MnDOT Project Management Office Presents:
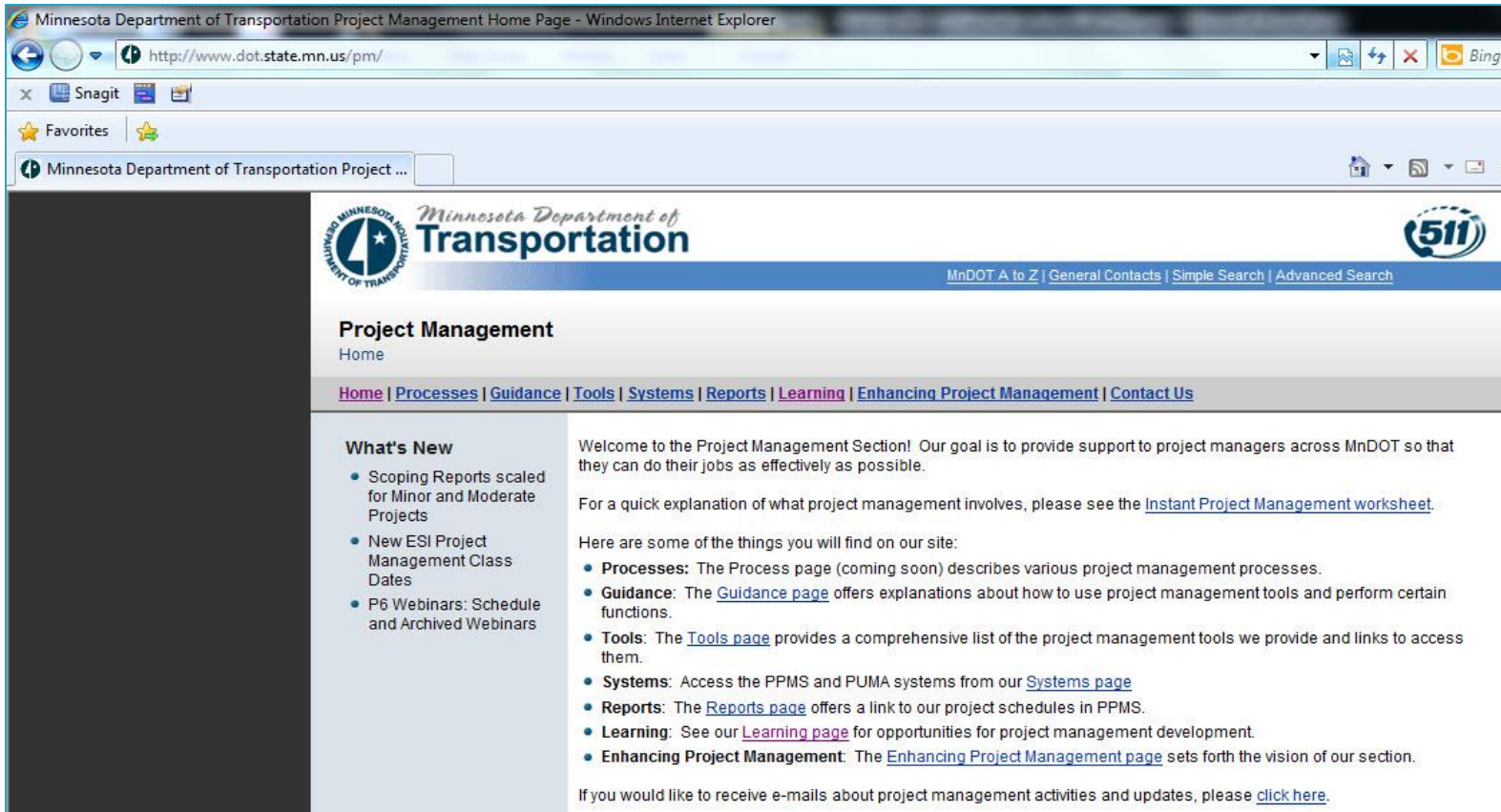
Schedule Updates

Presenter: Eric Costantino
Senior Schedule Consultant
DRMcNatty & Associates, Inc.

Housekeeping Items

❖ Lines will be muted during the webinar

❖ Questions can be submitted thru the GoToWebinar Questions box on right of your screen and posted on website within 5 days

❖ Questions will be made available "Live" for this webinar, can download .pdf on how to submit live questions for next weeks webinar on the MnDOT Website

❖ Webinar slides available in pdf on MnDOT website within 5 days

❖ Webinar is being recorded and will be available on the MnDOT website within 5 days

❖ http://www.dot.state.mn.us/pm/

MnDOT Webinars

❖ http://www.dot.state.mn.us/pm/

MnDOT Webinars

❖ http://www.dot.state.mn.us/pm/learning.html

❖ Click on the "Learning" link
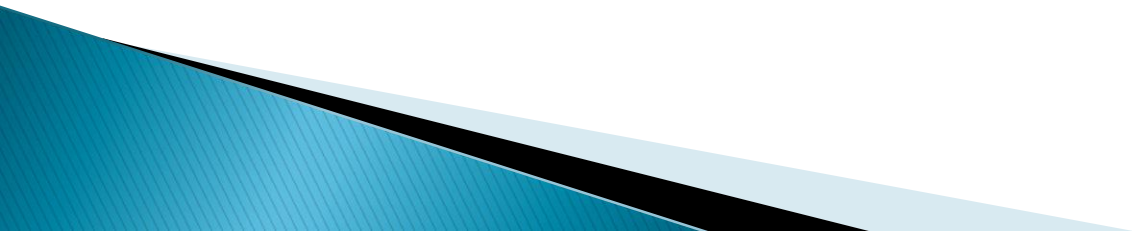
MnDOT Webinars

Primavera P6 Webinars: Each webinar will start at 1:00 p.m. and last 1/2 hour. Click the links below to register for a session. After each webinar, a recording will be made available from this page. Live questions (PDF 2MB) can also be submitted by attendees during each webinar.

