanumeric coding structure** to be utilized for the schedule

Activity Codes		
Activity Code	Activity ID	
Codes:		
STAG		
Name	Length	Description
STAG	2	STAGE
ELEM	4	PROJECT ELEMENT
RESP	1	RESPONSIBILITY
Values:		
1		
Value	Description	
1	STAGE 1	
2	STAGE 2	

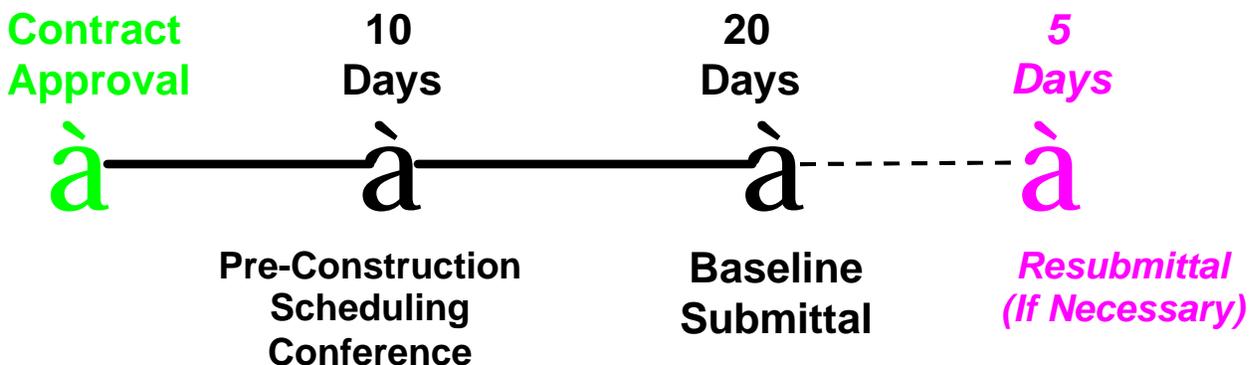
Activity Codes		
Activity Code	Activity ID	
Codes:		
ELEM		
Name	Length	Description
STAG	2	STAGE
ELEM	4	PROJECT ELEMENT
RESP	1	RESPONSIBILITY
Values:		
SC		
Value	Description	
01	GENERAL CONDITIONS	
02	UTILITIES	
03	FOUNDATIONS & RETAINING WALLS	
04	ROADWAY PAVING	
05	BRIDGE 720	
06	BRIDGE 800	

Activity Codes		
Activity Code	Activity ID	
Codes:		
RESP		
Name	Length	Description
STAG	2	STAGE
ELEM	4	PROJECT ELEMENT
RESP	1	RESPONSIBILITY
Values:		
CT		
Value	Description	
01	CALTRANS	
02	ADHE GENERAL	
03	PACIFIC GAS AND ELECTRIC	
04	POHONA P&E	
05	HOUGHTON P&E	
06	CALIFORNIA ELECTRIC CO	
07	SACRED BEAR TELEPHONE	

Activity Codes		
Activity Code	Activity ID	
Codes:		
AREA		
Name	Length	Description
AREA	4	Location
Values:		
0		
Value	Description	
0	Entire Project Limits	
1	Area 1 - Taylor to Mission	
2	Area 2 - Mission to Hedding	
3	Area 3 - Hedding to 880	

SUBMITTAL TIMELINE

- The Baseline Schedule is due within **20 working days** of Contract approval
- Three weeks shall be allowed for the Engineer's Review after the Baseline Schedule and all support data are submitted
 - Network / Logic Diagram
 - Coding Structure
 - Activity Identification System
 - Electronic file
- Weekly Meetings between the Contractor and Engineer will occur after the initial Pre-Construction Scheduling Conference until the Baseline Schedule is approved by the Engineer
- Schedules that are rejected by the Engineer shall be corrected by the Contractor and resubmitted within 5 Working Days of notification by the Engineer at which time a new one-week review period will begin



REVIEW QUESTIONS

1. **This Lesson is focused on which of the Specifications?** (5-1)
 - a. SSP 08-010
 - b. SSP 08-012
 - c. SSP 08-015

2. **What is the basis for defining the Progress Schedule Specifications?** (5-3)
_____ and _____

3. **In the General Requirements, the Contractor's Schedule must have:** (5-4)
 - a. Between 15 and 115 activities
 - b. Between 10 and 20 working days
 - c. Between 50 and 500 activities

4. **Which statement is incorrect:** (5-5)
 - a. Contractor must show Milestones in the Schedule
 - b. Contractor can use State-owned float without Engineer's approval
 - c. Contractor must utilize activity codes
 - d. The Time-scaled Network Diagram must show primary paths of criticality

5. **Which statement is correct:** (5-6)
 - a. The Baseline Schedule does not need to show the Critical Path
 - b. The Pre-Construction Scheduling Conference shall be arranged within 20 calendar days of the Contract approval
 - c. The Data Date shall not be the first working day of the contract
 - d. A minimum of 50% of the Baseline Schedule activities must be critical
 - e. The Contractor shall submit a coding structure at the Pre-Construction Scheduling Conference

6. **The Contractor is required to submit Time-scaled Network / Logic diagram at the Pre-Construction Scheduling Conference.** (5-7)
 - a. False
 - b. True

7. **The Contractor's Baseline Schedule is due within how many working daysf Of Contract Approval?** (5-8)
 - a. 5 Calendar Days
 - b. 10 Working Days
 - c. 15 Calendar Days
 - d. 20 Working Days

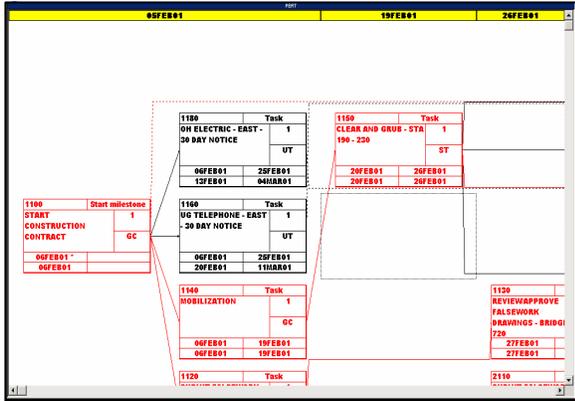
8. **How long is the initial review period of the Contractor's Baseline Schedule?(5-8)**
 - a. 1 Week
 - b. 2 Weeks
 - c. 3 Weeks

BASELINE SCHEDULE REVIEW PROCESS

- **Best Practices**
 - Establish a consistent and diligent Baseline Schedule Review Process as described below
 - Practice good File Management
 - Review Baseline Schedule from multiple perspectives (bar chart can be misleading)
 - Strive for best and most realistic work plan



CONFIRM SUBMITTAL



Activity Codes

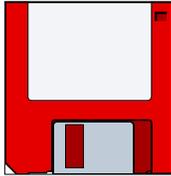
Activity Code	Activity ID
0100	START
0200	CONSTRUCTION CONTRACT
0300	MOBILIZATION
0400	20 DAY NOTICE
0500	UG TELEPHONE - EAST
0600	CLEAR AND GRUB - STA 190+230
0700	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
0800	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
0900	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1000	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1100	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1200	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1300	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1400	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1500	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1600	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1700	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
1800	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
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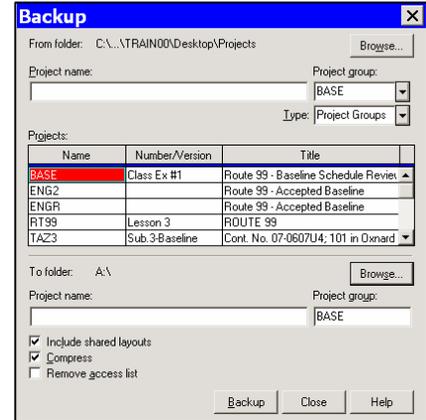
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2900	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720
3000	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE 720



- Be sure to review the steps to “Backup” a Project with the Contractor

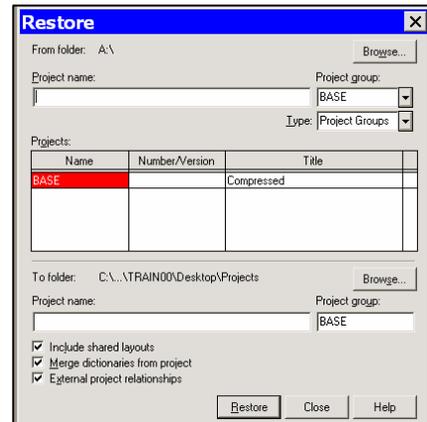
- In SureTrak, Select **Tools, Project Utilities, Backup**
- Select the Project you want to back up
- Select “Project Groups” for the Type, backup with a **.prx extension**
- Select the A Drive (in the field below the Project Section) to back up to a diskette



TIP
THE PROJECT DOES NOT NEED TO BE OPEN

- You must “Restore” the .prx file on your computer **before** you can open the project for review

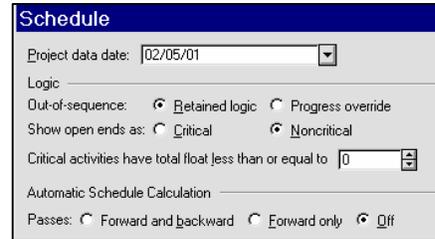
- Select **Tools, Project Utilities, Restore**
- Select the **Type** to be **Project Groups**
- Select the **From folder** and the **To folder**
- **Restore** the BASE file



RE-CALCULATE & CHECK

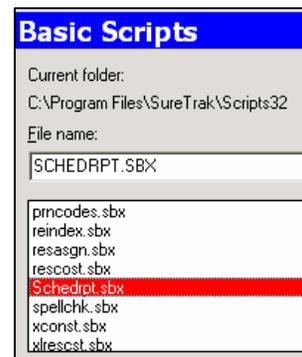
- Recalculate the schedule

- This will allow you to verify that the **DATA DATE** is the same as the first working day of the Project and ensure that the schedule reflects the calculated information
- Select **Tools, Schedule**
OR – *press the F9 key*



- Run the Diagnostic Report

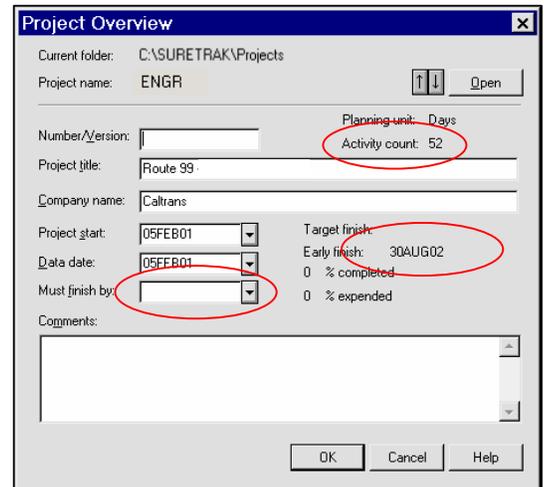
- Select **Tools, Basic Scripts**
- Choose **Schedrpt.sbx**, click **Run**
- Check for Actual Dates
- Check Constraints
- Check Open Ends



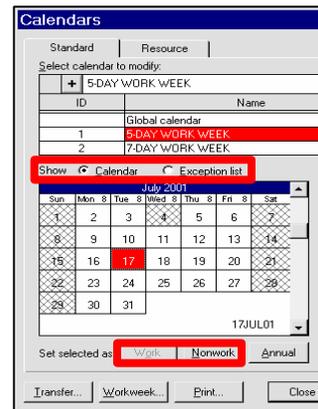
<pre> Scheduling Report for Project: BASE ===== Report Generated: ===== Date: 12/14/2002 Time: 3:01:26 PM I. General Project Information: ===== A) General: ===== Project Name: BASE Project Title: Route 99 - Baseline Schedule Rev Number/Version: Class Ex #1 Company Name: Caltrans Project Location/Path: C:\Documents and Settings\TRAINO B) Dates: ===== Project Start Date: 2/5/2001 8:00:00 AM Project Data Date: 2/5/2001 8:00:00 AM Project Early Finish Date: 8/30/2002 5:00:00 PM C) Logic Settings: ===== Out-of-Sequence: Retained Logic Open Ends: Noncritical Critical activities have total float less than or equal to: 0h D) Status: ===== Percent Complete: 0% Percent Expended: 0% Total # of Activities: 52 Total # of Activities Started: 0 Total # of Activities Finished: 0 End of General Project Information ===== </pre>	<pre> II. Activities with Actual Dates On or Past the Data Date: ===== Total # of Incident(s) with Actual Dates On or Past the Data Date: 0 III. Activities with Constraint Dates: ===== Activity: 1100 has a Start no-earlier-than constraint of 2/6/2001 8:00:00 AM Activity: 1300 has a Mandatory Start constraint of 4/16/2001 8:00:00 AM Activity: 2110 has a Zero total float constraint of 12:00:00 AM Activity: 2150 has a As late as possible constraint of 12:00:00 AM Activity: 2160 has a As late as possible constraint of 12:00:00 AM Activity: 2170 has a As late as possible constraint of 12:00:00 AM Activity: 2180 has a As late as possible constraint of 12:00:00 AM Activity: 2810 has a Finish no-later-than constraint of 8/30/2002 5:00:00 PM Total # of Constraint(s) in Schedule: 8 IV. Open End Activities: ===== Activity: 1100 has no predecessors Activity: 1220 has no successors Activity: 1230 has no successors Activity: 2810 has no successors Total # of Open End Activities in Schedule: 4 V. MileStone Activities: ===== Activity: 1100 is a Start MileStone Activity: 1700 is a Finish MileStone Activity: 2700 is a Finish MileStone Activity: 2810 is a Finish MileStone Total # of MileStone Activities in Schedule: 4 </pre>
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VERIFY ACTIVITIES, CALENDARS, CODES

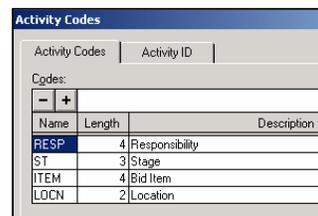
- Select **File, Project Overview**
 - To verify that the Baseline Schedule has **not less than 50 Activities nor more than 500 Activities**
 - To verify the calculated **Project End Date is not beyond the Contractual Completion**
 - To confirm the **entry of the Project Completion date** (float values then correctly reflect relative to the contract completion date)



- Select **Define, Calendars**
 - To view the calendars that have been defined by the Contractor
 - To verify the Caltrans work and non-work days are shown correctly

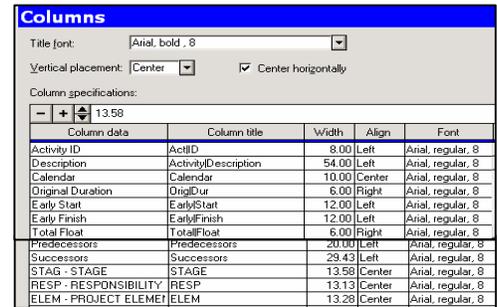
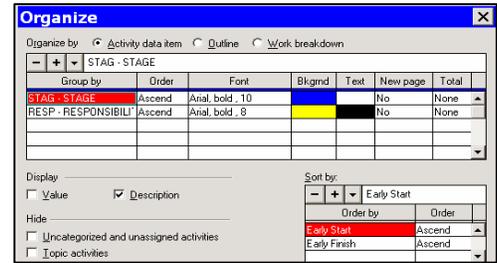


- Select **Define, Activity Codes**
 - To verify that the Contractor has the required Activity Codes defined
 - **Responsibility**
 - **Stage, Work Shifts**
 - **Location**
 - **Contract Pay Item Numbers**



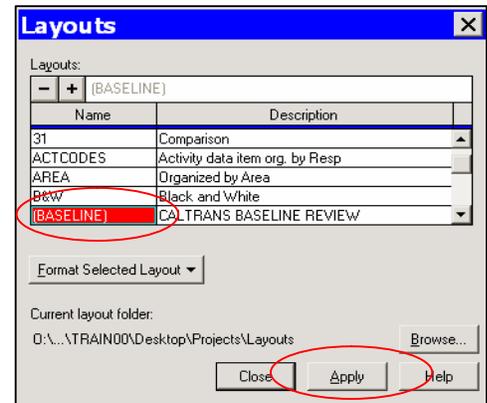
BASELINE REVIEW LAYOUT

- Open the Project (BASE)
- Select **Format, Organize**
 - Group By: **Stage, Responsibility**
 - Sort by: **Early Start, Early Finish**
- Select **Format, Columns**
 - Select Columns for
 - Activity ID, Description**
 - Calendar**
 - Duration**
 - Dates**
 - Float**
 - Relationships**
 - Codes**



Act ID	Activity Description	Calendar	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors	STAGE	RESP	ELEM
STAGE 1											
CALTRANS											
1130	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE	2	35	02/27/01	04/02/01	0	1120	1500, 2115	1	CT	GC
ACME GENERAL											
1140	MOBILIZATION	1	10	02/06/01	02/19/01	0	1100	1150	1	GC	GC
1120	SUBMIT FALSEWORK DRAWINGS - BRIDGE 720	2	21	02/06/01	02/26/01	0	1100	1130, 2110	1	GC	GC
1150	CLEAR AND GRUB - STA 190 - 230	1	5	02/20/01	02/26/01	0	1140	1170, 1190, 1210, 1220	1	GC	ST
1500	EMBANKMENT FILL/ SETTLEMENT	1	90	04/03/01	08/08/01	0	1130, 1210	1510	1	GC	B7
1510	EXCAV/PILES ABUTMENTS & BENTS	1	15	08/09/01	08/29/01	0	1500	1520, 1530	1	GC	B7
1520	BENT FOOTINGS	1	20	08/30/01	09/27/01	0	1510	1540	1	GC	B7
1530	ABUTMENTS	1	30	08/30/01	10/11/01	15d	1510	1550	1	GC	B7
1540	COLUMNS - BR 720	1	25	09/28/01	11/01/01	0	1520	1550	1	GC	B7
1550	ERECT FALSEWORK - BR 720	1	15	11/02/01	11/26/01	0	1530, 1540	1570	1	GC	B7
1570	BRIDGE DECK BR 720	1	5	11/27/01	12/03/01	0	1550	1580, 1590	1	GC	B7
1590	APPROACH SLABS - BR 720	1	5	12/04/01	12/10/01	5d	1570	1700	1	GC	B7

- Save your Layout
 - Select **View, Layouts**
 - Select the **+** Button and give the layout a **Name** and **Description**
 - Click on **Apply** to save
- Print your Layout
 - Select **File, Print**
 - Select the **Printer**
 - Click on **OK**



AT PRE-CONSTRUCTION SCHEDULING CONFERENCE ASK THE CONTRACTOR TO ADD THIS LAYOUT IN THEIR SURETRAK BASELINE FILE

CONFIRM COMPLIANCE

Review the Layout you created to see that the Contractor has included and established the appropriate activities that meet the Requirements for the Baseline Schedule and has properly coded each activity.