To request ASL or a foreign language interpreter or other resonable accomodations for the live webinars, call Janet Miller at 651-336-4720 or 1-800-657-3774 (Greater Minnesota). You may send an email to janet.rae.miller@state.mn.us (please request at least one week in advance).

Collaborative Scheduling using the CPM Method   March 27, 2013
- View this Presentation (32:57, WMV 34MB)
- View Slides (PDF 15MB)
- View Script (Word 5MB)

Work Breakdown Structures   April 3, 2013
- View this Presentation (31:11, WMV 23MB)
- View Slides (PDF 10 MB)
- View Script (Word 22KB)

Scheduling Float   April 10, 2013
- View this Presentation (31:14, WMV 18MB)
- View Slides (PDF 10MB)
- View Script (Word 22KB)

Schedule Baselines   April 17, 2013
- View this Presentation (24:37, WMV 24MB)
- View Slides (PDF 11MB)

Schedule Updates	April 24, 2013	Reserve your Webinar seat now
Project Reporting	May 1, 2013	Reserve your Webinar seat now
Impact Schedules	May 8, 2013	Reserve your Webinar seat now
MnDOT use of Calendars in Primavera P6	May 15, 2013	Reserve your Webinar seat now
Roles and Resource Management	May 22, 2013	Reserve your Webinar seat now
Risk Management	May 29, 2013	Reserve your Webinar seat now
Views and Layouts for Program Management	June 5, 2013	Reserve your Webinar seat now
Dashboards and Reporting for Program Management	June 12, 2013	Reserve your Webinar seat now

Webinar "Live" Questions

❖ Live questions will now be available for MnDOT weekly webinars

❖ Live questions can be submitted during the webinar and will be answered in the final 10 minutes of the webinar

❖ Use the "Questions" box in the GoToMeeting dialog box during the webinar

❖ Use the "Raise Hands" to ask a "Live" questions during the questions and answer session, the lines will be un-muted

MnDOT Webinars
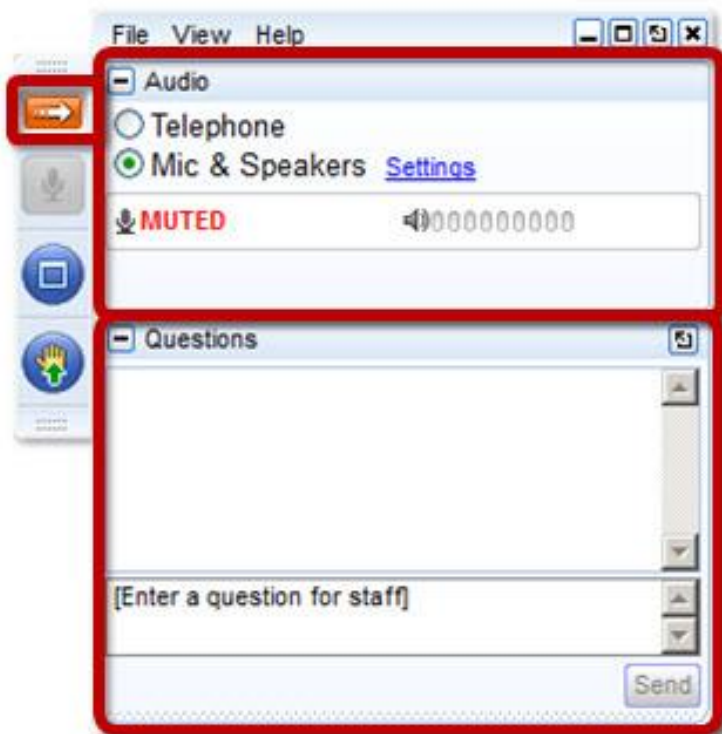
Your Participation
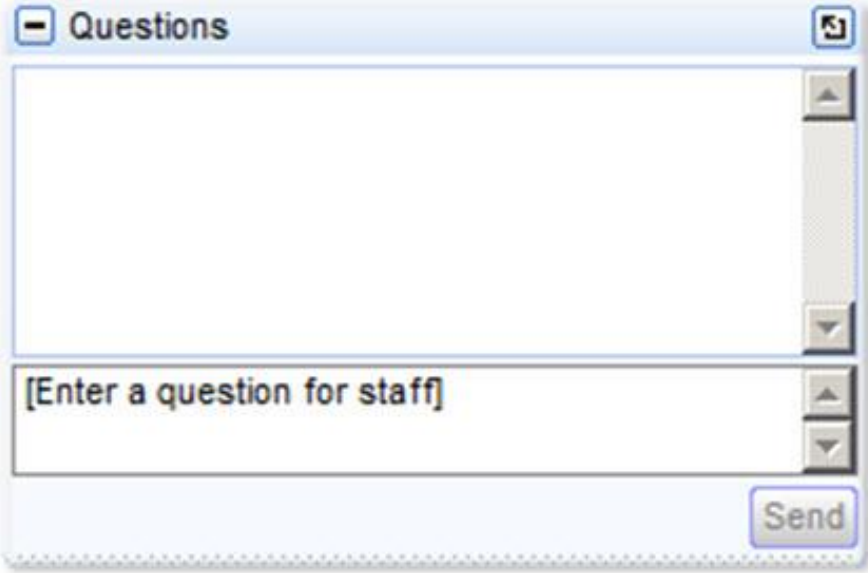
Open and hide your control panel

Join audio:
- Choose "Mic & Speakers" to use VoIP
- Choose "Telephone" and dial using the information provided