- Review the **Activity Description** column for:

Activity Description

 - ✓ Clear and Legible Descriptions
 - ✓ Pertinent Milestones
 - ✓ Utility Notification and Relocation Activities
 - ✓ All work performed by the Contractor, Subcontractors and Suppliers
 - ✓ Periods for Testing and Settlement
 - ✓ Procurement, Delivery, Installation and Testing of Material, Plants and Equipment
 - ✓ Periods for Erection and Removal of Falsework and Shoring
 - ✓ Periods for Finishing Roadway and Final Cleanup
 - ✓ Submittal Development, Delivery and Review/Approval Periods

- Review the **Calendar** column for:

Calendar

 - ✓ Activities that should be on the 7 day vs. the 5 day calendar (i.e. Settlement)

- Review the **Original Duration** column for:

Orig Dur

 - ✓ A minimum length of 1 working day (except for Milestones/Events)
 - ✓ A maximum length of 20 working days
 - ✓ Any duration with an * indicates a Duration constraint

- Review the **Early Start** and **Early Finish** columns for:

Early Start	Early Finish
----------------	-----------------

 - ✓ Dates with an * indicates a start or finish constraint
 - ✓ Dates with an A indicates an actual start or finish date (not allowed)

- Review the **Total Float** column for:

Total Float

 - ✓ No Negative Float attributed to any Activity

- Review the **Predecessor** and **Successor** columns for:

Predecessors	Successors
--------------	------------

 - ✓ All activities should have at least one Predecessor (except for the Project Start Milestone)
 - ✓ All activities should have at least one Successor (except for the Project Completion Milestone)

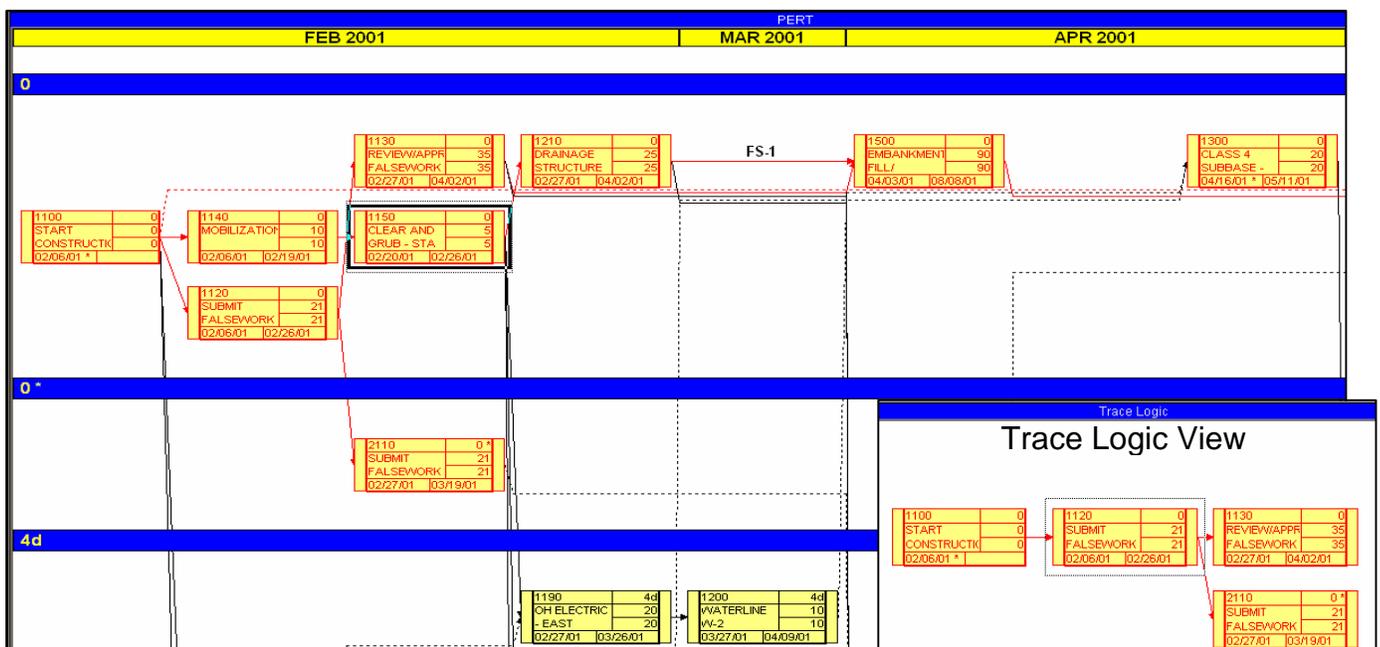
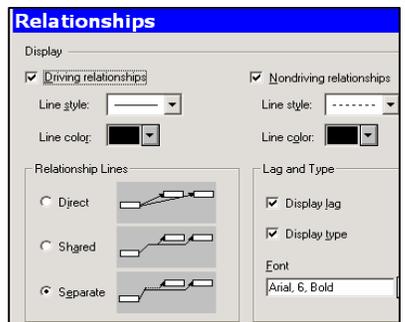
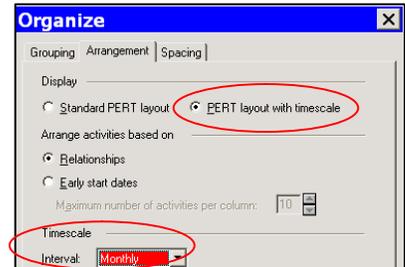
- Review the **Stage, Resp** and **Elem** columns for:

STAGE	RESP	ELEM
-------	------	------

 - ✓ All activities should be properly coded for the appropriate Stage
 - ✓ All activities should be properly coded for the appropriate Resp party
 - ✓ All activities should be properly coded for the appropriate Element

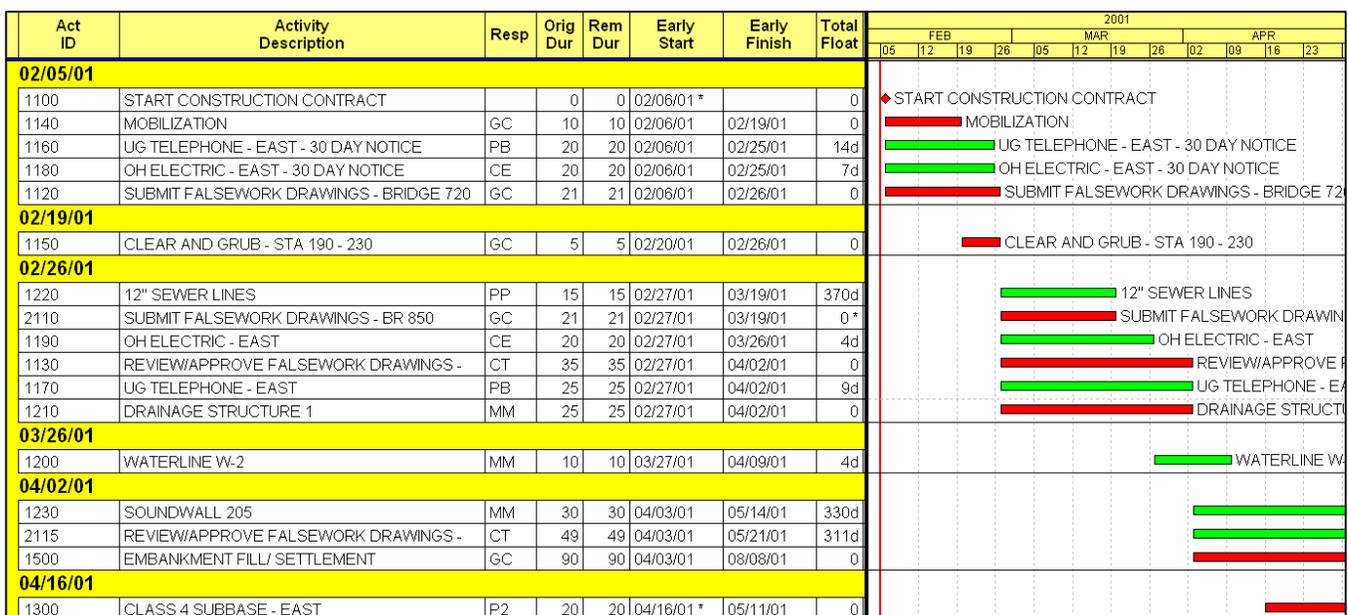
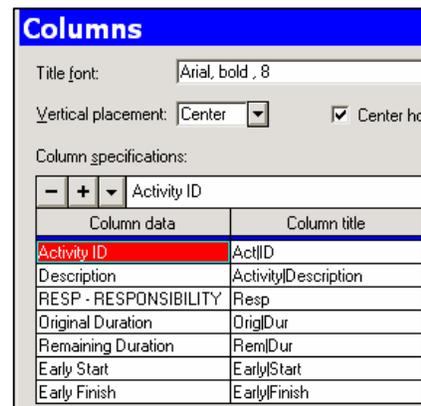
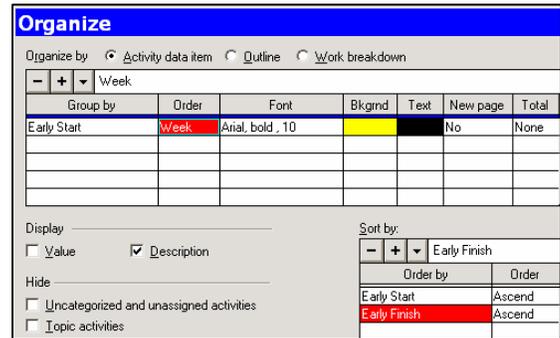
EXAMINE THE CRITICAL PATH(S)

- Go to the PERT (Network) View
 - Select **View, PERT**
 - Select **Format, Organize**
 - On the **Grouping** Tab, Group By **Total Float**
- On the **Arrangement** Tab, choose **PERT layout with timescale** and **Timescale Interval** of **Monthly**
- Select **Format Relationships**
- Check to **Display lag** and **Display type**
- Then any relationship that is not FS (Finish-to-start) or that has a lag will appear on the network diagram
- Review network
 - Activities are organized by Float, thus the most Critical Path appears in first group
 - Per the specifications, no more than 50% of the total activities should be Critical (lowest float) or Near-critical (next groups with low float)
 - Examine to ensure that logical links exist between activities
 - Check lags to determine acceptability, negative lags should not be attributed to any activity
 - Select **View, Trace Logic** to display more detailed view



BUILDABILITY VALIDATION LAYOUT

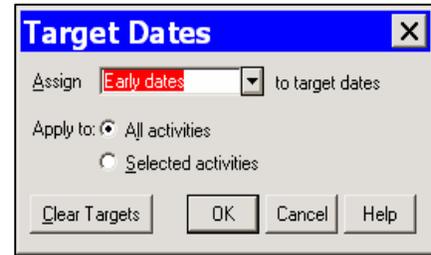
- Go to the Bar Chart View
 - Select **View, Bar Chart**
 - Select **Format, Organize**
 - Group By **Early Start** then Order by **Week**
 - Sort by **Early Start** and **Early Finish**
 - Then Select **Format, Columns**
 - Choose the columns as shown
- Save your Layout
 - Select **View, Layouts**
 - Select the **+ Button** and give the layout a **Name** and **Description**
 - Click on **Apply** to save
- Review the schedule for buildability and workflow
 - Activities are listed in work sequence and grouped by week to reflect the contractor's workplan
 - Columns indicate the activity information, responsibility, duration, dates and float
 - Bar chart reflects the critical path(s) in red and concurrent activities



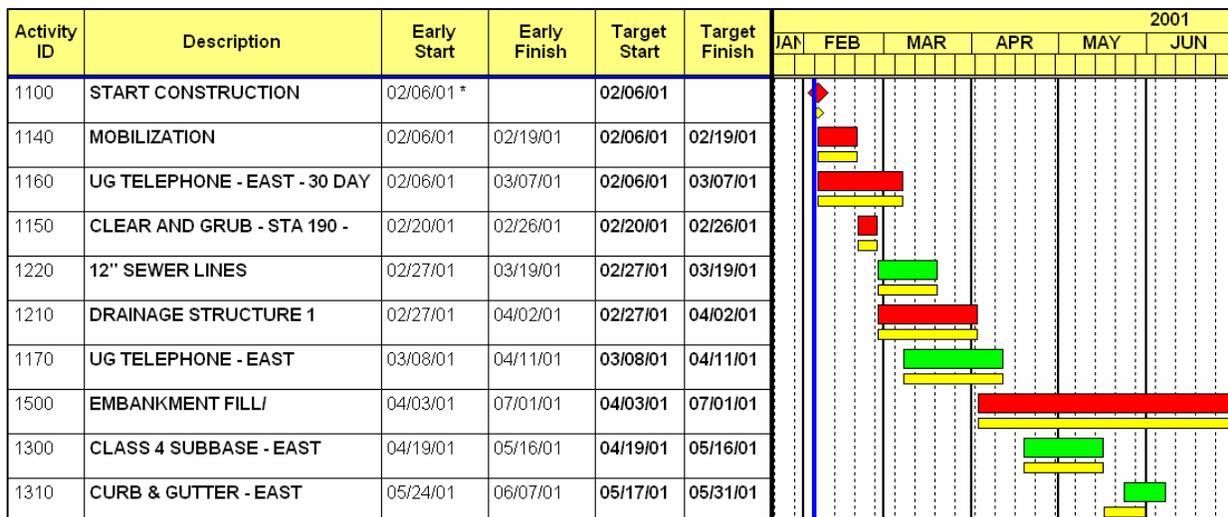
STORE TARGET DATES

Once a Baseline Schedule review is completed and is accepted, it is good practice to “store” the approved baseline dates as **Target Dates**. These can then be utilized for comparison purposes as the schedule is updated.

- Apply the Filter for **All Activities**
- Select **Define, Target Dates**
- Choose to **Assign Early Dates** for **All Activities**



- Select **View, Activity Detail, Dates** to review both the current schedule dates and the Target Dates
- Target Dates can also be displayed in Columns
- Target Bars can also be displayed to provide a visual comparison of the Current to the Target Dates (covered in Lesson 6)



REVIEW QUESTIONS

1. **It is best to only look at the Bar Chart when reviewing a Baseline Schedule.** (5-10)
 - a. True
 - b. False

2. **Which statement is correct?** (5-11)
 - a. You do not have to Restore the backed up file first before opening
 - b. You can open the .PRX file directly
 - c. You must Restore the file before it can be opened

3. **What determines the Data Date for the Baseline Schedule?** (5-12)
 - a. Day the Contract was signed by the Contractor
 - b. Day the Contract was signed by Caltrans
 - c. The first working day of the Project
 - d. The day the Contractor actually mobilizes on site

4. **The calculated Project End Date can be later than the Contract Completion.** (5-13)
 - a. False
 - b. True

5. **Which statement about the Baseline Review Layout is incorrect?** (5-14)
 - a. It is not required to be developed by the Contractor
 - b. It is already a standard layout that comes with SureTrak
 - c. The reviewer must create it

6. **What is the maximum number of days that should be shown in the Baseline Schedule for any activity?** (5-15)
 - a. 10 Working Days
 - b. 20 Calendar Days
 - c. 30 Working Days
 - d. 20 Working Days

7. **The Critical and the Near-Critical Paths should not be more than** (5-16)
_____ Percent of the total activities in the Baseline Schedule.

8. **What is the best way to determine the buildability of the Project Schedule?** (5-17)
 - a. Ask the Contractor
 - b. Wait until the Project is 75% complete
 - c. Develop a buildability layout to validate
 - d. Ask the Sub-Contractors

9. **Target Dates should be Defined after the Baseline Schedule is accepted.** (5-18)
 - a. False
 - b. True

WORKSHOP #5

Use SureTrak to review a Baseline Schedule:

See page 5-10 for Baseline Schedule Review Process steps



1. Restore the BASE.prx file (page 5-11)
see page 3-2 for sample project specifics
2. Re-calculate and Check the Baseline Schedule (page 5-12)
3. Verify the number of Activities, the Calendars and the Coding Structure (page 5-13)
4. Create a Baseline Schedule Layout and then review (page 5-14)
5. Confirm the Baseline Schedule Compliance (page 5-15)
6. Examine the Critical Path(s) in PERT (page 5-16)
7. Create a Buildability Validation layout and then review (page 5-17)
8. Store the Target Dates and then view (page 5-18)
9. Would you recommend this Baseline Schedule be -
 - a. Accepted
 - b. Conditionally Accepted
 - c. Rejected

LESSON 6: REVIEWING UPDATE SCHEDULES

In this lesson, you will learn the basic techniques for reviewing Update Schedules with SureTrak.

At the completion of this lesson, you will be able to:

- Understand the requirements for Update Schedules
- Know the timeline for submitting the Update Schedule
- Utilize SureTrak to ensure that the Contractor's Update Schedule conforms to the criteria for CPM Schedules by:
 - Re-checking and re-verifying same items as for Baseline Schedules
 - Validate Progress & Measure Performance
 - Perform Comparison
 - Analyze Variances & Exceptions

**This lesson will continue to focus on the requirements for satisfying SSP # 08-015
(Most Demanding Requirements)**

PROGRESS SCHEDULE REQUIREMENTS MATRIX

SUMMARY	SSP # 08-010	SSP # 08-012	SSP # 08-015
CONTRACT ITEM	X	N/A	N/A
SCHEDULES:			
BASELINE SCHEDULE	N/A	X	X
CURRENT SCHEDULE UPDATES	N/A	X	X
FINAL UPDATE SCHEDULE	N/A	X	X
STATE-OWNED FLOAT	N/A	N/A	X
NETWORK DIAGRAM	N/A	X	X
REPORTS	N/A	N/A	X
PRE-CONSTRUCTION SCHEDULING CONFERENCE	N/A	X	X
TIME IMPACT ANALYSIS	N/A	N/A	X

NOTE: The General and Specific Requirements still apply to Updates (See 5-4 and 5-5)

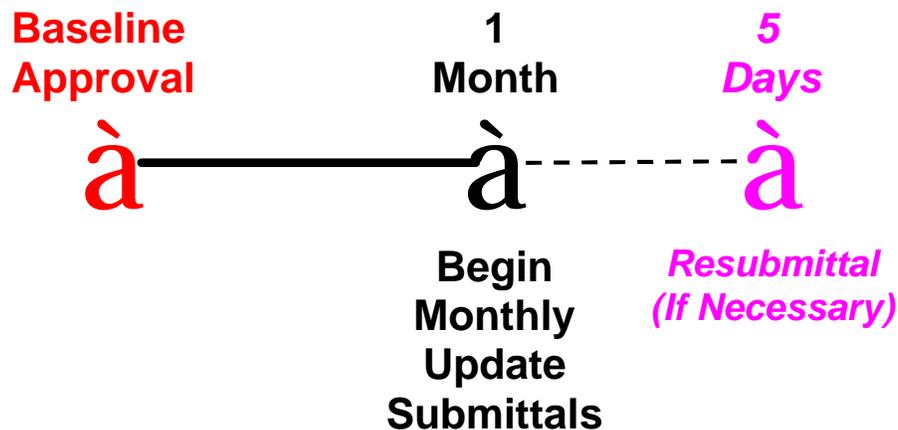
UPDATE SCHEDULE REQUIREMENTS	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ Submittal required beginning one month after the Baseline Schedule is approved	N/A	X	X
✓ The Data Date for each Update Schedule shall be the 21 st day of each month (or other date established by the Engineer)	N/A	X	X
✓ The status of all work completed to date shall be shown and the work yet to be performed	N/A	X	X
✓ Actual start dates, percent complete and finish dates shall be shown as applicable	N/A	X	X
✓ Activities may be modified, added or deleted as needed. The Contractor shall state in writing the reasons for any changes to activities and the Critical Path that result in a delay to the scheduled completion date compared to the previous accepted schedule	N/A	X	N/A
✓ Activities may be modified, added or deleted as needed. The Contractor shall state in writing the reasons for any changes to planned work. If any such modifications, additions or deletions (1) affect the Critical Path(s) or near Critical Path(s) or (2) extend the accepted completion date then a Time Impact Analysis shall be submitted (see TIME IMPACT ANALYSIS)	N/A	N/A	X
✓ The Contractor may show a scheduled completion date that is later than the contract completion date on an update schedule, after the Baseline Schedule is accepted. The Contractor shall provide an explanation for a late scheduled completion date in the narrative report that is included with the schedule.	N/A	N/A	X
✓ The Contractor shall allow 2 weeks for the Engineer's review after the update schedule and all support data are submitted - except that the review period shall not start until the previous month's required schedule is accepted. Update schedules that are not accepted or rejected within the review period will be considered accepted by the Engineer.	N/A	N/A	X
✓ General Schedule Requirements as shown below	N/A	X	X
✓ Specific Schedule Requirements as shown below	N/A	X	X

PROGRESS SCHEDULE REQUIREMENTS MATRIX (Continued)

REPORTS	SSP # 08-010	SSP # 08-012	SSP # 08-015
<p>■ MONTHLY UPDATE NARRATIVE The Narrative Report shall be organized as follows:</p>			
✓ The Contractor's Transmittal Letter	N/A	N/A	X
✓ Work Completed During The Period	N/A	N/A	X
✓ Identification of Unusual Conditions Or Restrictions (regarding)			
1. Labor	N/A	N/A	X
2. Equipment or Material			
✓ Description Of The Critical Path	N/A	N/A	X
✓ Changes To The Critical Path and Scheduled Completion Date (since the last schedule update submittal)	N/A	N/A	X
✓ Description Of Problem Areas	N/A	N/A	X
✓ Current And Anticipated Delays			
1. Cause of delay	N/A	N/A	X
2. Impact of delay on other activities, milestones, completion date			
3. Corrective action and schedule adjustments to correct the delay			
✓ Pending Items And Status			
1. Permits	N/A	N/A	X
2. Change Orders			
3. Time Adjustments			
4. Non-Compliance Notices			
✓ Reasons For An Early or Late Schedule Completion Date	N/A	N/A	X
<p>■ TABULAR REPORTS Three software-generated reports are required: Report sorted by Activity Number Report sorted by Early Start Report sorted by Total Float</p> <p>Each Report shall include the following:</p>			
✓ Activity Number and Description	N/A	N/A	X
✓ Predecessor and Successor information, including Lags	N/A	N/A	X
✓ Early Start, Early Finish, Late Start, Late Finish and/or Actual Start, Actual Finish	N/A	N/A	X
✓ Total Float and Free Float	N/A	N/A	X
✓ Percent Complete	N/A	N/A	X
✓ Planned Duration, Remaining Duration and/or Actual Duration	N/A	N/A	X
✓ Constraint information	N/A	N/A	X
✓ Data Date	N/A	N/A	X
✓ Activity Codes	N/A	N/A	X
NETWORK DIAGRAM	SSP # 08-010	SSP # 08-012	SSP # 08-015
<p>Time-Scaled Network Diagram Requirements:</p>			
✓ Be based on the activities' early start and early finish dates	N/A	X	X
✓ Clearly show the primary paths of criticality	N/A	X	X
✓ Show a continuous flow of information from left to right	N/A	X	X
✓ Include a title block and a timeline on each page	N/A	X	X
✓ A Time-scaled Network Diagram (2 sets) on E-Sized sheets is to be included with each schedule submittal	N/A	N/A	X
✓ A Time-scaled Network Diagram (2 sets) on B-Sized sheets is to be included with each schedule submittal	N/A	X	N/A
ELECTRONIC MEDIA	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ One 1.44 megabyte (3.5 Inch) floppy disk containing the schedule data shall be submitted with each schedule submittal	N/A	X	X
FINAL UPDATE SCHEDULE	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ Within 30 days after completion of contract work, the Contractor shall submit a final update, as-built schedule with actual start and finish dates	N/A	X	X
✓ The Contractor shall provide a written certificate with this submittal attesting to the accuracy of the information that is signed by the Contractor's Project Manager and Officer of the Company	N/A	X	X

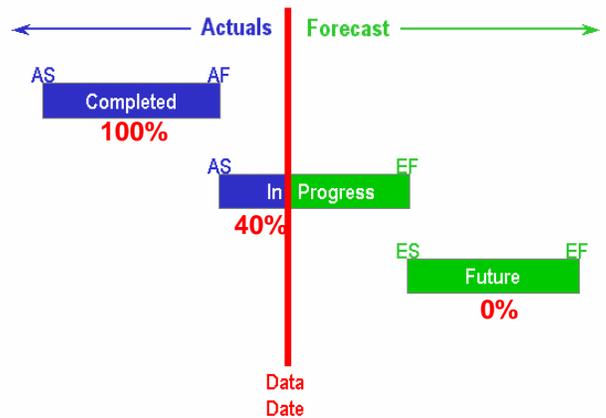
SUBMITTAL TIMELINE

- The Update Schedules are required beginning **one month** after the Baseline Schedule is approved
- Data Date for each Update Schedule shall be the **21st** day of each month
- Two weeks shall be allowed for the Engineer's Review after the Update Schedule and all support data are submitted
 - Electronic File (backup disk)
 - Narrative Report
 - Tabular Reports
 - Network Diagram
- Schedules that are rejected by the Engineer shall be corrected by the Contractor and resubmitted within 5 Working Days of notification by the Engineer at which time a new one-week review period will begin



SCHEDULE UPDATES

- The three stages of Progress are:
 - Completed Activities
 - In-Progress Activities
 - Future Activities
- Schedule **Updates** require:
 - Actual Start / Finish Dates
 - Percent Complete
 - Remaining Duration
- Schedule **Maintenance** includes:
 - Revisions to Durations
 - Revisions to Relationships
 - Review/Revise Constraints
- Choose the activity, then select **Tools, Update Activity** to open the update window
- Choose **Actual Start** and enter that **Date**
- Enter the **Percent Complete** or the Remaining Duration then click on **Update**
- Also, the Update information can be entered by using **Format, Columns**
 - Enter the **Actual Start Date**
 - Enter the **Percent Complete** or the **Remaining Duration**
- Then select **Tools, Schedule** to change the Data Date and recalculate the schedule
- To display two schedules at the same time, open both schedules, select **Window, Tile**



Update Activity

2510 - EXCAV/PILES ABUTMENTS & BENTS - BR 850

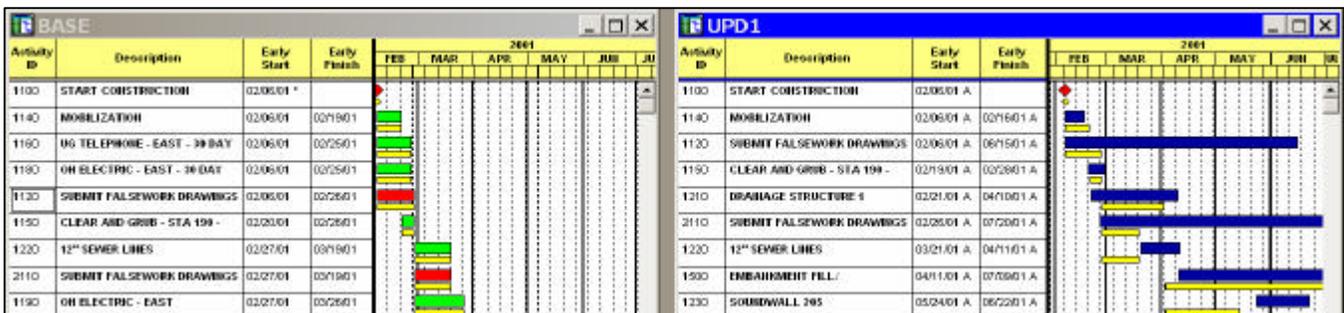
Actual Start: Early Finish:

Percent Complete: Remaining duration:

Progress:

Suspend: Resume:

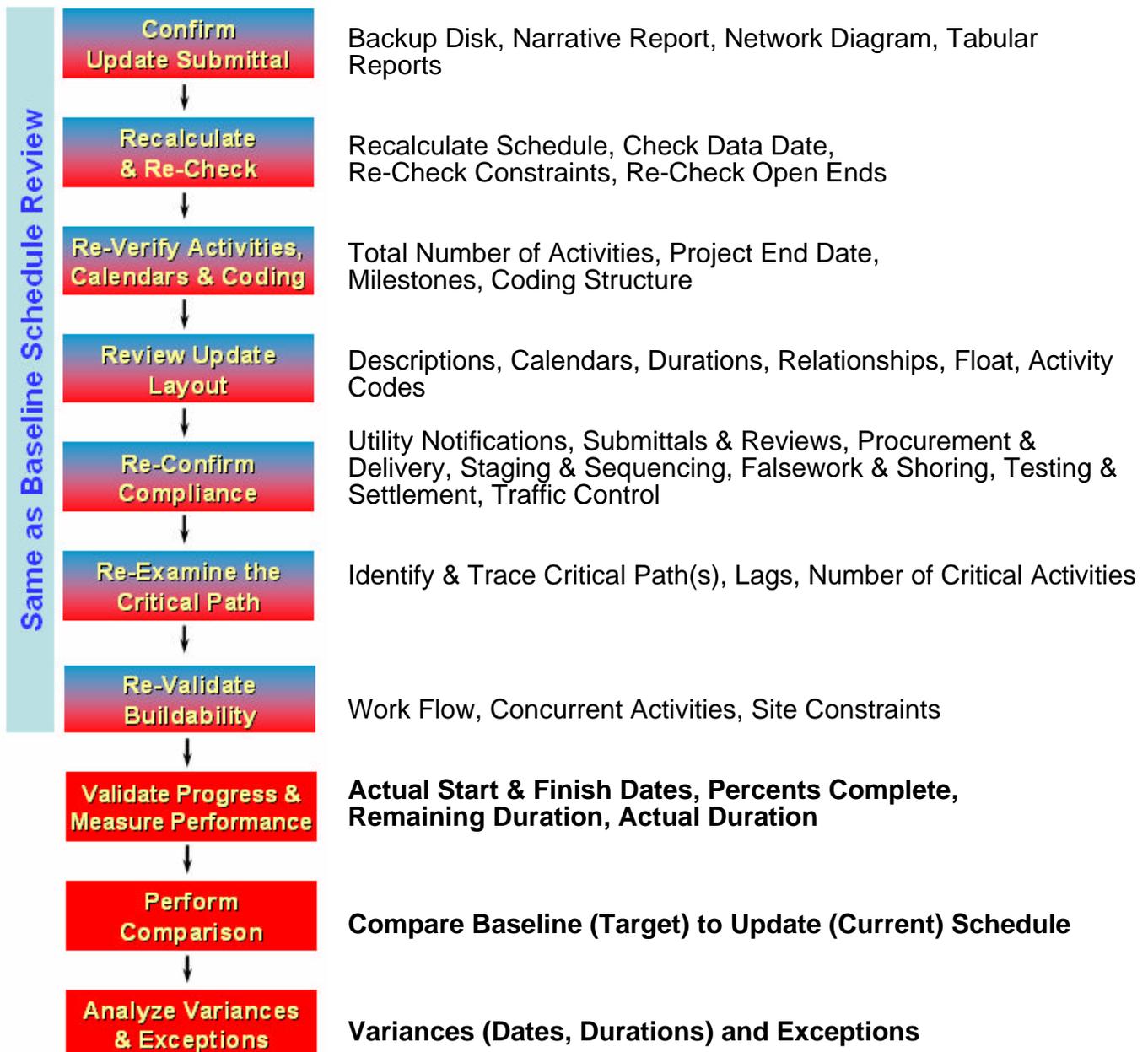
Activity ID	Description	Actual Start	Actual Finish	Percent Complete	Remaining Duration
1100	START CONSTRUCTION CONTRACT			0	0
1140	MOBILIZATION			0	10
1120	SUBMIT FALSEWORK DRAWINGS - BR 720			0	21
1160	UG TELEPHONE - EAST - 30 DAY NOTICE			0	30
1180	OH ELECTRIC - EAST - 30 DAY NOTICE			0	30



UPDATE SCHEDULE REVIEW PROCESS

- **Best Practices**

- Establish a consistent and diligent Update Schedule Review Process as described below
- Practice good File Management
- Review Update Schedule from multiple perspectives (bar chart can be misleading)
- Strive for best and most realistic updated work plan



REVIEW QUESTIONS

1. **This Lesson is still focused on which of the Specifications?** (6-1)
 - a. SSP 08-015
 - b. SSP 08-012
 - c. SSP 08-010

2. **The Data Date for each monthly Update Schedule shall be the -** (6-2)
 - a. 30th
 - b. 21st
 - c. 15th
 - d. 1st

3. **Which item is not to be included in the Monthly Update Narrative?** (6-3)
 - a. Description of Critical Path
 - b. Work Completed During the Period
 - c. Proposed Alphanumeric Coding Structure
 - d. Description of Problem Areas

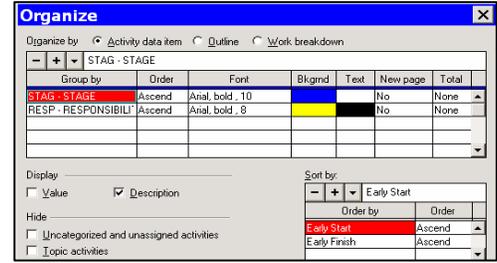
4. **Update Schedules are required to begin how soon after Baseline approval?** (6-4)
 - a. 1 month
 - b. 21 days
 - c. 2 months
 - d. 5 days

5. **Which statement is incorrect:** (6-5)
 - a. There are 3 stages of Progress
 - b. Schedule Updates do not require actual start / finish dates
 - c. Schedule Maintenance includes revisions to relationships
 - d. Schedule Updates require Percent Complete

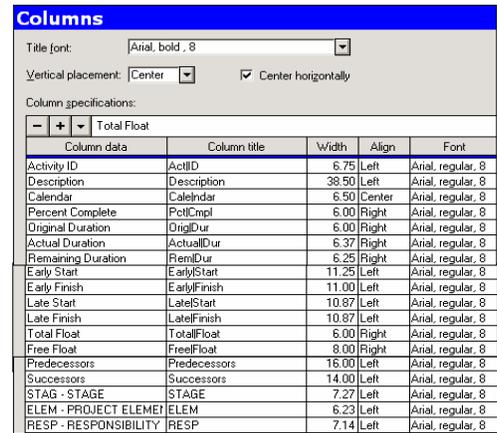
6. **Which step is not unique to the Update Schedule Review Process?** (6-6)
 - a. Analyze Variances & Exceptions
 - b. Examine the Critical Path
 - c. Perform Comparison
 - d. Validate Progress & Measure Performance

UPDATE REVIEW LAYOUT (similar contents as Tabular Reports)

- Open the Project (UPD1)
- Select **Format, Organize**
 - Group By: **Stage, Responsibility**
 - Sort by: **Early Start, Early Finish**



- Select **Format, Columns**
 - Select Columns for
 - Activity Information**
 - Duration**
 - Dates**
 - Float**
 - Relationships**
 - Codes**



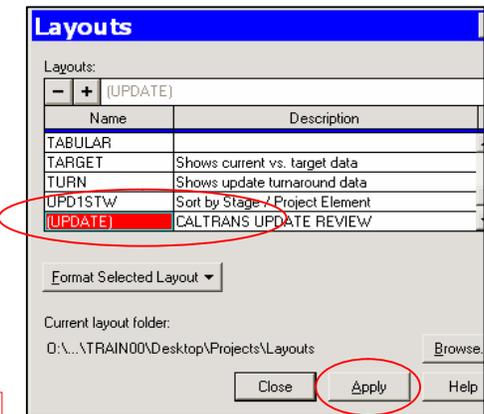
Act ID	Description	Calendar	Pct Cmpl	Orig Dur	Actual Dur	Rem Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float	Predecessors	Successors	STAGE	ELEM	RESP
1100	START CONSTRUCTION CONTRACT	1	100	0	1	0	02/06/01 A		02/06/01 A								
1140	MOBILIZATION	1	100	10	9	0	02/06/01 A	02/16/01 A	02/06/01 A	02/16/01 A			1100	1150	1	GC	GC
1120	SUBMIT FALSEWORK DRAWINGS - BR	2	100	21	130	0	02/06/01 A	06/15/01 A	02/06/01 A	06/15/01 A			1100	1130, 2110	1	GC	GC
1150	CLEAR AND GRUB - STA 190 - 230	1	100	5	8	0	02/19/01 A	02/28/01 A	02/19/01 A	02/28/01 A			1140	1170, 1190, 1	ST	GC	GC
1210	DRAINAGE STRUCTURE 1	1	100	25	35	0	02/21/01 A	04/10/01 A	02/21/01 A	04/10/01 A			1150	1230, 1500	1	UT	PP
2110	SUBMIT FALSEWORK DRAWINGS - BR	2	100	21	145	0	02/26/01 A	07/20/01 A	02/26/01 A	07/20/01 A			1120	2115	2	GC	GC
1220	12" SEWER LINES	1	100	15	16	0	03/21/01 A	04/11/01 A	03/21/01 A	04/11/01 A			1150	1500	1	UT	PP
1500	EMBANKMENT FILL/ SFTTI FMENT	2	100	90	90	0	04/11/01 A	07/09/01 A	04/11/01 A	07/09/01 A			1210, 1220	1510	1	B7	GC
1230	SOUNDWALL 205													1700	1	SR	MM
1160	UG TELEPHONE - E													1170	1	UT	PB
1180	OH ELECTRIC - EAS													1190	1	UT	CE
1130	REVIEW/APPROVE													1550, 2115	1	GC	CT
1510	EXCAV/PILES ABUT													1520, 1530	1	B7	GC
1190	OH ELECTRIC - EAS													1200	1	UT	CE
1170	UG TELEPHONE - EAST	1	25	25	7	19	07/11/01 A	08/15/01	07/11/01 A	10/16/01	43d	9d	1150, 1180	1300	1	UT	PB

VALIDATE PROGRESS & MEASURE PERFORMANCE
 Percent Complete, Original vs. Actual Duration
 Remaining Duration, Actual Dates, Field Diaries

- Save your Layout
 - Select **View, Layouts**
 - Select the **+** Button and give the layout a **Name** and **Description**
 - Click on **Apply** to save
- Print your Layout
 - Select **File, Print**
 - Select the **Printer**
 - Click on **OK**