Submit questions and comments via the Questions panel

Submit Webinar Questions

Raise Hand for Question
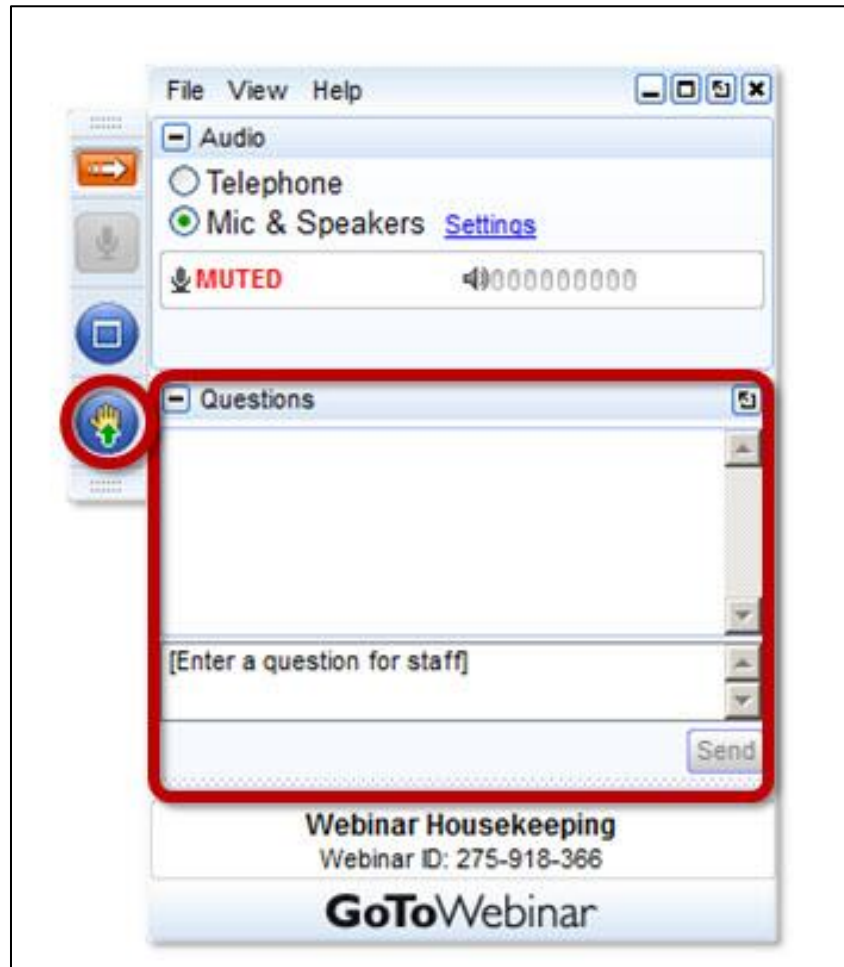
Introduction to Webinar

A quality schedule only remains effective with proper execution & timely updating. Learn the techniques and potential pitfalls in maintaining and updating a good schedule thru the Progress Spotlight feature in P6.

Updating a Schedule
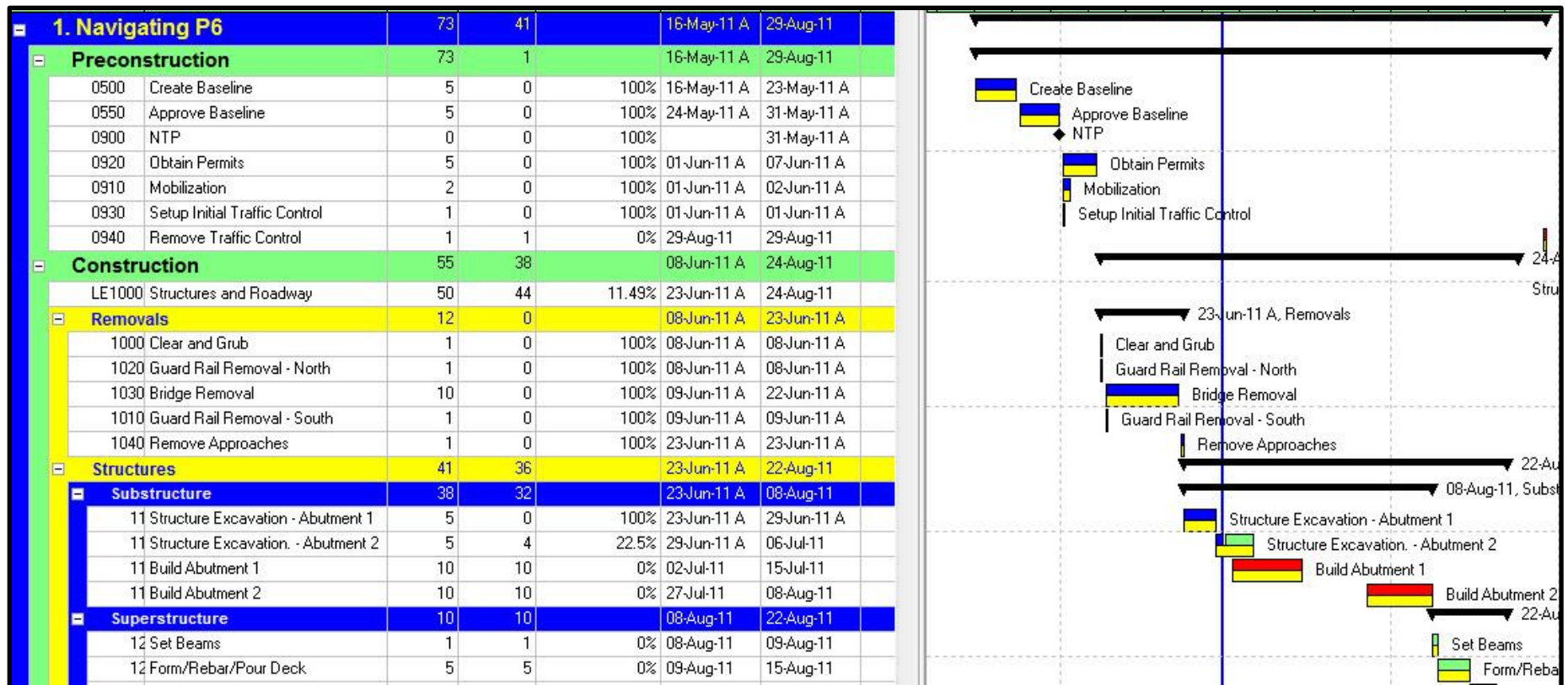
Updating Schedule Process

❖ Create a baseline plan (target)

❖ Identify the new data date with the Progress Spotlight

❖ Enter activity progress (% Complete/Remaining Duration)