AT PRE-CONSTRUCTION SCHEDULING CONFERENCE ASK THE CONTRACTOR TO ADD THIS LAYOUT IN THEIR SURETRAK BASELINE FILE



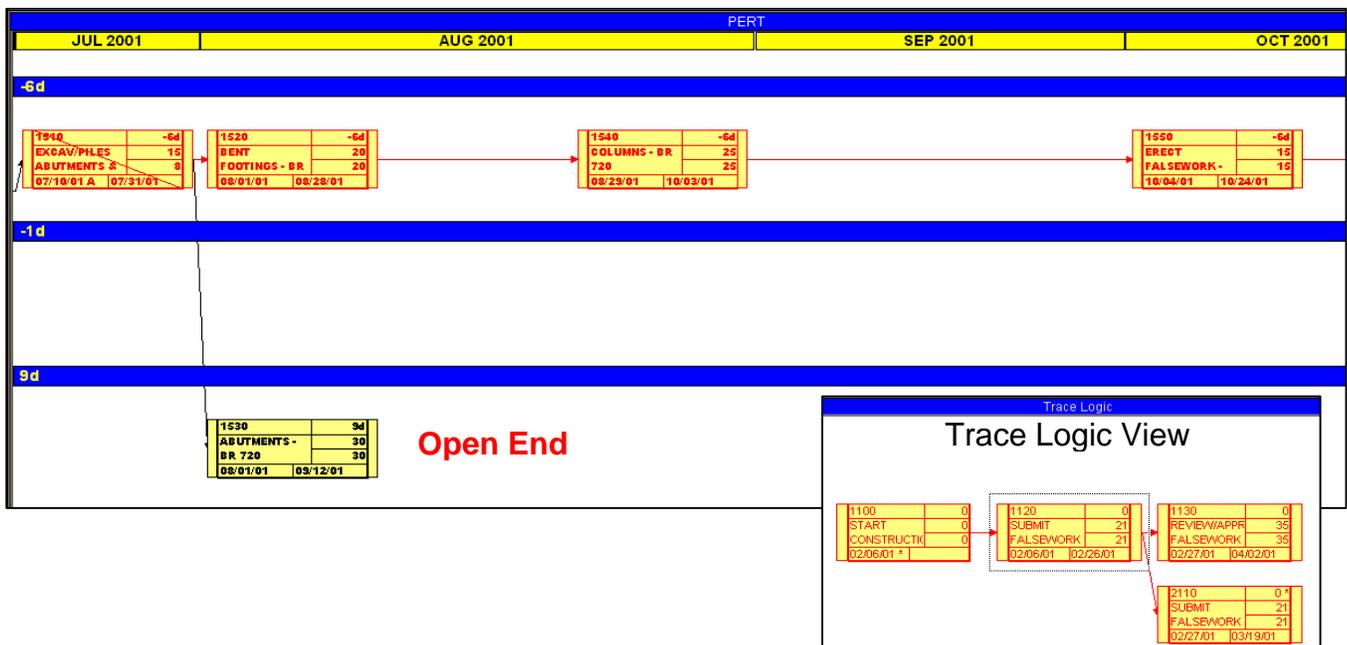
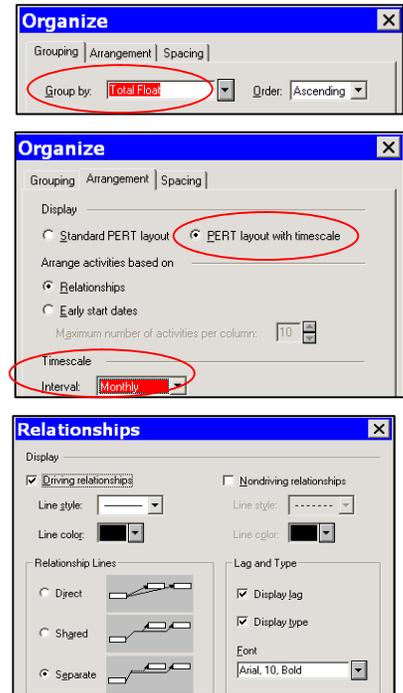
RE-EXAMINE THE CRITICAL PATH(S)

- Go to the PERT (Network) View
 - Select **View, PERT**
 - Select **Format, Organize**
 - On the **Grouping** Tab, Group By **Total Float**

- On the **Arrangement** Tab, choose **PERT layout with timescale** and **Timescale Interval** of Monthly

- Select **Format Relationships**
- Check to **Display lag** and **Display type**
- Then any relationship that is not FS (Finish-to-start) or that has a lag will appear on the network diagram

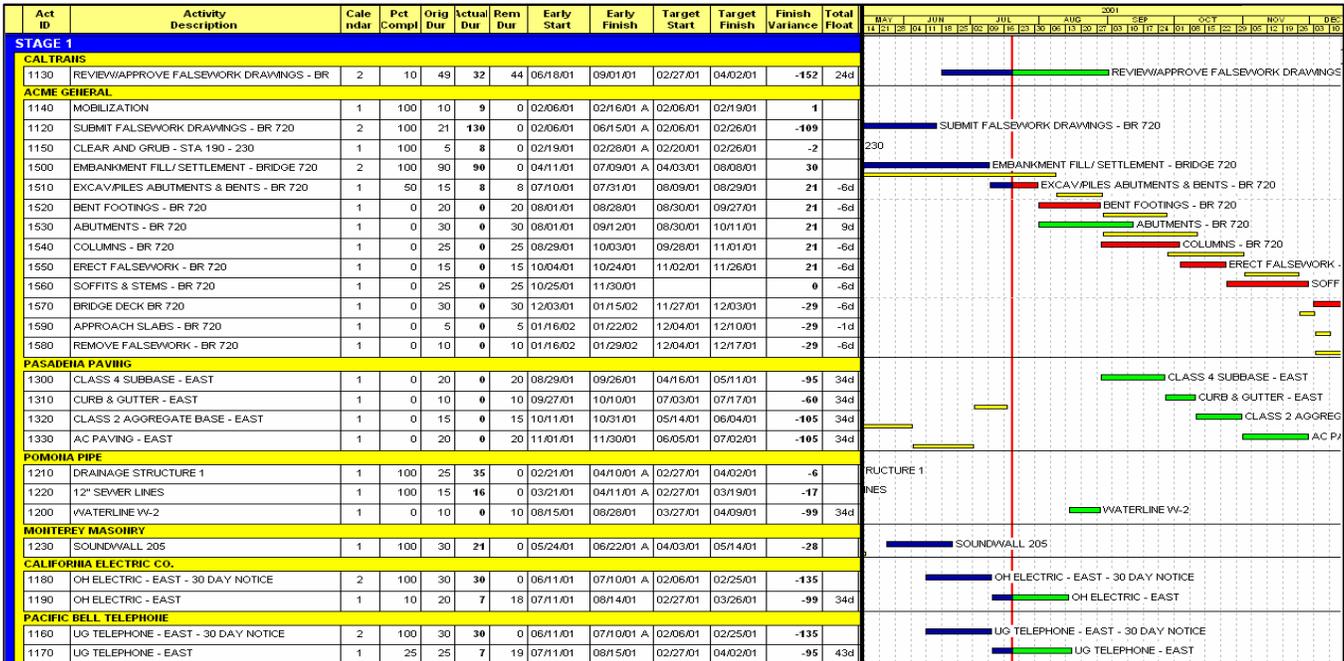
- Review network
 - Activities are organized by Float, thus the most Critical Path appears in first group
 - Examine to ensure that logical links exist between activities
 - Check lags to determine acceptability, negative lags should not be attributed to any activity
 - Select **View, Trace Logic** to display more detailed view



UPDATE COMPARISON LAYOUT

This approach utilizes the **Target Dates** that were Defined (stored) after the Baseline approval (see page 5-18)

- **Open** the Project
- Select **Format, Organize**
 - Group By: **Stage, Responsibility**
 - Sort by: **Early Start, Early Finish**
- Select **Format, Columns**
 - Select the Columns shown for
 - Activity Information**
 - Durations**
 - Dates**
 - Variances**
 - Float**
- **Save** your Layout
 - Select **View, Layouts**
 - Select the **+** Button and give the layout a **Name** and **Description**
 - Click on **Apply** to save
- **Review** the schedule for exceptions and variances
 - Activities are listed by Responsibility to help review productivity / status
 - Columns indicate the activity information, durations, dates, variances and float
 - Bar chart reflects the completed work (blue) critical path(s) in red and remaining work (green)



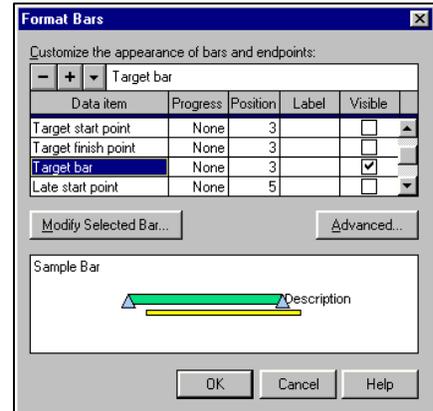
TARGET BARS

How can I show Target Bars (based on Target Dates) in my production (current) schedule?

1. Open the project

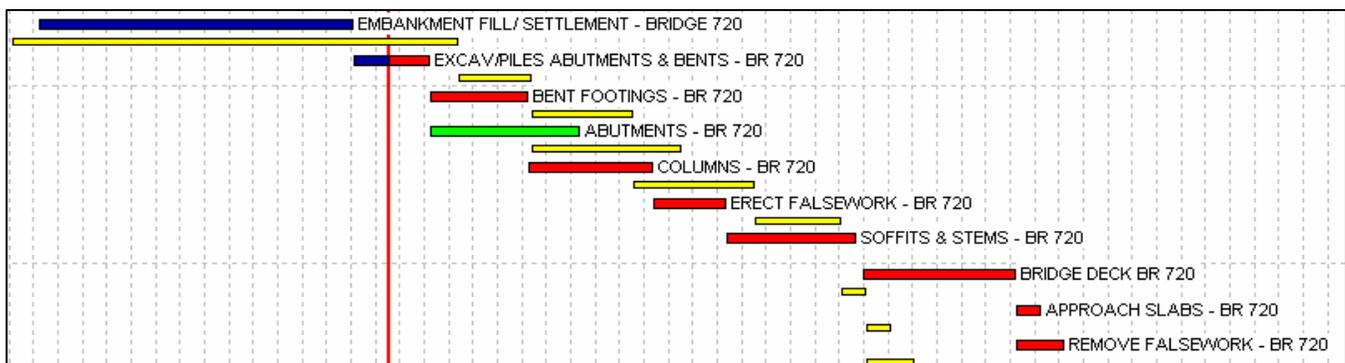
2. Navigate to **"Format, Bars"** and under Data Item, look for **"Target Bar"**

- If the **target** bar is not listed under **"Data Item"**, click on the **"+"** and add the **"Target bar"** to the Data Item list
- Place a check mark in the **"Visible"** column for the **"Target Bar"**
- This will make the yellow **target** bar appear in the **"Sample Bar"** area
- Click **"OK"**.



3. Navigate to **"Format, Row Height"**

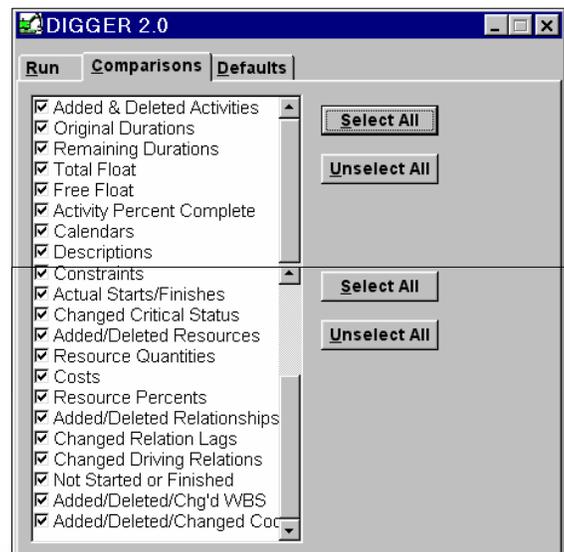
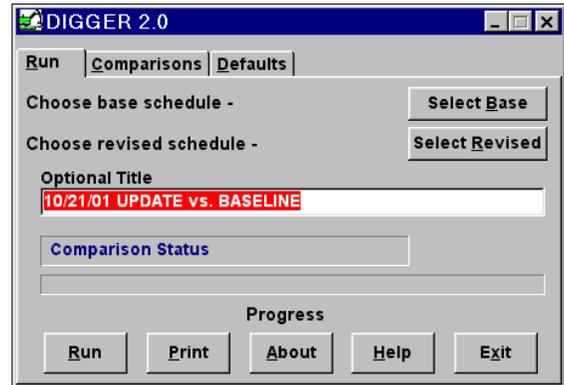
- Select **"Automatic Size"** and apply to **"All Activities"**
- Click **"OK"**
- This will resize the row heights automatically so that the **target** bars will have "room" to be shown on the schedule bar chart



COMPARISON UTILITY

This approach utilizes the **Digger** Utility to compare two different schedule files.

- Projects must be saved in “Project Groups” format
- Select Base file (baseline or previous update)
- Select Revised file (current update)
- The Comparison tab lists all the various data items / fields that will be compared
- Click on Run to perform the comparison
- Digger produces a summary report of all differences
- Also produced is a detail listing of the specific changes
- Review detail listing for key changes / differences



1. These activities have been deleted by the update.

ACTID	DESCRIPTION	OD	RD	TF
880	880 Median - Remove Krail	1	1	130

2. These activities have been added by the update.

ACTID	DESCRIPTION	OD	RD	TF
191	CCO No. 10 Time Extension	21	0	0
192	CCO No. 10 Complete Work	6	0	7
193	CCO No. 10 Park Repairs	3	0	7
841	880 Median - Resume Drive Pike	1	0	0
842	CCO No. 30 Cutoff Pile	1	0	0

3. These original durations have been changed by the update.

ACTID	DESCRIPTION	ORIG.	CHG'D	DIFF.
		OD	OD	
30	Install Rail Crossing @ LRT	3	0	-3
60	Approve SWPPP	15	5	-10
230	Install DS No. 6B & 6D; 900mm liner & 1050 RCP	1	6	5

9. These descriptions have been changed by the update.

ACTID	OLD DESCRIPTION	NEW DESCRIPTION
60	Approve SWPPP	Approve SWPPP - Conditional
80	Video Sanitary @ 153+60 & 154+60	Video Sanitary @ 153+60 & 154+60 (CCO No. 10)
170	Remove Fence 8+10 to 12+50	Remove & Replace Fence 8+10 to 11+20

ANALYZE VARIANCES & EXCEPTIONS

While SureTrak (and Digger) may help identify the variances and exceptions, a thorough analyzation will help focus on key issues.

Act ID	Description	Calendar	Pct Cmpl	Orig Dur	Actual Dur	Rem Dur	Early Start	Early Finish	Target Start	Target Finish	Finish Variance	Total Float
--------	-------------	----------	----------	----------	------------	---------	-------------	--------------	--------------	---------------	-----------------	-------------

- Analyze the **Duration** columns:
 - ✓ How does the Actual Duration compare to the Original (planned) Duration?
 - ✓ Does the Remaining Duration appear to be valid for the remaining work?
- Analyze the **Dates** columns:
 - ✓ Early Start/Finish dates are from the current update schedule (based on calculations)
 - ✓ Actual Dates are indicated with an “A”
 - ✓ Target Start/Finish dates are from the baseline dates “stored” (see page 5-18)
 - ✓ If the Target Start/Finish dates are blank, this activity has been added since the baseline was approved
- Analyze the **Finish Variance** column:
 - ✓ This column represents the number of workdays (based on the calendar) that the finish date of that activity has changed from the baseline to the current update
- Analyze the **Float** column:
 - ✓ Completed activities do not have float values
 - ✓ Critical activities have the lowest float
 - ✓ Activities with Negative Float indicate the project completion is beyond the contractual date
- Analyze the Digger reports to review:
 - ✓ Added / Deleted Activities (or renumbered)
 - ✓ Changes in Original (planned) durations
 - ✓ Changes in Calendar assignments
 - ✓ Changes in Activity Descriptions
 - ✓ Added / Deleted / Changed Constraints
 - ✓ Changed Critical Status
 - ✓ Added / Deleted Relationships
 - ✓ Changed Relationship Lags
 - ✓ Added / Deleted / Changed Activity Codes

TRACK KEY STATISTICS

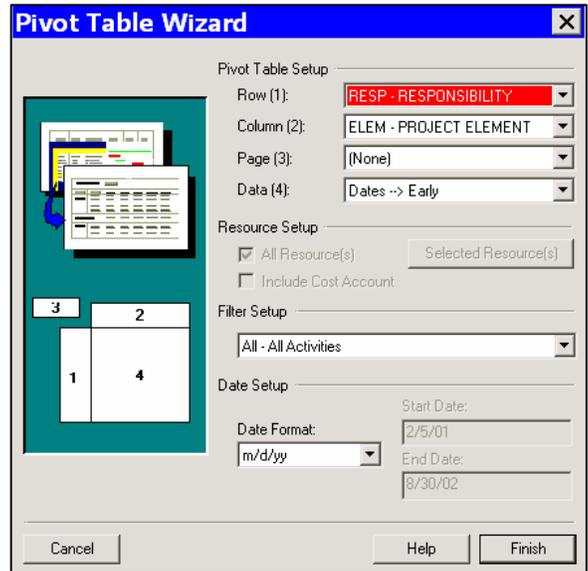
- Develop and maintain a spreadsheet / chart of the key statistics from the baseline and each schedule update
- Provides perspective of the schedule progression or regression
- List of items can be expanded to include other key data or values

CATEGORY	BASELINE SCHEDULE	FIRST UPDATE	SECOND UPDATE	THIRD UPDATE	FOURTH UPDATE
Total No. Of Activities	321	325	316	332	336
% Critical Activities	32%	44%	42%	38%	--
Critical Path Total Float	0	-10	-8	-4	--
Total % Complete	0%	20%	45%	80%	100%
Project Completion Date	3/01/02	3/15/02	3/13/02	3/07/02	3/06/02

- Source Of Data
 - No. Of Activities can be found on the Project Overview and the Diagnostic Report
 - % Critical Activities can be calculated by dividing the Number of Critical Activities (apply the Critical filter) with the Total Number of Activities in the schedule
 - Critical Path Total Float can be determined by organizing by Float, as the lowest float values appear at the top of the layout
 - Total % Complete can be found on the Project Overview
 - Project Completion Date can be found on the Project Overview

PIVOT TABLE WIZARD

- Tabular Reports / Spreadsheets of the schedule information can be produced using the Pivot Table Wizard that utilizes Excel to read the SureTrak data and produce reports
- Select **Tools, Wizards, Pivot Table Wizard**
- Choose the item that you want to summarize and report on by **Row**
- Choose the item that you want to summarize and report on by **Column**
- Select the item you want to create a **Page** break for each value
- Enter the **Data** item that you would like to summarize / report on by the Rows and Columns selected
- Choose the **Filter** for which activities will be included in the report
- Reports can be run for other data items:
 - Activity dates
 - Resources
 - Costs
 - Variances



		ELEM - PROJECT ELEMENT						
RESP - RESPON	Data	1 - GC - GENERAL CONDITIONS	2 - ST - SITEWORK	3 - UT - UTILITIES	5 - RD - ROADWAY PAVING	6 - B7 - BRIDGE 720	Grand Total	
2 - GC - ACME GEN	Min of Early Start	2/6/01	2/20/01			4/3/01	2/6/01	
	Max of Early Finish	2/19/01	2/26/01			7/1/01	7/1/01	
3 - P2 - PASADENA	Min of Early Start				4/19/01		4/19/01	
	Max of Early Finish				6/7/01		6/7/01	
4 - PP - POMONA P	Min of Early Start	2/6/01		2/27/01			2/6/01	
	Max of Early Finish	2/6/01		4/2/01			4/2/01	
7 - PB - PACIFIC B	Min of Early Start			2/6/01			2/6/01	
	Max of Early Finish			4/11/01			4/11/01	
Total Min of Early Start		2/6/01	2/20/01	2/6/01	4/19/01	4/3/01	2/6/01	
Total Max of Early Finish		2/19/01	2/26/01	4/11/01	6/7/01	7/1/01	7/1/01	

REVIEW QUESTIONS

1. **Which statement is incorrect?** (6-8)
 - a. You have to Restore the backed up file first before opening
 - b. You can open the .PRX file directly
 - c. Choose Tools, Project Utilities, Restore to restore a .PRX file

2. **Which statement about the Update Review Layout is correct?** (6-9)
 - a. It is required to be developed by the Contractor
 - b. It is already a standard layout that comes with SureTrak
 - c. The reviewer must create it

3. **Which change will not potentially affect the Critical Path?** (6-10)
 - a. Change in Calendar
 - b. Change in Relationships
 - c. Change in Remaining Duration
 - d. Change in Activity Description

4. **The Update Comparison Layout does not help you identify -** (6-11)
 - a. Major variances in Duration
 - b. Major variances in Start/Finish Dates
 - c. Changes in Activity Codes
 - d. Current Percent Complete

5. **The Digger Comparison Utility helps identify changes in -** (6-13)
 - a. Relationships
 - b. Descriptions
 - c. Site Conditions
 - d. Durations
 - e. All of the above
 - f. a,b and d

6. **Which statement about the Update Comparison Layout is correct?** (6-14)
 - a. Actual Dates are indicated with an “*”
 - b. Completed activities have float
 - c. Critical Activities have the lowest float
 - d. Finish Variance is the difference between the baseline start and the current finish

7. **It is important to identify Added / Deleted activities.** (6-14)
 - a. False
 - b. True

8. **Tracking key schedule statistics provides perspective of trends.** (6-15)
 - a. True
 - b. False

WORKSHOP #6

Use SureTrak to review an Update Schedule:



1. Restore the UPD1.prx file (page 6-8)
2. Create an Update Schedule Layout and then review (page 6-9)
3. Re-Examine the Critical Path(s) in PERT (page 6-10)
4. Create an Update Comparison Layout and then review (page 6-11)
5. Analyze Variances & Exceptions (page 6-14)
6. Would you recommend this update be accepted?

LESSON 7: SCHEDULE ANALYSIS

In this lesson, you will learn the basic techniques for Schedule Analysis with SureTrak.

At the completion of this lesson, you will be able to:

- Understand the requirements for Time Impact Analysis
- Know the timeline for submitting the Time Impact Analysis
 - Utilize SureTrak to ensure that the Contractor's Time Impact Analysis conforms to the criteria for CPM Schedules
- Prepare a Time Impact Analysis
- Review a Time Impact Analysis

**This lesson will continue to focus on the requirements for satisfying SSP # 08-015
(Most Demanding Requirements)**

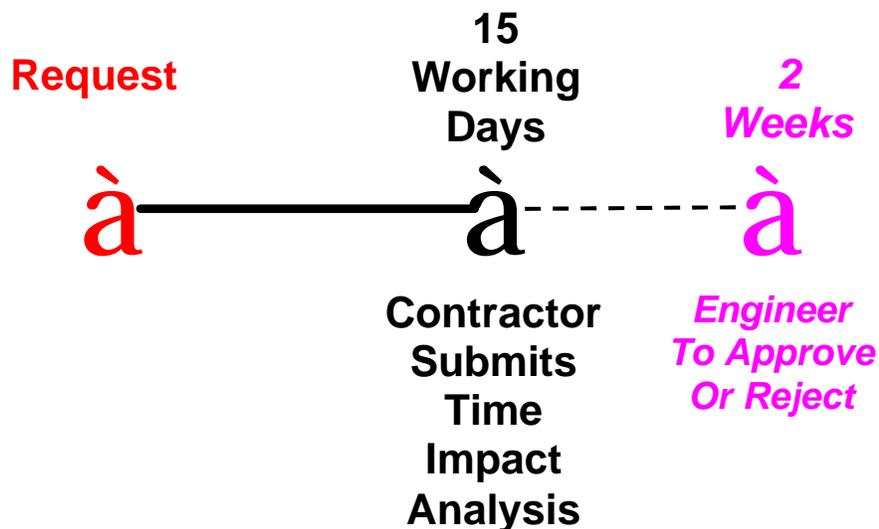
PROGRESS SCHEDULE REQUIREMENTS MATRIX

SUMMARY	SSP # 08-010	SSP # 08-012	SSP # 08-015
CONTRACT ITEM	X	N/A	N/A
SCHEDULES:			
BASELINE SCHEDULE	N/A	X	X
CURRENT SCHEDULE UPDATES	N/A	X	X
FINAL UPDATE SCHEDULE	N/A	X	X
STATE-OWNED FLOAT	N/A	N/A	X
NETWORK DIAGRAM	N/A	X	X
REPORTS	N/A	N/A	X
PRE-CONSTRUCTION SCHEDULING CONFERENCE	N/A	X	X
TIME IMPACT ANALYSIS	N/A	N/A	X

TIME IMPACT ANALYSIS (TIA)	SSP # 08-010	SSP # 08-012	SSP # 08-015
✓ The Contractor shall submit a written TIA to the Engineer with each request for an adjustment of Contract time OR when the Contractor or Engineer consider that an approved or anticipated change may impact the Critical Path or Contract progress	N/A	N/A	X
The Contractor shall submit a TIA in duplicate within 15 working days of receiving a written request from the Engineer	N/A	N/A	X
✓ The TIA shall illustrate the impact of each change or delay on the current scheduled completion date (or internal milestone) and utilize a schedule acceptable to the Engineer and a data date closest to and prior to the event being analyzed	N/A	N/A	X
✓ The TIA shall include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities If the impact schedule shows that incorporating the event modifies the Critical Path AND the scheduled completion date of the accepted schedule, the difference between the scheduled completion dates of the two schedules shall be equal to the adjustment of contract time	N/A	N/A	X
✓ The Contractor shall allow the Engineer 2 weeks after receipt of a TIA to approve or reject the submitted TIA	N/A	N/A	X
✓ All approved TIA schedule changes shall be shown on the next update schedule	N/A	N/A	X
✓ When a TIA is rejected by the Engineer, the Contractor shall meet with the Engineer to discuss and resolve the issues. If an agreement is not reached, the Contractor will be allowed, within 15 days after said meeting, to submit a written Notice of Potential Claim in accordance with the provisions of Section 9-1.04 - "Notice of Potential Claim" of the Standard Specifications The Contractor shall not show any activities related to the TIA in any schedule updates until and if such time that the TIA and/or Claim is approved	N/A	N/A	X
✓ The Engineer will withhold remaining payment of the schedule Contract Item if a TIA is requested by the Engineer and not submitted by the Contractor within 15 working days	N/A	N/A	X
✓ Changes that affect the controlling operation on the Critical Path will be considered by the Engineer in decreasing time or granting an extension of time for completion of the contract Time extensions will only be granted if the total float is absorbed AND the scheduled completion date is delayed one or more working days because of the ordered change	N/A	N/A	X
✓ Changes that do not affect the controlling operation on the Critical Path will not be considered as a basis for a time adjustment	N/A	N/A	X

SUBMITTAL TIMELINE

- A Time Impact Analysis is to be submitted with each request for an adjustment of Contract Time
- The Time Impact Analysis is to be submitted within 15 working days of receiving a written request from the Engineer
- Two weeks after receipt of the Time Impact Analysis are allowed for the Engineer to approve or reject
- When the Time Impact Analysis is rejected, the Contractor and Engineer will meet to discuss and resolve the issues - if an agreement is not reached, the Contractor will be allowed, within 15 days after the meeting, to submit a written Notice of Potential Claim

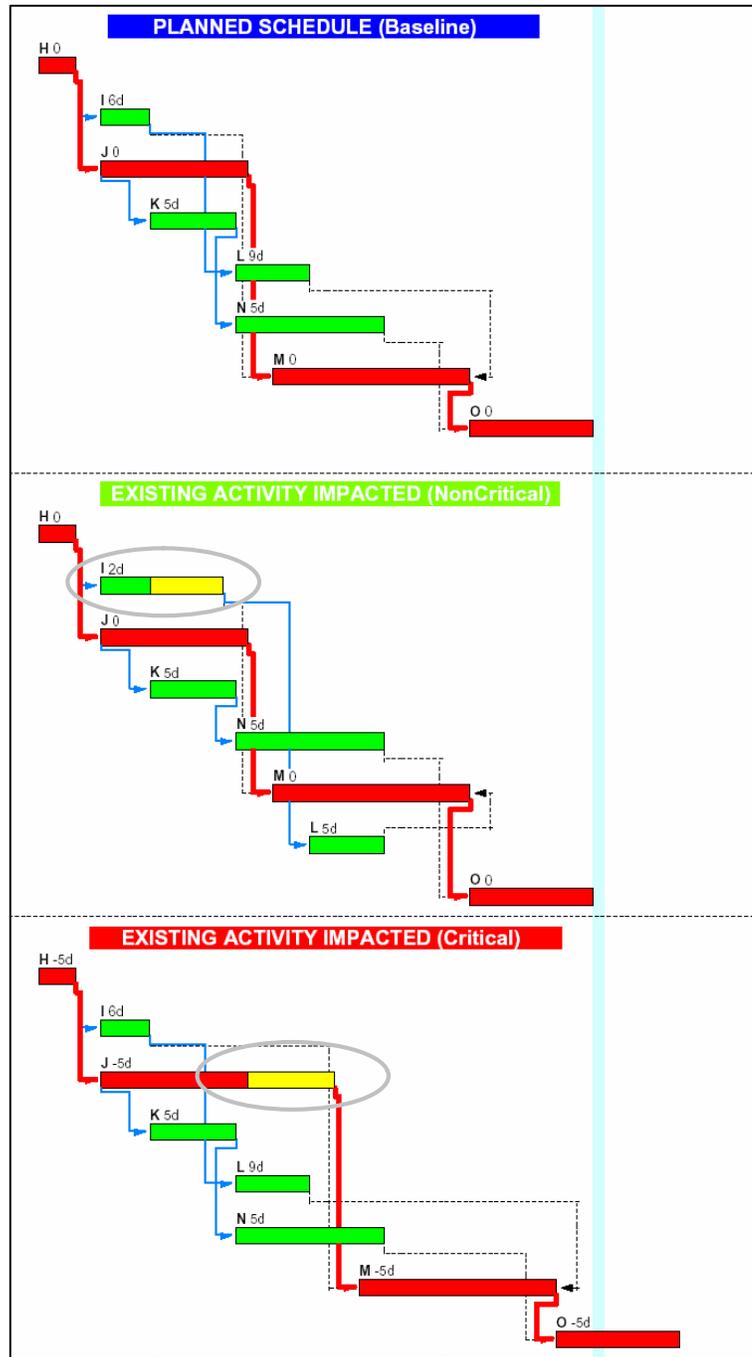


TIME IMPACTS

- **PLANNED**
 - Original workplan
 - Approved Baseline

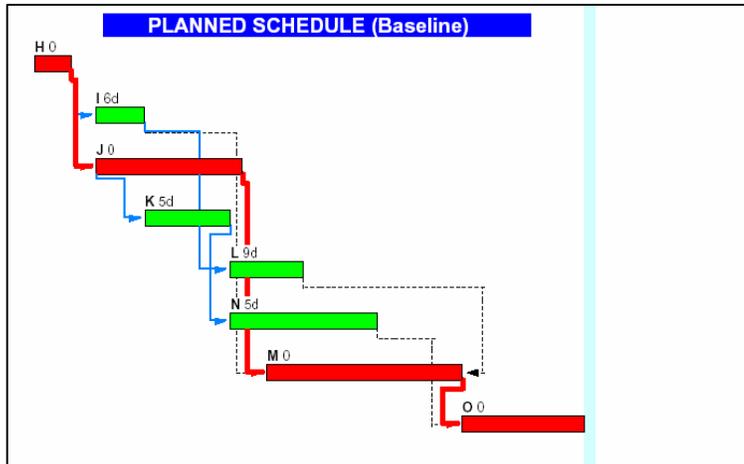
- **IMPACT TO EXISTING ACTIVITY (NonCritical)**
 - Planned vs. impacted duration?
 - What was the available float at time of impact?
 - Float exceeds the net impact
 - No effect on Critical Path
 - No time extension

- **IMPACT TO EXISTING ACTIVITY (Critical)**
 - Planned vs. impacted duration?
 - What was the available float at time of impact?
 - Net impact exceeds Float
 - Will effect Critical Path
 - Eligible for time extension (if Owner caused)

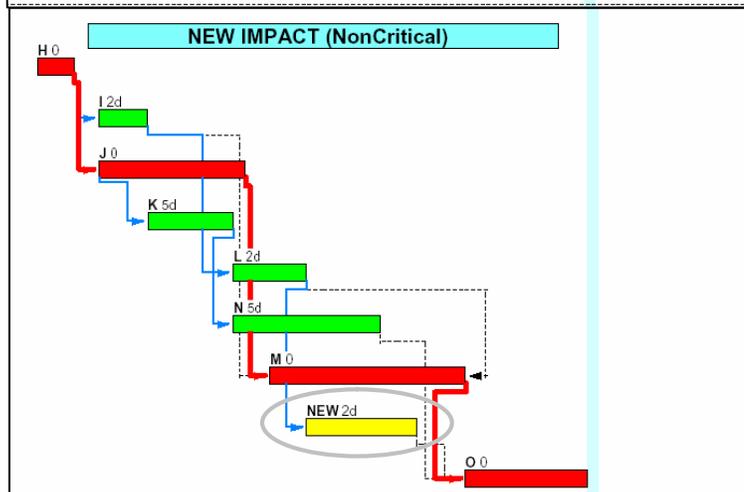


TIME IMPACTS (continued)

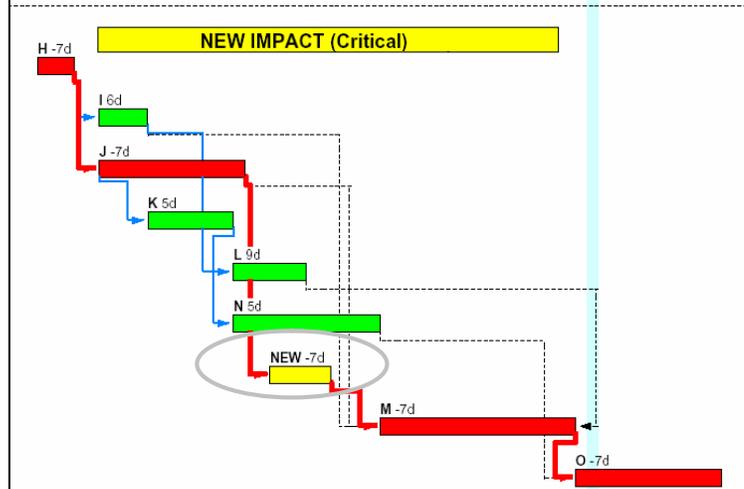
- **PLANNED**
 - Original workplan
 - Approved Baseline



- **NEW IMPACT (NonCritical)**
 - Add impact activity
 - Connect Relationships
 - Recalculate Schedule
 - No effect on Critical Path
 - No time extension



- **NEW IMPACT (Critical)**
 - Add impact activity
 - Connect Relationships
 - Recalculate Schedule
 - Will effect Critical Path
 - Eligible for time extension (if Owner caused)



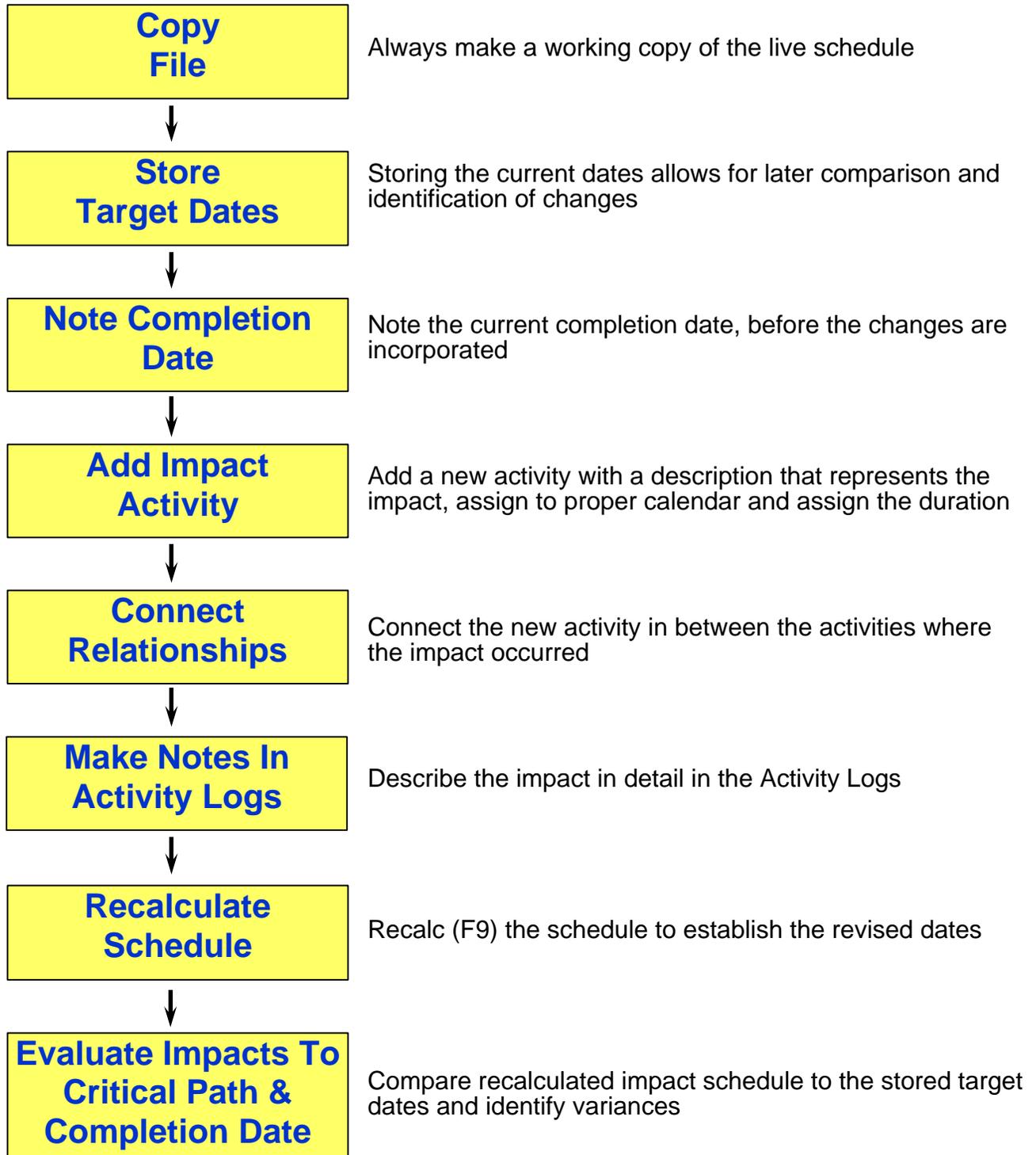
SCHEDULE RECOVERY (continued)

- By changing Drainage Structure to a 6 day work calendar, the target completion date could be achieved
 - Establish 6 day work Calendar
 - Assign Drainage Structure to that calendar
 - Assumes contractor can work those Saturdays and the potential cost (if any) is acceptable

Activity Id	Description	Early Start	Early Finish	Target Start	Target Finish	Finish Variance	2001													
							FEB		MAR			APR			MAY			JUN		
							19	26	05	12	19	26	02	09	16	23	30	07	14	21
1210	DRAINAGE STRUCTURE 1	03/05/01	04/02/01	02/27/01	04/02/01	0														
1500	EMBANKMENT FILL/ SETTLEMENT - BRIDGE 720	04/03/01	07/01/01	04/03/01	07/01/01	0														

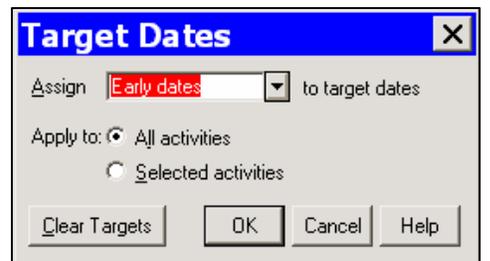
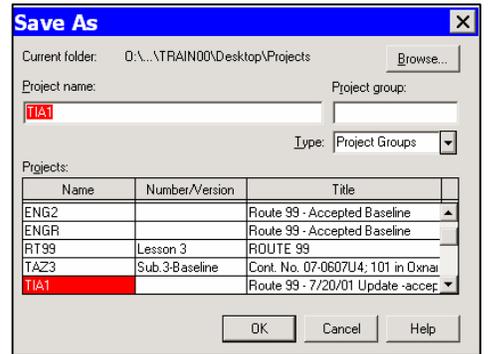
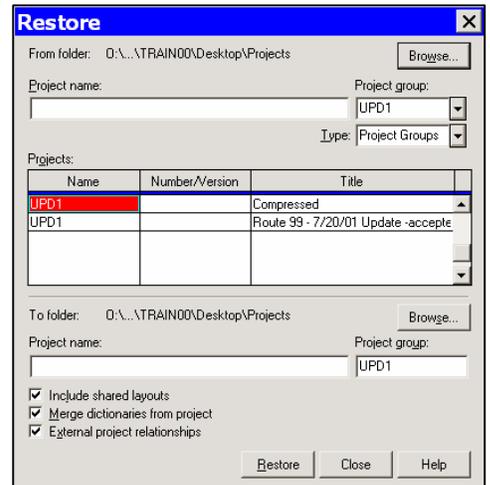
- By changing (reducing) the duration of the Embankment/Fill, the target completion date could be achieved
 - Change Remaining Duration on #1500 to 17w1d (reduces it by 4 workdays)
 - Assumes the reduced duration can be accomplished and is acceptable under the specs