❖ Update resource use and costs to date

❖ Calculate the schedule (F9)
   ❖ Be sure to verify the new data date

❖ Perform target analysis
   ❖ Compare the current plan to the target to analyze variances

❖ Monitor project progress with reports

Updating a Schedule

❖ Once a project has started, the scheduler needs to update the actual schedule information and resource usage at regular intervals (Every 2 Weeks)

❖ Schedule Dates and Durations

      ❖ Actual Start
         Actual Finish
         Percent Complete or Remaining Duration

❖ Resource usage

❖ Costs

Updating Activities

❖ Schedule, resource and cost data should be entered in the following order

❖ For Completed Activities

1. Actual start and actual finish dates
2. Actual regular units/costs

❖ For Activities In-Progress

1. Actual start date
2. Percent complete and/or remaining duration
3. Actual regular units/costs and remaining units/costs
4. Actual and remaining expense costs

Data Date

❖ The data date is the last date you recorded progress in the form of actual dates, percent of work completed, revised remaining duration, or actual quantities or costs

❖ Activities are scheduled from the project data date, using the project start date as the initial data date

❖ At the first update the data date will be the beginning of the schedule

❖ Be sure to change the data date and reschedule a project each time you record progress for activities.

❖ During the project, the data date moves forward toward the project completion date. The actual dates can serve as historical data for planning another project.

❖ By default, the data date is set to the beginning of the day.

Data Date
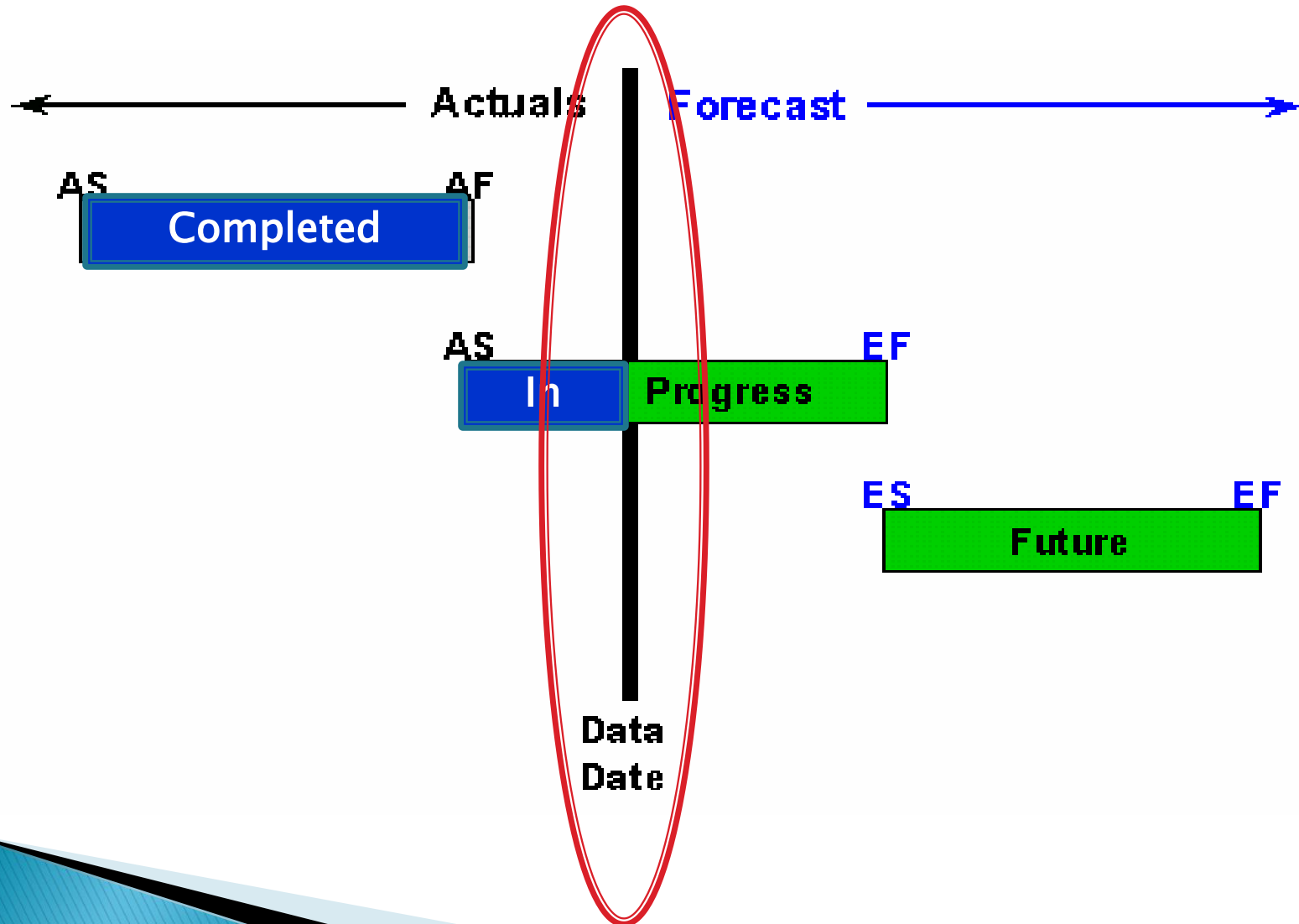
Schedule Dates Relative to Data Date