Activity Id	Description	Early Start	Early Finish	Target Start	Target Finish	Finish Variance	2001													
							FEB		MAR			APR			MAY			JUN		
							19	26	05	12	19	26	02	09	16	23	30	07	14	21
1210	DRAINAGE STRUCTURE 1	03/05/01	04/06/01	02/27/01	04/02/01	-4d														
1500	EMBANKMENT FILL/ SETTLEMENT - BRIDGE 720	04/07/01	07/01/01	04/03/01	07/01/01	0														

TIME IMPACT ANALYSIS PROCESS

PREPARING A TIME IMPACT ANALYSIS (also for “What-If” analysis)

- Restore Project UPD1
 - Tools, Project Utilities, Restore
- Save As TIA1
 - File, Save As
- Open Layout 02
 - From Layout pulldown list
- Store Current Dates
 - Define, Target Dates, Early
- Check Project Completion Date
 - File, Project Overview
- Add impact activity
 - Click On #1540 COLUMNS BR 720
 - Press INS key
 - Add #1600 *NEW IMPACT ACTIVITY (4 days)
- Connect Relationships
 - Predecessor is #1520 BENT FOOTINGS
 - Successor is #1540 COLUMNS BR-720
- Recalculate Schedule
 - Press F9
- Re-Check Project Completion Date
 - File, Project Overview
- Print Layout
 - File, Print



Act ID	Description	Orig Dur	Early Start	Early Finish	Total Float	2001											
						JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1170	UG TELEPHONE - EAST	25	07/11/01 A	08/15/01	43d	■ UG TELEPHONE - EAST											
1520	BENT FOOTINGS - BR 720	20	08/01/01	08/28/01	-10d	■ BENT FOOTINGS - BR 720											
1530	ABUTMENTS - BR 720	30	08/01/01	09/12/01	9d	■ ABUTMENTS - BR 720											
1200	WATERLINE W-2	10	08/15/01	08/28/01	34d	■ WATERLINE W-2											
1600	* NEW IMPACT ACTIVITY	4	08/29/01	09/04/01	-10d	■ * NEW IMPACT ACTIVITY											
1300	CLASS 4 SUBBASE - EAST	20	08/29/01	09/26/01	34d	■ CLASS 4 SUBBASE - EAST											
1540	COLUMNS - BR 720	25	09/05/01	10/09/01	-10d	■ COLUMNS - BR 720											
1310	CURB & GUTTER - EAST	10	09/27/01	10/10/01	34d	■ CURB & GUTTER - EAST											
1550	ERECT FALSEWORK - BR 720	15	10/10/01	10/30/01	-10d	■ ERECT FALSEWORK - BR 720											

REVIEWING A TIME IMPACT ANALYSIS

- Review the written request for time extension
- Open the Project (after Restore)
 - File, Open
- Recalculate Schedule
 - F9
- Identify Added / Modified Activities
 - Utilize Comparison Layout (see page 6-11)
 - or Utilize Digger
- Review and Validate Calendars assigned to Added / Modified Activities
 - F7, Activity Form
- Review and Validate Durations for Added / Modified Activities
 - In columns or Activity Form (F7)
- Review and Validate Relationships for Added / Modified Activities
 - View, Activity Details, Predecessor/Successor

Narrative

- XXXXXXX XXXX XXX
- XXXX XXXX

Act ID	Description	Calendar	Pct Cmpl	Orig Dur	Actual Dur	Rem Dur	Early Start	Early Finish	Target Start	Target Finish	Finish Variance	Total Float	2001												2002		
													MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR		
STAGE 1																											
CALTRANS																											
1130	REVIEW/APPROVE FALSEWORK	2	10	49	32	44	06/18/01	09/01/01	02/27/01	04/02/01	-152	24d															
ACME GENERAL																											
1140	MOBILIZATION	1	100	10	9	0	02/06/01	02/16/01	02/06/01	02/19/01	1																
1120	SUBMIT FALSEWORK DRAWINGS - BR	2	100	21	130	0	02/06/01	06/15/01	02/06/01	02/26/01	-109																
1150	CLEAR AND GRUB - STA 190 - 230	1	100	5	8	0	02/19/01	02/28/01	02/20/01	02/26/01	-2																
1500	EMBANKMENT FILL/ SETTLEMENT -	2	100	90	90	0	04/11/01	07/09/01	04/03/01	08/08/01	30																
1510	EXCAV/PILES ABUTMENTS & BENTS -	1	50	15	8	8	07/10/01	07/31/01	08/09/01	08/29/01	21	-6d															
1520	BENT FOOTINGS - BR 720	1	0	20	0	20	08/01/01	08/28/01	08/30/01	09/27/01	21	-6d															
1530	ABUTMENTS - BR 720	1	0	30	0	30	08/01/01	09/12/01	08/30/01	10/11/01	21	9d															
1540	COLUMNS - BR 720	1	0	25	0	25	08/29/01	10/03/01	09/28/01	11/01/01	21	-6d															
1550	ERECT FALSEWORK - BR 720	1	0	15	0	15	10/04/01	10/24/01	11/02/01	11/26/01	21	-6d															
1560	SOFFITS & STEMS - BR 720	1	0	25	0	25	10/25/01	11/30/01			0	-6d															
1570	BRIDGE DECK BR 720	1	0	30	0	30	12/03/01	01/15/02	11/27/01	12/03/01	-29	-6d															
1590	APPROACH SLABS - BR 720	1	0	5	0	5	01/16/02	01/22/02	12/04/01	12/10/01	-29	-1d															
1580	REMOVE FALSEWORK - BR 720	1	0	10	0	10	01/16/02	01/29/02	12/04/01	12/17/01	-29	-6d															
PASADENA PAVING																											
1300	CLASS 4 SUBBASE - EAST	1	0	20	0	20	08/29/01	09/26/01	04/16/01	05/11/01	-95	34d															
1310	CURB & GUTTER - EAST	1	0	10	0	10	09/27/01	10/10/01	07/03/01	07/17/01	-60	34d															
1320	CLASS 2 AGGREGATE BASE - EAST	1	0	15	0	15	10/11/01	10/31/01	05/14/01	06/04/01	-105	34d															
1330	AC PAVING - EAST	1	0	20	0	20	11/01/01	11/30/01	06/05/01	07/02/01	-105	34d															
POMONA PIPE																											
1210	DRAINAGE STRUCTURE 1	1	100	25	35	0	02/21/01	04/10/01	02/27/01	04/02/01	-6																
1220	12" SEWER LINES	1	100	15	16	0	03/21/01	04/11/01	02/27/01	03/19/01	-17																
1200	WATERLINE W-2	1	0	10	0	10	08/15/01	08/28/01	03/27/01	04/09/01	-99	34d															
MONTEREY MASONRY																											
1230	SOUNDWALL 205	1	100	30	21	0	05/24/01	06/22/01	04/03/01	05/14/01	-28																
CALIFORNIA ELECTRIC CO.																											
1180	OH ELECTRIC - EAST - 30 DAY NOTICE	2	100	30	30	0	06/11/01	07/10/01	02/06/01	02/25/01	-135																
1190	OH ELECTRIC - EAST	1	10	20	7	18	07/11/01	08/14/01	02/27/01	03/26/01	-99	34d															
PACIFIC BELL TELEPHONE																											
1160	UG TELEPHONE - EAST - 30 DAY NOTICE	2	100	30	30	0	06/11/01	07/10/01	02/06/01	02/25/01	-135																
1170	UG TELEPHONE - EAST	1	25	25	7	19	07/11/01	08/15/01	02/27/01	04/02/01	-96	43d															

REVIEWING A TIME IMPACT ANALYSIS (continued)

- Compare to previous schedule for float of affected activities
 - Open the other project file
 - Window, Tile Vertical

- Review previous and current proposed Critical Path
 - Format, Filter
 - Select Critical Path
- Validate impacts on controlling operations on Critical Path
- Optional
 - Make copy of Impacted Schedule
 - Dissolve impact activities (Edit, Dissolve)
 - Recalculate Schedule
 - Review “un-impacted” schedule

Deleting and dissolving activities

If an activity is no longer necessary to the completion of a project, you can remove it; SureTrak immediately recalculates the schedule without the deleted activity. When you delete an activity, you delete all **relationships** between the deleted activity and all other activities.

When you **dissolve** an activity, you are deleting the activity but preserving its place in the logic of the schedule. SureTrak deletes the activity and all of its relationships and links each of its **predecessors** to each of its **successors** with a **finish to start** relationship.

Note

- When you dissolve several activities at once, SureTrak dissolves the first activity, reconnecting its predecessors and successors, then dissolves the next activity, reconnecting its predecessors and successors, and so on. This may result in redundant links; these do not cause a problem unless they contain conflicting information (such as different relationship types, amounts of lag, and so on).

REVIEW QUESTIONS

1. **This Lesson is focused on -** (7-1)
 - a. Specifications SSP #08-010
 - b. Schedule Updates
 - c. Time Impact Analysis

2. **Approved TIA schedule changes are to be shown on -** (7-2)
 - a. Baseline Schedule
 - b. Last Update Schedule
 - c. Next Update Schedule

3. **Engineer has how long after receipt of the TIA to approve or reject?** (7-3)
 - a. 15 Working Days
 - b. 2 Weeks
 - c. 10 Working Days

4. **Impacts to the Critical Path are always eligible for a time extension.** (7-4,5)
 - a. True
 - b. False

5. **Which statement is incorrect:** (7-6,7)
 - a. Schedule Recovery is recommended if there is negative float
 - b. It is best to artificially shorten durations for Schedule Recovery
 - c. It is best to consider concurrent activities for Schedule Recovery

6. **Which step is not part of preparing a Time Impact Analysis?** (7-9)
 - a. Copy file to new name
 - b. Clear Target Dates
 - c. Add Impact Activity

7. **A written TIA is required to be submitted.** (7-10)
 - a. False
 - b. True

8. **Which step is not a suggested part of Reviewing a TIA?** (7-11,12)
 - a. Recalculate Schedule
 - b. Compare current and previous Critical Paths
 - c. Change Activity Codes
 - d. Validate impacts on controlling operations

WORKSHOP #7

Use SureTrak to Prepare a Time Impact Analysis:



1. Restore and open the UPD1.prx file (page 7-9)
2. Save project schedule file as TIA2 (page 7-9) and Recalculate the schedule
3. Store Early Dates as Target Dates (page 7-9)
4. Check and note the Project Completion Date (page 7-9)
5. Modify Existing Activity (#1130 REVIEW/APPROVE FALSEWORK DRAWINGS - BR 720) for Impact (page 7-9)
 - a. Change Remaining Duration to 60 days
 - b. Recalculate Schedule
 - c. Re-check and note the Project Completion Date
6. Add New Impact Activity in Stage 2 (page 7-9)
 - a. #1999
 - b. *FALSEWORK INSPECTION
 - c. 2 days duration
 - d. Connect Relationships
 - Predecessor = 2550
 - Successor = 2560
 - e. Recalculate Schedule
 - f. Re-check and note the Project Completion Date
7. What are your recommendations about these TIAs?

ADDITIONAL WORKSHOPS

- **Use SureTrak to Analyze the following Impacted Schedules and submit your results to your District CPM Specialist.**
- There are 4 schedule files – IMP1, IMP2, IMP3, IMP4 on the CD, assume they were submitted by a contractor to represent their time impacts
- Review / analyze each schedule file (utilizing the techniques included in this Advanced Class)
- Identify all the changes
- Evaluate the schedule impact(s)
- Determine if there is a time extension due to the contractor and if so, how much
- Submit a brief report on each file listing the changes, the impacts, what changes you would accept / reject and the time extensions you would recommend (if any)

GLOSSARY OF COMMON TERMS

Activity	A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.
Activity Codes	Values assigned to project activities to organize them into manageable groups for updating, analyzing, reporting, plotting, and summarizing.
Actual Cost	The cost incurred to date for a resource or activity.
Actual Dates	Start (AS) and Finish (AF) dates that you record for an activity that has progress or is complete.
Actual Quantity	The amount of a resource used to date.
Backward Pass	The calculation of a network's late dates.
Bar Chart	The graphical display of activities according to time. Relationships between activities are not shown. A bar chart is also called a Gantt Chart.
Baseline Schedule	The initial schedule representing the Contractor's work plan on the first working day of the project.
Budget	The estimate of the total units or costs required by a resource or cost account for an activity.
Calendar	The workdays and holidays defined for a project that determine when an activity can be scheduled.
Completion	The date on which a project is to be finished.
Contract Completion	The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in conformance with the provisions in Section 8-1.06, "Time of Completion," of the Standard Specifications.
Constraint	A restriction imposed on the start or finish of an activity.
Critical Activity	An activity that has the least amount of total float.
Critical Path	The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the Critical Path will extend the scheduled completion date.
Critical Path Method (CPM)	A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.

GLOSSARY OF COMMON TERMS

Data Date	The day after the date through which a schedule is current. Everything occurring earlier than the data date is “as-built” and everything after the data date is “planned.”
Driving Relationship	A predecessor/successor relationship in which the predecessor determines the successor's early dates.
Duration	The amount of time (in workdays) needed to complete an activity.
Early Completion Time	The difference in time between an early scheduled completion date and the contract completion date.
Early Finish (EF)	The earliest date when an activity can finish based on the completion of its predecessors.
Early Start (ES)	The earliest date when an activity can begin after its predecessors have been completed.
Earned Value	The value of work performed rather than actual work performed.
Exception	A day when work must occur that was originally designated as a nonworkday.
Finish to Finish (FF)	A type of relationship in which a successor activity finish depends on its predecessor activity's finish.
Finish-to Start (FS)	A type of relationship in which a successor activity can begin only when its predecessor activity finishes.
Float	The difference between the earliest and latest allowable start or finish times for an activity.
Forward Pass	The calculation of the network's early dates.
Free Float	The amount of time that an activity's early start can be delayed without delaying the early start of a successor activity.
Lag	An offset or delay from an activity to its successor.
Late Finish (LF)	The latest date when an activity can start without delaying the project's completion.
Late Start (LS)	The latest date when an activity can start without delaying the project's completion.
Loop	Circular logic within a network.

GLOSSARY OF COMMON TERMS

Milestone	An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.
Narrative Report	A document submitted with each schedule that discussed topics related to project progress and scheduling.
Near Critical Path	A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.
Negative Float	The total number of days that the start or finish of an activity exceeds the time allowed. Negative float indicates a delay in the schedule.
Negative Lag	An offset or lead time from an activity to its successor in which the successor's start date is earlier than the predecessor's start date.
Network	The series of activities required to complete a project.
Nonworkperiod	A period of time when work may not occur.
Open End	An activity that has no successor or predecessor relationships to other activities in the network.
Out-of-Sequence Progress	Work completed for an activity before it is logically scheduled to occur.
Percent Complete	The proportion of an activity that is complete.
Performance Measurement	The comparison of the current plan to a target plan to assess whether it is progressing as intended.
Planning Unit	The increment of time used to schedule a project. The planning unit can be in hours, days, weeks, or months.
Predecessor	An activity that must logically occur before another activity.
Progress	The completion of work.
Resources	The people, materials, equipment or services required to complete a project.
Schedule	A list of the activities needed to complete a project, along with their start and finish dates.
Schedule Calculation	The calculation of early and late dates for each activity in the project.
Scheduled Completion Date	The planned project finish date shown on the current accepted schedule.

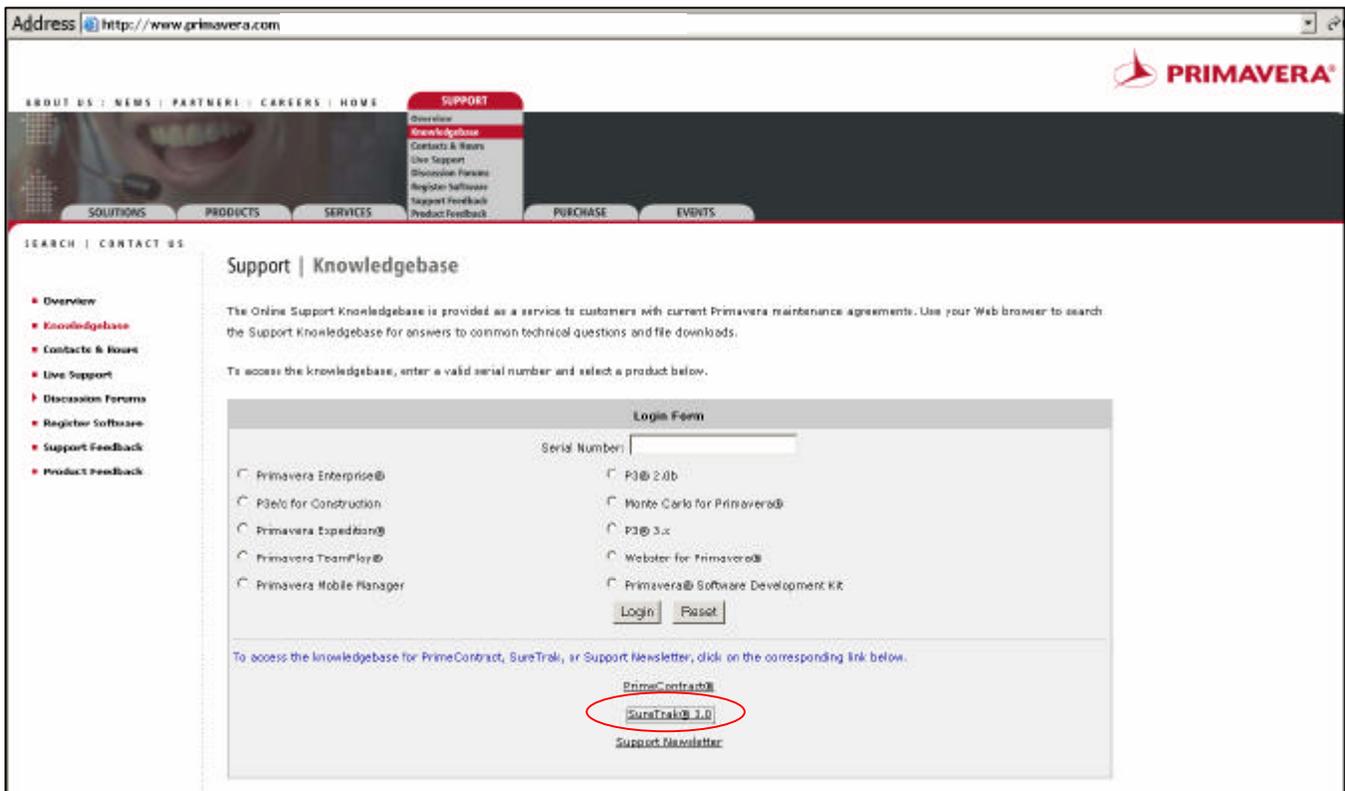
GLOSSARY OF COMMON TERMS

Slack	See Float.
Slippage	Lateness determined by measuring the target finish of an activity from its actual or current early finish.
Sorting	The arrangement of data in a specific sequence.
Start-to Start (SS)	A type of relationship in which a successor's start depends on the start of its predecessor.
State Owned Float Activity	The activity documenting time saved on the critical path by actions of the State. It is the last activity prior to the scheduled completion date.
Status	The process of updating a project by indicating progress at regular intervals.
Subproject	A portion or unit of a larger project that can be more readily managed as a separate project.
Successor	An activity that must logically occur after another activity.
Target	A project plan that can be compared to the current schedule to measure progress.
Task	A unit of work. Also called an activity.
Time Impact Analysis	A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.
Total Float (TF)	The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.
Update Schedule	A current schedule developed from the baseline or subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.
Updating	The process of recording progress in a project at regular intervals.
Variance	The difference between the current and target schedule dates.
Work Breakdown Structure (WBS)	The graphical depiction of the hierarchy of work needed to complete a project.
Workday	Any day of the week when work can be scheduled.

TECHNICAL TIPS - DOWNLOAD

How can I find and download SureTrak Technical Tips?

1. Go to www.primavera.com
2. Click on **Support** tab, then choose **Knowledgebase**, then click on **SureTrak**



TECHNICAL TIP - SCHEDULE (DIAGNOSTIC) REPORT

What is the Schedule (Diagnostic) Report and how do I install it?

This utility generates a Scheduling Report in SureTrak 3.x similar to the one created in Primavera Project Planner (P3).

Output provides information on the following:

- I. General Project Information (General, Dates, Logic Settings, Status)
- II. Activities with Actual Dates On or Past the Data Date
- III. Activities with Constraint Dates
- IV. Open End Activities
- V. Milestone Activities

To use the utility, unzip all of the files included in the SCHEDRPT30.ZIP file (on your class CD) to the SureTrak Basic Scripts folder (by default C:\Program Files\SureTrak\Scripts32). You can verify this location by checking under Tools\Options\File Locations\Softbridge Scripts.

After these files are in the correct folder, open the project and go to Tools\Basic Scripts. You will find the new **schedrpt.sbx** file in the list of available scripts.

TECHNICAL TIP - UPGRADING TO SURETRAK 3.0b

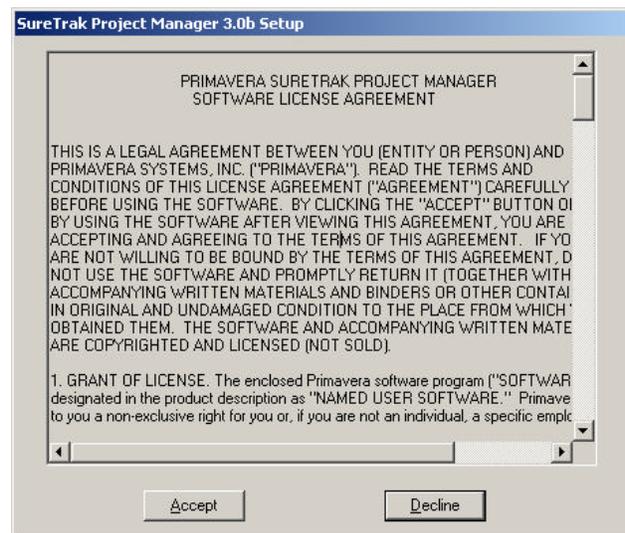
Step by Step instructions on how to upgrade to SureTrak 3.0b.

1. Go to <http://support.primavera.com/st30frames.nsf>
2. Click on "Updated Files" on left side of screen
3. Download STSrvPck2.exe
4. Double Click on the **STSrvPck2.exe** file. This will launch the Setup Program.

5. Setup will prompt you to close all other programs. Click **"Next"**



6. Read the SureTrak Project Manager 3.0b License Agreement. Click **"Accept"**

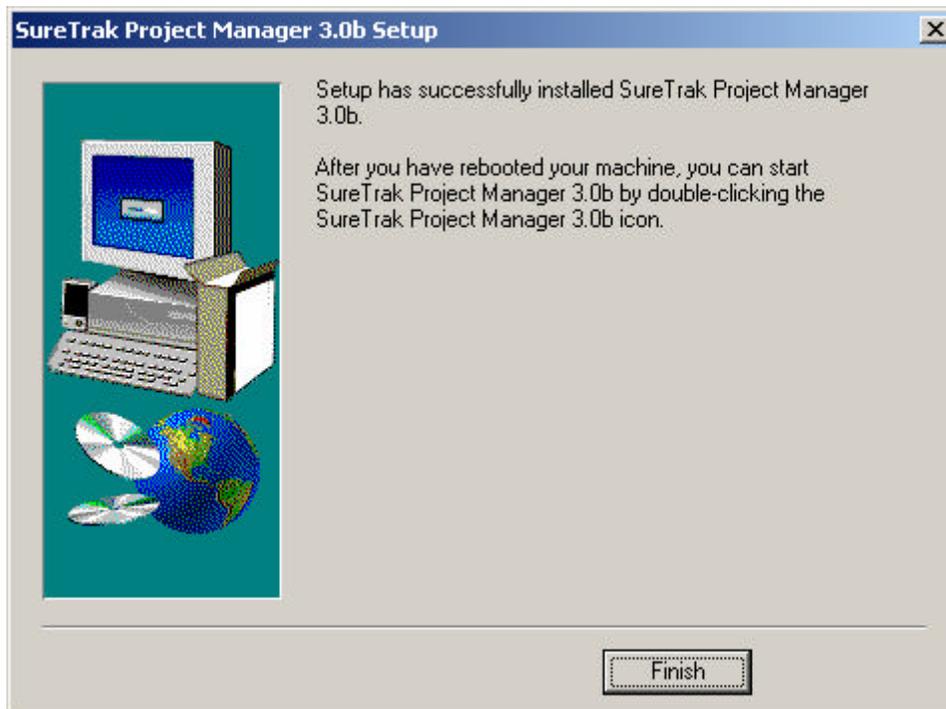


7. Setup will prompt you to overwrite any existing SBL scripts.
Click "**Yes**" if you want to overwrite otherwise click "**No**".



8. After running the installation you will receive the following dialog box.
Click "**Finish**" to complete the installation.

At this point, please reboot your machine.



SureTrak version 3.0b upgrade has been installed on your machine successfully.

TECHNICAL TIPS – SURETRAK MENUS / SHORTCUTS



New...	Ctrl+N
Open...	Ctrl+O
Close	Ctrl+F4
Save	Ctrl+S
Save As...	F12
Save All	
Save as Web Page...	
Project Overview...	
Page Setup...	
Print Preview	
Print...	Ctrl+P
Print Setup...	
Mail	
Exit	Alt+F4

Undo	Ctrl+Z
Redo	Ctrl+Y
Cut Activity	Ctrl+X
Copy Activity	Ctrl+C
Paste Activity...	Ctrl+V
Copy Cell	
Paste Cell	
Copy Picture	
Edit Activity	
Delete Activity	Del
Dissolve Activity	
Find...	Ctrl+F
Select All	Ctrl+A
Select Spotligthed	
Invert Selection	
Relationships...	
Link Activities	FB
Unlink Activities	Shift+FB

PERT	F6
Layouts...	
Activity Form	F7
Activity Detail	
Resource Profile	Ctrl+F7
Resource Table	Shift+F7
Relationships	F3
Hide	
Hide Topic Activities	
Toolbar	
Editing Toolbar	
Layout Toolbar	
Page Breaks	
Bar Chart Legend	
Resource Legend	
Zoom...	
Zoom In	
Zoom Out	

Activity	Ins
Recurring Activities...	
Resource Assignment...	
Autolink	
Page Break	Ctrl+Enter
Delete Page Break	
Clear All Page Breaks	
Repaginate	
Indent	Tab
Outdent	Shift Tab
Object/Picture...	
Text/Hyperlink...	
Curtain...	
Attach Object...	
List Objects...	



Columns...	F11
Bars...	Ctrl+F11
Selected Bars	
Resource Profile/Table...	
Organize...	
Reorganize Now	F5
Filter...	
Reapply Filter	
Summarization	
Timescale...	
Relationship Lines...	
Sight Lines...	
Row Height...	
Screen Colors...	

Schedule...	
Schedule Now	F9
Level...	
Level Now	Shift+F9
Update Activity...	
Update Progress...	
Reports...	
Run Report	
Run Report Series...	
Wizards	
Update Data Dictionary...	
Basic Scripts...	
Custom Tools	
Project Utilities	
Customize	
Options...	

Calendars...	
Activity Codes...	
WBS Codes...	
Resources...	
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Cascade	
Tile Horizontally	
Tile Vertically	
Arrange Icons	
Horizontal Split	
Vertical Split	
Cascade Detail Forms	
Close Detail Forms	

Contents and Index...	F1
Tutorial...	
Customer Support	
World Wide Web Support	
About SureTrak...	

TECHNICAL TIPS – SURETRAK KEYBOARD SHORTCUTS

Function keys	
This list describes function keys used in SureTrak:	
Press	To
F1	Display SureTrak Help
F2	Activate the Edit bar
F3	View relationships
Ctrl+F4	Close the project window
Alt+F4	Exit SureTrak
Shift+F4	Find the next item that fits the search criteria
F5	Reorganize now
Ctrl+F6	View the next project window
Shift+F6	Move the focus to the Activity columns, Bar chart, resource profile, resource table, and Activity detail forms
F6	Move between PERT and the Bar chart view
Ctrl+F7	Display the Resource profile
Shift+F7	Display the Resource table
F7	Display the Activity form
Shift+F8	Unlink the selected activities
F8	Link the selected activities
Ctrl+F9	Progress now
Shift+F9	Level now
F9	Schedule now
Ctrl+F11	Format the bars displayed in the Bar chart
F11	Format the Activity columns
F12	Save as

Keyboard commands for moving in PERT	
Press	To
Arrow keys	Move from activity to activity. SureTrak selects activities sequentially.
PgUp	Scroll up one window. Any previous selection remains the same.
PgDn	Scroll down one window. Any previous selection remains the same.
Ctrl+PgUp	Scroll left one window. Any previous selection remains the same.
Ctrl+PgDn	Scroll right one window. Any previous selection remains the same.
Home	Move to and select the first activity in the current row.
End	Move to and select the last activity in the current row.
Ctrl+Home	Move to and select first cell in the network.
Ctrl+End	Move to and select the space after the last cell in the network.
F6	Toggle between the Bar chart and PERT.
Shift+F6	Toggle between PERT, Trace Logic, and the Cosmic view.

TECHNICAL TIPS – SURETRAK MOUSE POINTER SHAPES

Mouse pointer shapes	
<p>When you move the cursor around the project window, it changes shape as it passes over bars, endpoints, milestones, and relationship lines. The following table describes mouse pointers for the Bar chart; the next table lists mouse pointers for the Activity columns.</p>	
<p>Mouse pointers</p>	
	Appears when you click the horizontal split bar that separates the Bar chart from the Activity form, Resource profile, or Resource table, or PERT from the Activity form, Trace Logic, or Cosmic view. Drag up or down to resize the panes.
	Appears when you click the vertical split bar that divides the Bar chart from the Activity columns. Drag left or right to adjust the relative sizes of the panes.
	Used to assign relationships directly on the Bar chart or PERT. Click the beginning or end of an activity and then click its successor , or release the mouse button in a blank area of PERT or the Bar chart to select a successor from a list.
	Edit the relationship that this pointer is on. (You must be displaying relationship lines to see this pointer.)
	Used to constrain activities from the Bar chart. Press Ctrl, then click the activity bar you want to constrain . SureTrak opens the Constraints detail form so you can assign a constraint.
	Used to confirm an assigned constraint type and date. Press Ctrl and point to whichever end of the activity bar you want to constrain, so that you see the top pointer at the left. Drag the mouse to the constraint date; you will see the pointer with the horizontal arrows. When you release the mouse button, SureTrak opens the Constraints detail form so you can confirm the assigned constraint type and date.
	Press Shift, then point to the middle of an activity bar. When you see this pointer, click the mouse button. SureTrak opens the Update Activity dialog box so that you can update the activity.
	Point to either end of the activity bar you want to update, then press Shift until you see the first pointer. Click the mouse to change it to the pointer with the horizontal arrows, then drag the activity to its actual dates ; confirm these dates in the Update Activity dialog box.
	
	Move the data date line, spotlighting activities that should have been updated between the old and new data dates; choose Tools, Update Progress, to estimate progress as of the new data date.
	Drag either end of an activity bar to change the remaining duration of the activity (and if it has not started, its original duration as well).
	Change the key bar dates of the selected activity by dragging the bar horizontally across the Bar chart. You can either apply a constraint to the activity or use it as a "what-if" feature.
	Drag this milestone to different dates. You can either apply a constraint to the milestone or use it as a "what-if" feature.
	Move a graphic or resizable text block elsewhere in the Bar chart or PERT; if it is already attached, you change its offset when you move it.
<p>Mouse pointers in the Activity columns and dialog boxes</p>	
	Drag the horizontal split bar below the columns to adjust the size of the columns and Bar chart relative to the bottom pane, whether it currently contains the Activity form, Resource profile, or Resource table pane.
	Move the vertical split bar between the Activity columns and the Bar chart to adjust the sizes of the panes relative to each other.
	Move the borders of this column or detail form horizontally. To change column width, use this pointer to drag the right border of the column title.
	Move the borders of this row or detail form vertically.
	Select one or more activities and move the mouse to the far left of the Activity columns to see this pointer, then drag the activities to a new location. If the project window is sorted and set to reorganize automatically , the activity may move as soon as you release the mouse button. If the project window is organized into groups of activities, dragging activities to a new group edits them so that they now belong in that group.
<p>Other mouse pointers</p>	
	In Help, click when you see this symbol to either jump to a related topic (underline) or pop up a brief description (dotted underline). In the PERT view, click when you see this symbol to select an activity.
	In print preview, zoom in on a specific page or area of a page to see more detail.
	Add a page break above the nearest activity. You must be displaying the page break ruler to see this pointer (choose View, Page Breaks).
	Drag a previously added page break to a different location. You must be displaying the page break ruler to see this pointer (choose View, Page Breaks).

TECHNICAL TIPS – SURETRAK ICONS

To customize the icons on the Toolbar, select **Tools, Customize, Toolbar**

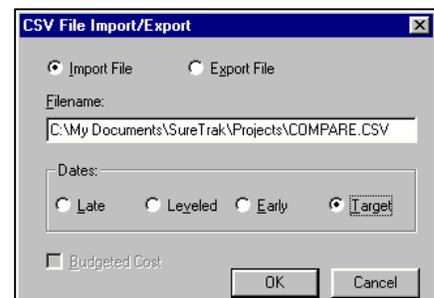
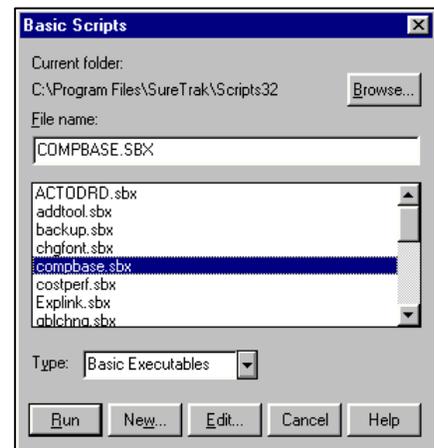
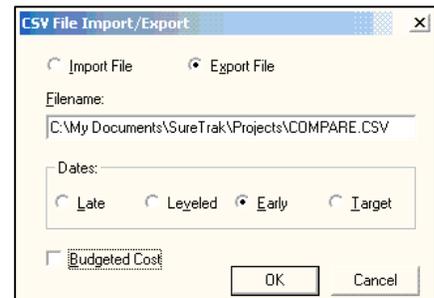
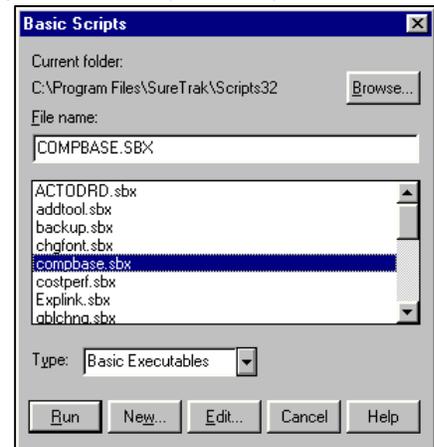
	New		Insert Curtain		Indent
	Open		Attach Object		Outdent
	Close		List Objects		Renumber Outline
	Save		Edit Relationships		PERT
	Backs up project		Link Activities		Layouts
	Restores project		Unlink Activities		Organize
	Print		Define Activity Codes		Reorganize Now
	Print Preview		Define WBS Codes		Organize by Data Items
	Print Setup		Define Calendars		Organize by Outline
	Page Setup		Define Resources		Organize by WBS Codes
	Define Header		Define Target Dates		Format Columns
	Define Footer		Activity Form		Format Bars
	Setup Mail		Update Activity		Format Profile/Table
	Send Mail		Update Progress		Format Filters
	Receive Mail		Update Progress Now		Reapply Filter
	Exit SureTrak		Schedule Now		Format Summarized Bars
	Undo		Level Now		Format Relationship Lines
	Redo		Progress Spotlight		Format Timescale
	Find		Codes Detail		Format Sight Lines
	Find Next		Constraints Detail		Format Row Height
	Select All		Costs Detail		Format Screen Colors
	Invert selection		Dates Detail		Page Breaks
	Cut Activity		Predecessors Detail		Reports
	Copy Activity		Resource Detail		Print Report Series
	Paste Activity		Revenue Detail		Basic Scripts
	Copy Cell		Successors Detail		Customize Toolbar
	Paste Cell		Resource Profile		Zoom In
	Copy Picture		Resource Table		Zoom Out
	Insert Resource Assignment		Relationships		Set Zoom Level
	Insert Object/Picture		Collapse		Help
	Insert Text		Expand		World Wide Web Support
	Insert Hyperlink		Summarize All		Tutorial
			Save as Web Page		Project KickStart Wizard
					Project Group Wizard
					Pivot Table Wizard
					Web Publishing Wizard
					Project Check-in/Check-out

TECHNICAL TIP - TARGET DATES

How can I import early dates from a baseline schedule into my production (current) schedule as target dates?

1. Open the baseline schedule
2. Navigate to "Tools, Basic Scripts..."
3. Select the "**compbase.sbx**" script and then click "Run"
4. In the new window, select "**Export File**", leave the file name as it is and select "**Early**" in the dates section and click "**OK**" - This will export the **target** dates of the baseline project into a file that will be imported into the production (current) schedule
5. After processing has completed, close the baseline project and open the production schedule.
6. Navigate to "Tools, Basic Scripts..."
7. Select the "**compbase.sbx**" script and then click "Run"
8. In the new window, select "**Import File**", leave the file name as it is and select "**Target**" in the dates section and click "**OK**" - this will import the **target** (early) dates of the baseline project into the production (current) schedule

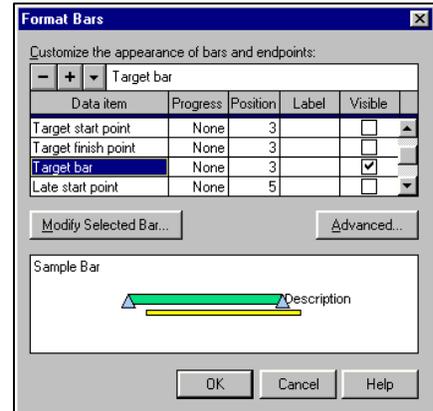
After processing has completed, your **target** dates are now present in the production schedule.



TECHNICAL TIP - TARGET BARS

How can I show Target Bars (based on Target Dates) in my production (current) schedule?