The remaining schedule starts on the Data Date…

Data Date (Day 17) is at the first day of the remaining schedule

Completed Work

Remaining Work

Setting the New Data Date with Progress Spotlight

Data Date

New Data Date

5d

10d

ES   EF

8d

2d

Statusing Period

April 24, 2013   **May 08, 2013**
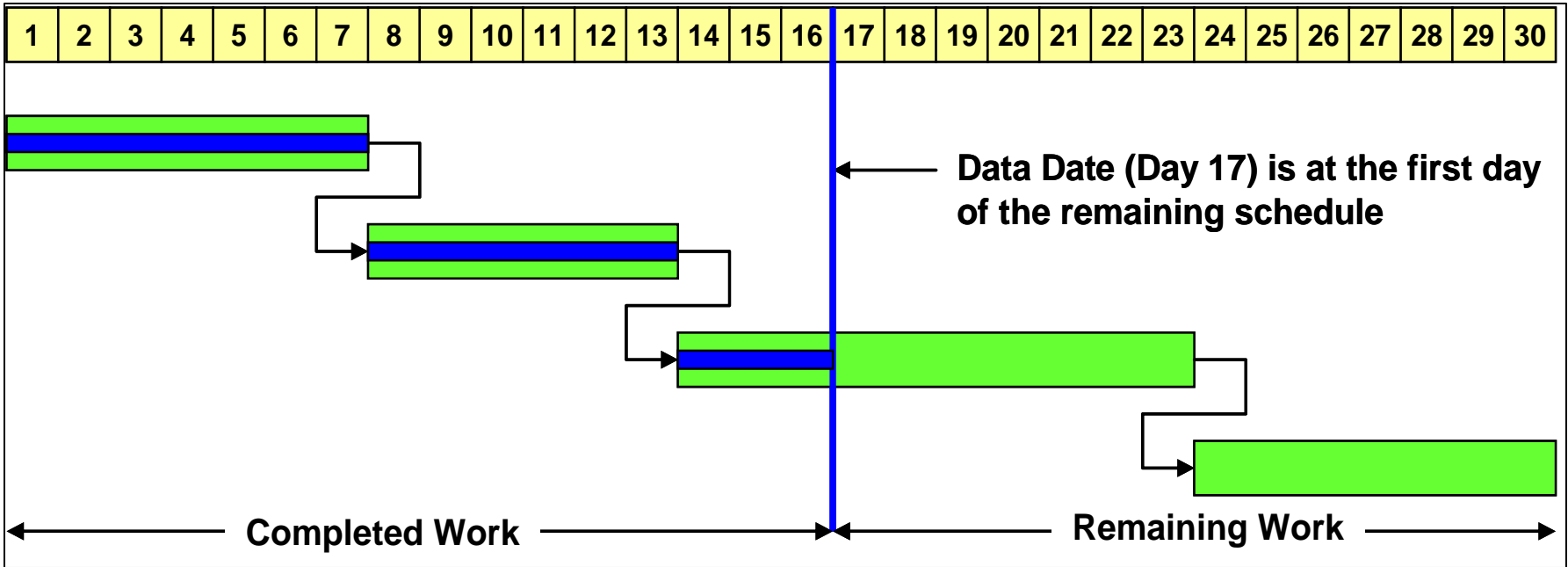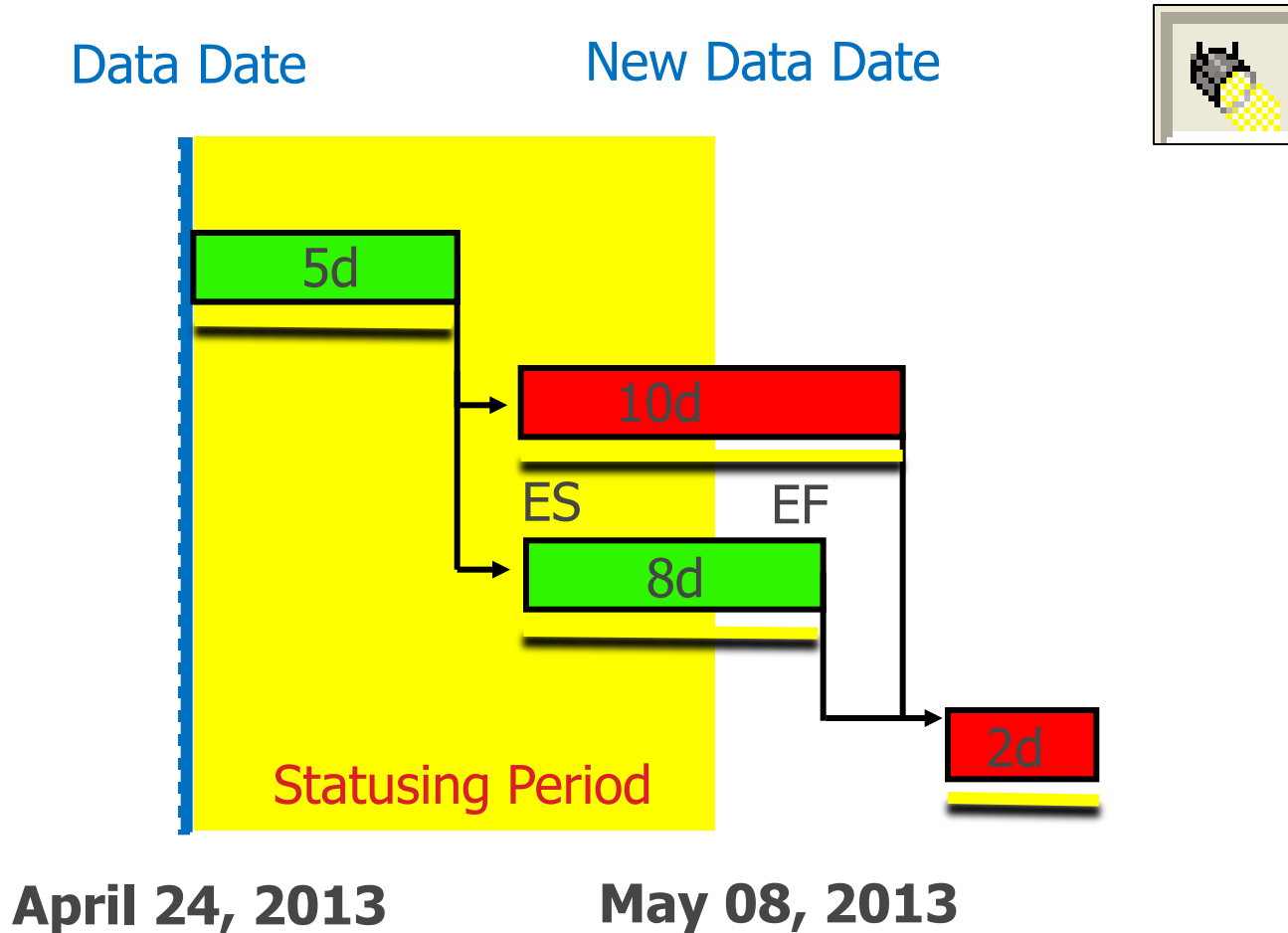
Setting the New Data Date with Progress Spotlight
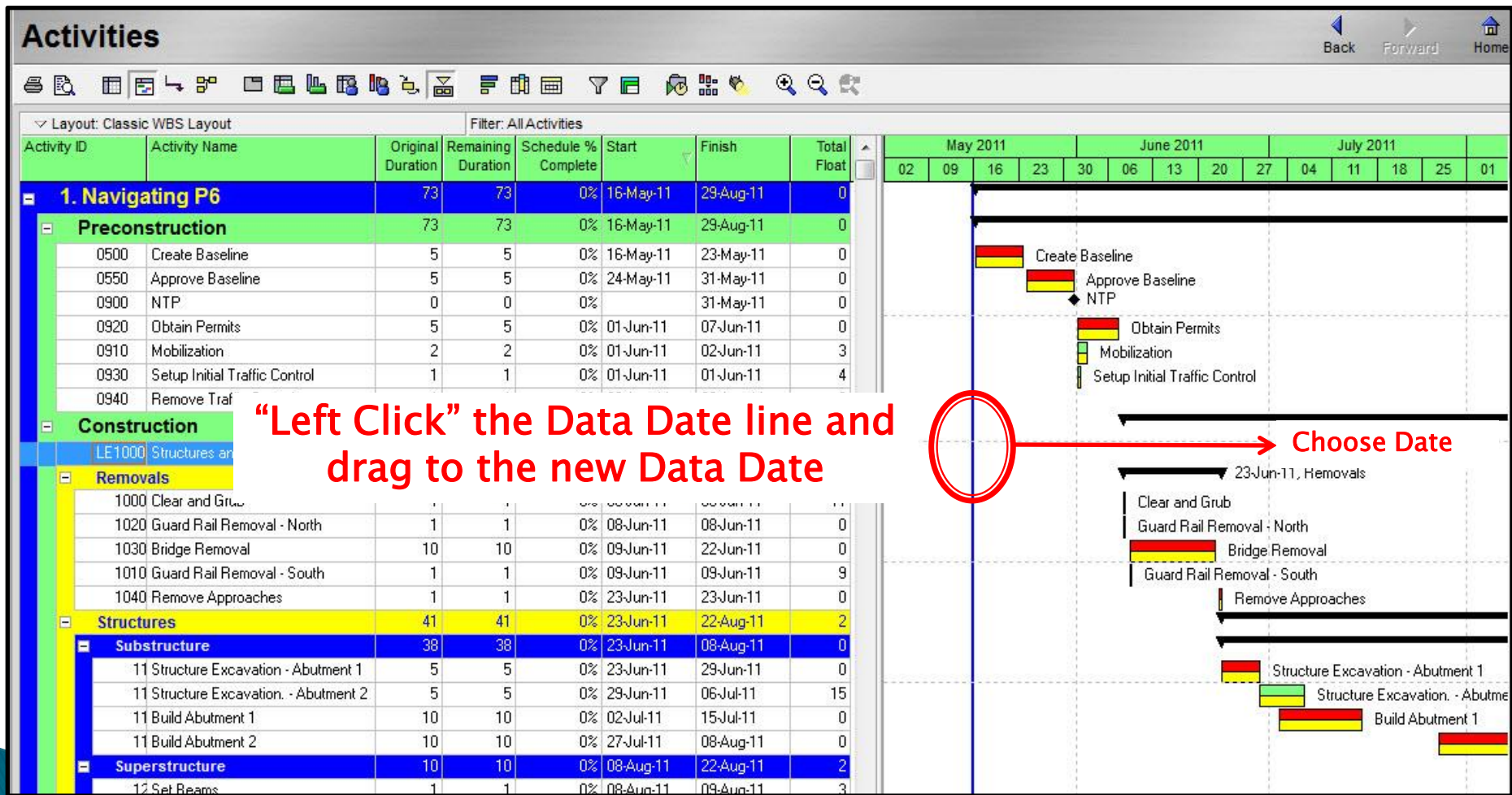
Setting the New Data Date with Progress Spotlight
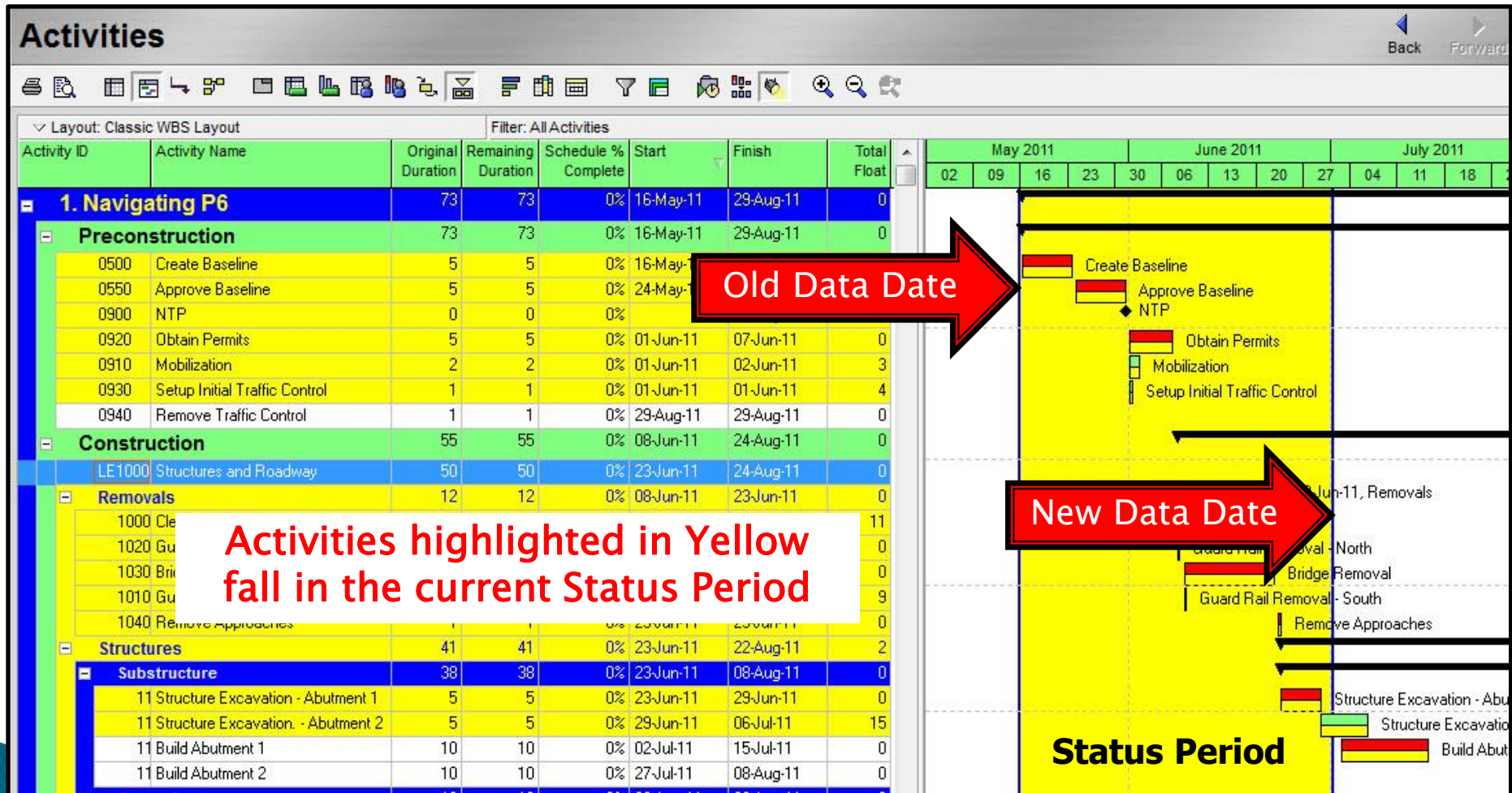
Activity 100% Complete

Construction			55	38		08-Jun-11 A	24-Aug-11
LE1000	Structures and Roadway		50	44	11.49%	23-Jun-11 A	24-Aug-11
Removals			12	0		08-Jun-11 A	23-Jun-11 A
1000	Clear and Grub		1	0	100%	08-Jun-11 A	08-Jun-11 A
1020	Guard Rail Removal - North		1	0	100%	08-Jun-11 A	08-Jun-11 A
1030	Bridge Removal		10	0	100%	09-Jun-11 A	22-Jun-11 A
1010	Guard Rail Removal - South		1	0	100%	09-Jun-11 A	09-Jun-11 A
1040	Remove Approaches		1	0	100%	23-Jun-11 A	23-Jun-11 A
Structures			41	36		23-Jun-11 A	22-Aug-11
Substructure			38	32		23-Jun-11 A	08-Aug-11
1100	Structure Excavation - Abutment 1		5	0	100%	23-Jun-11 A	29-Jun-11 A
1120	Structure Excavation. - Abutment 2		5	4	22.5%	29-Jun-11 A	06-Jul-11

Check the boxes for Actuals and provide correct dates

| heral | Status | Resources | Relationships | Co... |

Activity 1030 Bridge Removal

Duration

Original	10
Actual	10
Remaining	0
At Complete	10

Status

☑ Started 09-Jun-11 → Duration % 100%

☑ Finished 22-Jun-11 Suspend

Exp Finish Resume

In Progress Activity

☐	**Removals**		12	0		08-Jun-11 A	23-Jun-11 A
	1000	Clear and Grub	1	0	100%	08-Jun-11 A	08-Jun-11 A
	1020	Guard Rail Removal - North	1	0	100%	08-Jun-11 A	08-Jun-11 A
	1030	Bridge Removal	10	0	100%	09-Jun-11 A	22-Jun-11 A
	1010	Guard Rail Removal - South	1	0	100%	09-Jun-11 A	09-Jun-11 A
	1040	Remove Approaches	1	0	100%	23-Jun-11 A	23-Jun-11 A
☐	**Structures**		41	36		23-Jun-11 A	22-Aug-11
☐	**Substructure**		38	32		23-Jun-11 A	08-Aug-11
	1100	Structure Excavation - Abutment 1	5	0	100%	23-Jun-11 A	29-Jun-11 A
	1120	Structure Excavation. - Abutment 2	5	4	22.5%	29-Jun-11 A	06-Jul-11
	1110	Build Abutment 1	10	10	0%	02-Jul-11	15-Jul-11
	1130	Build Abutment 2	10	10	0%	27-Jul-11	08-Aug-11
☐	**Superstructure**		10	10		08-Aug-11	22-Aug-11
	1200	Set Beams					

**Check box for Actual Date and can use
% Complete or Remaining Duration**

General | Status | Resources | Relationships

Activity 1120 — Structure Excavation. - Abutment 2 — Project CPM1

Duration
- Original: 5
- Actual: 1
- Remaining: 4
- At Complete: 5

Status
- ☑ Started — 29-Jun-11
- ☐ Finished — 06-Jul-11
- Exp Finish

Physical % — 22.5%
Suspend
Resume

Labor Unit
- Budgeted
- Actual
- Remaining
- At Complete

Schedule the Project – F9

Old Data Date

New Data Date

AS   AF

5d

AS   EF

10d/5d RD

Because it did not start on time, this activity is delayed. It is now Critical!