1. Open the project
2. Navigate to "**Format, Bars**" and under Data Item, look for "**Target Bar**"
 - If the **target** bar is not listed under "**Data Item**", click on the "+" and add the "**Target bar**" to the Data Item list
 - Place a check mark in the "**Visible**" column for the "**Target Bar**"
 - This will make the yellow **target** bar appear in the "**Sample Bar**" area
 - Click "**OK**".



3. Navigate to "**Format, Row Height**"
 - Select "**Automatic Size**" and apply to "**All Activities**"
 - Click "**OK**"
 - This will resize the row heights automatically so that the **target** bars will have "room" to be shown on the schedule bar chart



CONTRACTOR TIPS – PROJECT SCHEDULE SETUP

1. When creating a new project file, choose the "Project Groups" Type, this will provide a number of benefits to the schedule process
2. We recommend that the 4 character Project (file) Name be structured as follows:
 - a. First 2 characters represents a project abbreviation
 - b. 3rd character represents B for Baseline or U for Update
 - c. 4th character represents the version of that Baseline or the Update number
 - d. If you exceed 9 updates, then use A,B,C, etc.
3. Project Dates should be entered as follows:
 - a. Start Date = NTP
 - b. Must Finish By = Contract Completion Date
4. Enter the Project Title
5. Enter your company name
6. Activity Codes
 - a. Use Activity Codes, do not use the WBS in SureTrak
 - b. Codes are to include
 - i. Stage
 - ii. Responsibility
 - iii. Location
 - iv. Element
 - v. Pay Item
7. Calendars
 - a. Should be established as per the specifications regarding Caltrans non-workdays
 - b. Please take care in assigning activities to the proper work calendar or 7 day calendar

New Project

Current folder: C:\Program Files\SureTrak

Project name: VFB1

Template: _DEFAULT

Type: Project Groups

Planning Unit: Hour Day

Add this new project to a project group

Group: Project ID:

Number/Version: Initial Baseline

Start date: 06/01/03

Must finish by: 12/31/03

Project title: VENTURA FREEWAY RESURFACING

Company name: RATCLIFFE CONSTRUCTION CO.

8. Target Dates
 - a. Once the baseline is ready for submittal, store the Target Dates
 - i. **Define, Target Dates**
 - b. Once the baseline is approved, store the latest Target Dates again and do not change

Target Dates

Assign: Early dates to target dates

Apply to: All activities Selected activities

CONTRACTOR TIPS – PROJECT SCHEDULE SETUP (continued)

9. Create the following layouts in the baseline file for Caltrans use and do not make changes

a. Caltrans Baseline Review Layout

Act ID	Activity Description	Calendar	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors	STAGE	RESP	ELEM
STAGE 1											
CALTRANS											
1130	REVIEW/APPROVE FALSEWORK DRAWINGS - BRIDGE	2	35	02/27/01	04/02/01	0	1120	1500, 2115	1	CT	GC
ACME GENERAL											
1140	MOBILIZATION	1	10	02/06/01	02/19/01	0	1100	1150	1	GC	GC
1120	SUBMIT FALSEWORK DRAWINGS - BRIDGE 720	2	21	02/06/01	02/26/01	0	1100	1130, 2110	1	GC	GC
1150	CLEAR AND GRUB - STA 190 - 230	1	5	02/20/01	02/26/01	0	1140	1170, 1190, 1210, 1220	1	GC	ST
1500	EMBANKMENT FILL/ SETTLEMENT	1	90	04/03/01	08/08/01	0	1130, 1210	1510	1	GC	B7
1510	EXCAV/PILES ABUTMENTS & BENTS	1	15	08/09/01	08/29/01	0	1500	1520, 1530	1	GC	B7
1520	BENT FOOTINGS	1	20	08/30/01	09/27/01	0	1510	1540	1	GC	B7
1530	ABUTMENTS	1	30	08/30/01	10/11/01	15d	1510	1550	1	GC	B7
1540	COLUMNS - BR 720	1	25	09/28/01	11/01/01	0	1520	1550	1	GC	B7
1550	ERECT FALSEWORK - BR 720	1	15	11/02/01	11/26/01	0	1530, 1540	1570	1	GC	B7
1570	BRIDGE DECK BR 720	1	5	11/27/01	12/03/01	0	1550	1580, 1590	1	GC	B7
1590	APPROACH SLABS - BR 720	1	5	12/04/01	12/10/01	5d	1570	1700	1	GC	B7

b. Caltrans Weekly Schedule Layout

Act ID	Activity Description	Resp	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	2001											
								FEB				MAR				APR			
								05	12	19	26	05	12	19	26	02	09	16	23
02/05/01																			
1100	START CONSTRUCTION CONTRACT		0	0	02/06/01 *		0	◆ START CONSTRUCTION CONTRACT											
1140	MOBILIZATION	GC	10	10	02/06/01	02/19/01	0	■ MOBILIZATION											
1160	UG TELEPHONE - EAST - 30 DAY NOTICE	PB	20	20	02/06/01	02/25/01	14d	■ UG TELEPHONE - EAST - 30 DAY NOTICE											
1180	OH ELECTRIC - EAST - 30 DAY NOTICE	CE	20	20	02/06/01	02/25/01	7d	■ OH ELECTRIC - EAST - 30 DAY NOTICE											
1120	SUBMIT FALSEWORK DRAWINGS - BRIDGE 720	GC	21	21	02/06/01	02/26/01	0	■ SUBMIT FALSEWORK DRAWINGS - BRIDGE 720											
02/19/01																			
1150	CLEAR AND GRUB - STA 190 - 230	GC	5	5	02/20/01	02/26/01	0	■ CLEAR AND GRUB - STA 190 - 230											
02/26/01																			
1220	12" SEWER LINES	PP	15	15	02/27/01	03/19/01	370d	■ 12" SEWER LINES											
2110	SUBMIT FALSEWORK DRAWINGS - BR 850	GC	21	21	02/27/01	03/19/01	0 *	■ SUBMIT FALSEWORK DRAWINGS - BR 850											
1190	OH ELECTRIC - EAST	CE	20	20	02/27/01	02/26/01	4d	■ OH ELECTRIC - EAST											

c. Caltrans Update Review Layout

Act ID	Description	Calendar	Pct Cmpl	Orig Dur	Actual Dur	Rem Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float	Predecessors	Successors	STAGE	ELEM	RESP
1100	START CONSTRUCTION CONTRACT	1	100	0	1	0	02/06/01 A		02/06/01 A						1	GC	
1140	MOBILIZATION	1	100	10	9	0	02/06/01 A	02/16/01 A	02/06/01 A	02/16/01 A			1100	1150	1	GC	GC
1120	SUBMIT FALSEWORK DRAWINGS - BR	2	100	21	130	0	02/06/01 A	06/15/01 A	02/06/01 A	06/15/01 A			1100	1130, 2110	1	GC	GC
1150	CLEAR AND GRUB - STA 190 - 230	1	100	5	8	0	02/19/01 A	02/28/01 A	02/19/01 A	02/28/01 A			1140	1170, 1190	1	ST	GC
1210	DRAINAGE STRUCTURE 1	1	100	25	35	0	02/21/01 A	04/10/01 A	02/21/01 A	04/10/01 A			1150	1230, 1500	1	UT	PP
2110	SUBMIT FALSEWORK DRAWINGS - BR	2	100	21	145	0	02/26/01 A	07/20/01 A	02/26/01 A	07/20/01 A			1120	2115	2	GC	GC
1220	12" SEWER LINES	1	100	15	16	0	03/21/01 A	04/11/01 A	03/21/01 A	04/11/01 A			1150	1500	1	UT	PP
1500	EMBANKMENT FILL/ SETTLEMENT -	2	100	90	90	0	04/11/01 A	07/09/01 A	04/11/01 A	07/09/01 A			1210, 1220	1510	1	B7	GC
1230	SOUNDWALL 205	1	100	30	21	0	05/24/01 A	06/22/01 A	05/24/01 A	06/22/01 A			1210	1700	1	SR	MM
1160	UG TELEPHONE - EAST - 30 DAY	2	100	30	30	0	06/11/01 A	07/10/01 A	06/11/01 A	07/10/01 A			1100	1170	1	UT	PB
1180	OH ELECTRIC - EAST - 30 DAY NOTICE	2	100	30	30	0	06/11/01 A	07/10/01 A	06/11/01 A	07/10/01 A			1100	1190	1	UT	CE
1130	REVIEW/APPROVE FALSEWORK	2	10	48	32	44	06/18/01 A	09/01/01	06/18/01 A	09/25/01	24d	0	1120	1550, 2115	1	GC	CT
1510	EXCAV/PILES ABUTMENTS & BENTS -	1	50	15	8	8	07/10/01 A	07/31/01	07/10/01 A	07/23/01	-6d	0	1500	1520, 1530	1	B7	GC
1190	OH ELECTRIC - EAST	1	10	20	7	18	07/11/01 A	08/14/01	07/11/01 A	10/02/01	34d	0	1150, 1180	1200	1	UT	CE
1170	UG TELEPHONE - EAST	1	25	25	7	19	07/11/01 A	08/15/01	07/11/01 A	10/18/01	43d	9d	1150, 1160	1300	1	UT	PB

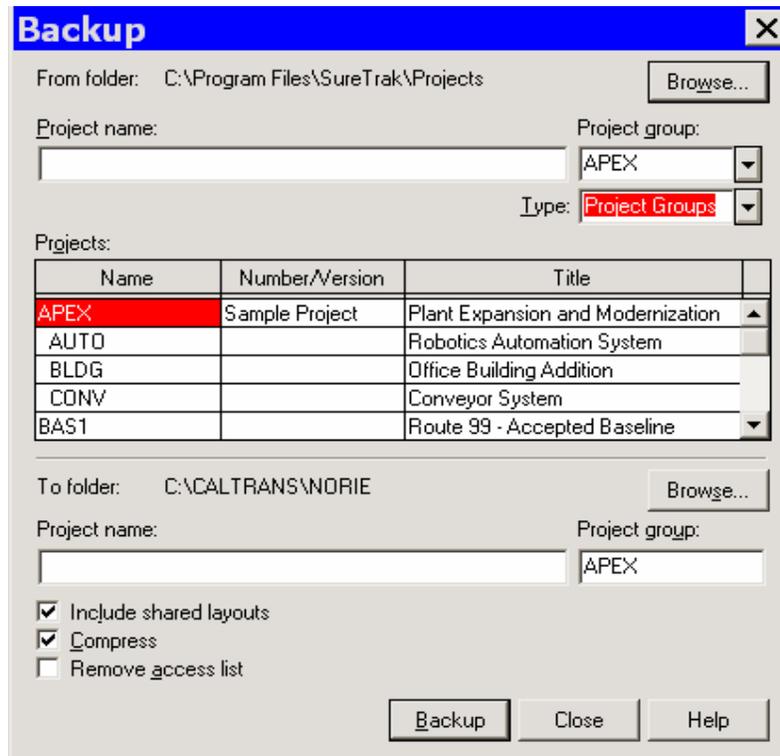
d. Caltrans Comparison Layout

Act ID	Activity Description	Calendar	Pct Cmpl	Orig Dur	Actual Dur	Rem Dur	Early Start	Early Finish	Target Start	Target Finish	Finish Variance	Total Float	2001															
													MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC								
													01	08	15	22	01	08	15	22	01	08	15	22	01	08	15	22
STAGE 1																												
CALTRANS																												
1130	REVIEW/APPROVE FALSEWORK DRAWINGS - BR	2	10	49	32	44	06/18/01	09/01/01	02/27/01	04/02/01	-152	24d	■ REVIEW/APPROVE FALSEWORK DRAWINGS															
ACME GENERAL																												
1140	MOBILIZATION	1	100	10	9	0	02/06/01	02/16/01 A	02/06/01	02/16/01	1		■ SUBMIT FALSEWORK DRAWINGS - BR 720															
1120	SUBMIT FALSEWORK DRAWINGS - BR 720	2	100	21	130	0	02/06/01	06/15/01 A	02/06/01	02/26/01	-109		■ EMBANKMENT FILL/ SETTLEMENT - BRIDGE 720															
1150	CLEAR AND GRUB - STA 190 - 230	1	100	5	8	0	02/19/01	02/28/01 A	02/20/01	02/26/01	-2		■ EXCAV/PILES ABUTMENTS & BENTS - BR 720															
1500	EMBANKMENT FILL/ SETTLEMENT - BRIDGE 720	2	100	90	96	0	04/11/01	07/09/01 A	04/03/01	08/08/01	30		■ ABUTMENTS - BR 720															
1510	EXCAV/PILES ABUTMENTS & BENTS - BR 720	1	50	15	8	8	07/10/01	07/31/01	08/09/01	08/29/01	21	-6d	■ COLUMNS - BR 720															
1520	BENT FOOTINGS - BR 720	1	0	20	0	20	08/01/01	08/28/01	08/30/01	09/27/01	21	-6d	■ ERECT FALSEWORK - BR 720															
1530	ABUTMENTS - BR 720	1	0	30	0	30	08/01/01	09/12/01	08/30/01	10/11/01	21	9d	■ SOFF															
1540	COLUMNS - BR 720	1	0	25	0	25	08/29/01	10/03/01	09/28/01	11/01/01	21	-6d																
1550	ERECT FALSEWORK - BR 720	1	0	15	0	15	10/04/01	10/24/01	11/02/01	11/26/01	21	-6d																
1560	SOFFITS & STEMS - BR 720	1	0	25	0	25	10/25/01	11/30/01			0	-6d																
1570	BRIDGE DECK BR 720	1	0	30	0	30	12/03/01	01/15/02	11/27/01	12/03/01	-29	-6d																
1590	APPROACH SLABS - BR 720	1	0	5	0	5	01/16/02	01/22/02	12/04/01	12/10/01	-29	-1d																
1580	REMOVE FALSEWORK - BR 720	1	0	10	0	10	01/16/02	01/29/02	12/04/01	12/17/01	-29	-6d																

CONTRACTOR TIPS – BACKING UP A PROJECT

The steps to create a back up of project using SureTrak Project Manager are as follows:

1. Open SureTrak Project Manager.
2. Select Tools, Project Utilities, Backup. SureTrak's Backup window will appear.



3. In the backup window, there are several sections that need attention prior to backing up the project. The first being the "From folder". The "From folder" is asking you to point it to the folder that contains the project you wish to back up. You can change the location by hitting the "Browse.." button. You may need to change the "Type" that SureTrak is looking for; depending if the backed up project is a SureTrak, Project Groups, or Concentric P3 type project. If the project is a project groups type or concentric (p3) type project and you wish to send a single file, change the type to "Project Groups" type project and it will create a single file for easier sending through email.

~~Sure Trak type projects, once backed up, will have a ".stx" extension.~~

Project Group type projects, once backed up, will have a ".prx" extension.

~~Concentric P3 type projects, once backed up, will have multiple files with ".p3c" as the extension.~~

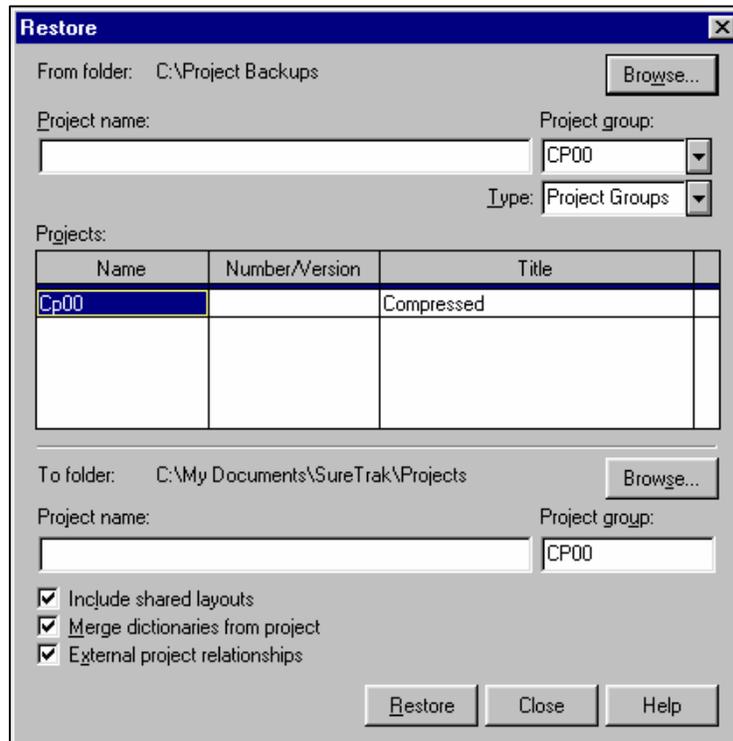
The next area that you will need to set is the "To folder". The "To folder" is asking you where you want SureTrak to put the backed up project. You can change the location by hitting the "Browse.." button.

4. Check the "Compress" option to reduce the total file size.
5. Click "**Backup**". You can now attach this project to email.

CONTRACTOR TIPS – RESTORING A BACKED-UP PROJECT

The steps to restore a backed-up project using SureTrak Project Manager are as follows:

1. Place the file in any folder on your hard drive (or network).
2. Open SureTrak Project Manager.
3. Select Tools, Project Utilities, Restore. SureTrak's Restore window will appear.



4. In the restore window, there are several sections that need attention prior to restoring. The first being the "From folder". The "From folder" is asking you to point it to the folder that contains the backed up project. You can change the location by hitting the "Browse.." button. You may need to change the "Type" that SureTrak is looking for; depending if the backed up project is a SureTrak, Project Groups, or Concentric P3 type project.

~~Sure Trak type projects will have a ".stx" extension.~~

~~Project Group type project will have a ".prx" extension.~~

~~Concentric P3 type projects will have multiple files with ".p3c" as the extension.~~

The next area that you will need to set is the "To folder". the "To folder" is asking you to point it to the folder that you want SureTrak to restore the project. You can change the location by clicking on the "Browse.." button.

5. Click "**Restore**". You can now use SureTrak to open the project.

LESSON 5 REVIEW QUESTIONS

Page 5-9

1. C
2. Cost and Duration
3. C
4. B
5. E
6. B
7. D
8. C

Page 5-19

1. B
2. C
3. C
4. A
5. B
6. D
7. 50%
8. C
9. B

LESSON 6 REVIEW QUESTIONS

Page 6-7

1. A
2. B
3. C
4. A
5. B
6. B

Page 6-15

1. B
2. C
3. D
4. C
5. F
6. C
7. B
8. A

LESSON 7 REVIEW QUESTIONS

Page 7-13

1. C
2. C
3. B
4. B
5. B
6. B
7. B
8. C

SURETRAK DEMO & STUDENT FILES

1. RUN MULTIMEDIA DEMO OF SURETRAK

- a. Click on START, RUN
- b. Enter X:\RUNDEMO.EXE (where X is the CD Drive)
- c. This runs a multimedia demo in your browser program

2. INSTALL WORKING COPY OF SURETRAK PROGRAM

- a. Full working version of program
- b. Limited to 25 activities
- c. Click on START, RUN
- d. Enter X:\ST3\SETUP.EXE (where X is the CD Drive)
- e. Install to C:\SURETRAK
- f. Choose "Typical Installation"
- g. Choose "Project Groups" for default project type
- h. Installation also installs some demo schedules

3. STUDENT CLASS FILES

- a. Copy all contents of the X:\PROJECTS directory (where X is the CD Drive) to C:\SURETRAK\PROJECTS
- b. Copy all contents of the X:\PROJECTS\LAYOUTS directory to C:\SURETRAK\LAYOUTS
- c. To restore the compressed class projects, refer to page 6-8 in the class manual
- d. To open the projects, refer to page 6-9 in the class manual
- e. See Tech Tip on Page T-2 to install the Schedule (Diagnostic) Report script