ES   EF

8d

ES   EF

2d

April 24, 2013   **May 08, 2013**

Schedule the Project – F9

Activities — Back · Forward · Home

▽ Layout: Classic WBS Layout | Filter: All Activities

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish
1. Navigating P6		73	41		16-May-11 A	29-Aug-11
Preconstruction		73	1		16-May-11 A	29-Aug-11
0500	Create Baseline	5	0	100%	16-May-11 A	23-May-11 A
0550	Approve Baseline	5	0	100%	24-May-11 A	31-May-11 A
0900	NTP			100%		31-May-11 A
0920	Obtain Permits			100%	01-Jun-11 A	07-Jun-11 A
0910	Mobilization			100%	01-Jun-11 A	02-Jun-11 A
0930	Setup Initial Traffic Control	1	0	100%	01-Jun-11 A	01-Jun-11 A
0940	Remove Traffic Control	1	1	0%	29-Aug-11	29-Aug-11
Construction		55	38		08-Jun-11 A	24-Aug-11
LE1000	Structures and Roadway	50	44	11.49%	23-Jun-11 A	24-Aug-11
Removals		12	0		08-Jun-11 A	23-Jun-11 A
1000	Clear and Grub	1	0	100%	08-Jun-11 A	08-Jun-11 A
1020	Guard Rail Removal - North	1	0	100%	08-Jun-11 A	08-Jun-11 A
1030	Bridge Removal	10	0	100%	09-Jun-11 A	22-Jun-11 A
1010	Guard Rail Removal - South	1	0	100%	09-Jun-11 A	09-Jun-11 A
1040	Remove Approaches	1	0	100%	23-Jun-11 A	23-Jun-11 A
Structures		41	36		23-Jun-11 A	22-Aug-11
Substructure		38	32		23-Jun-11 A	08-Aug-11
11	Structure Exca			100%	23-Jun-11 A	29-Jun-11 A
11	Structure Exca			22.5%	29-Jun-11 A	06-Jul-11
11	Build Abutment			0%	02-Jul-11	15-Jul-11
11	Build Abutment 2	10	10	0%	27-Jul-11	08-Aug-11
Superstructure		10	10		08-Aug-11	22-Aug-11
12	Set Beams	1	1	0%	08-Aug-11	09-Aug-11
12	Form/Rebar/Pour Deck	5	5	0%	09-Aug-11	15-Aug-11
12	Cure Deck	4	4	0%	15-Aug-11	20-Aug-11

Gantt chart columns: May 2011 (02, 09, 16, 23, 30), June 2011 (06, 13, 20, 27), July 2011 (04, 11, 18, 25), August 2011 (01, 08, 15, 22)

Callouts: **100% Complete** · **New Data Date** · **In Progress**

Baseline Comparison to Actual

Yellow Bar is T1 or T2

Variance with Target

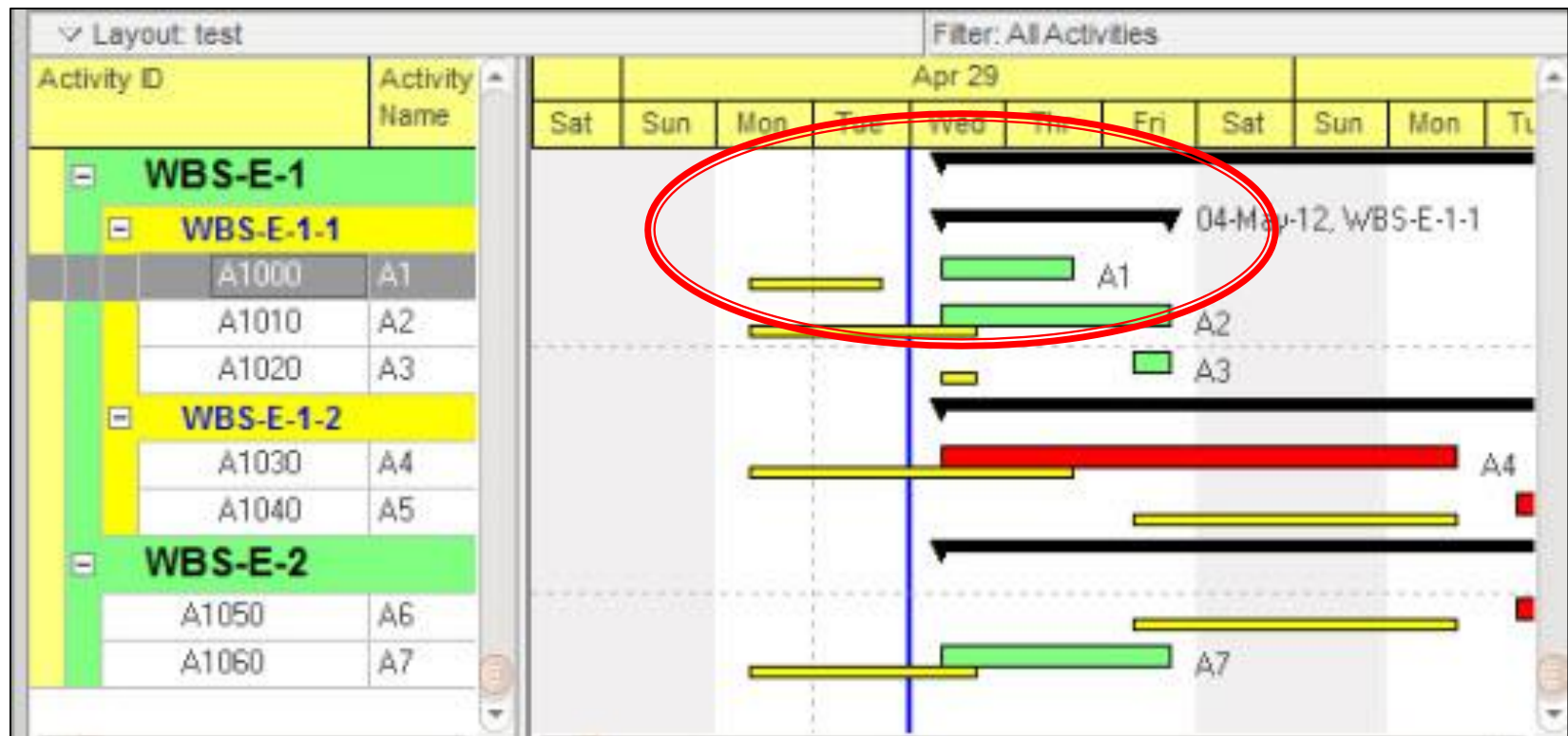Projected Delayed Completion
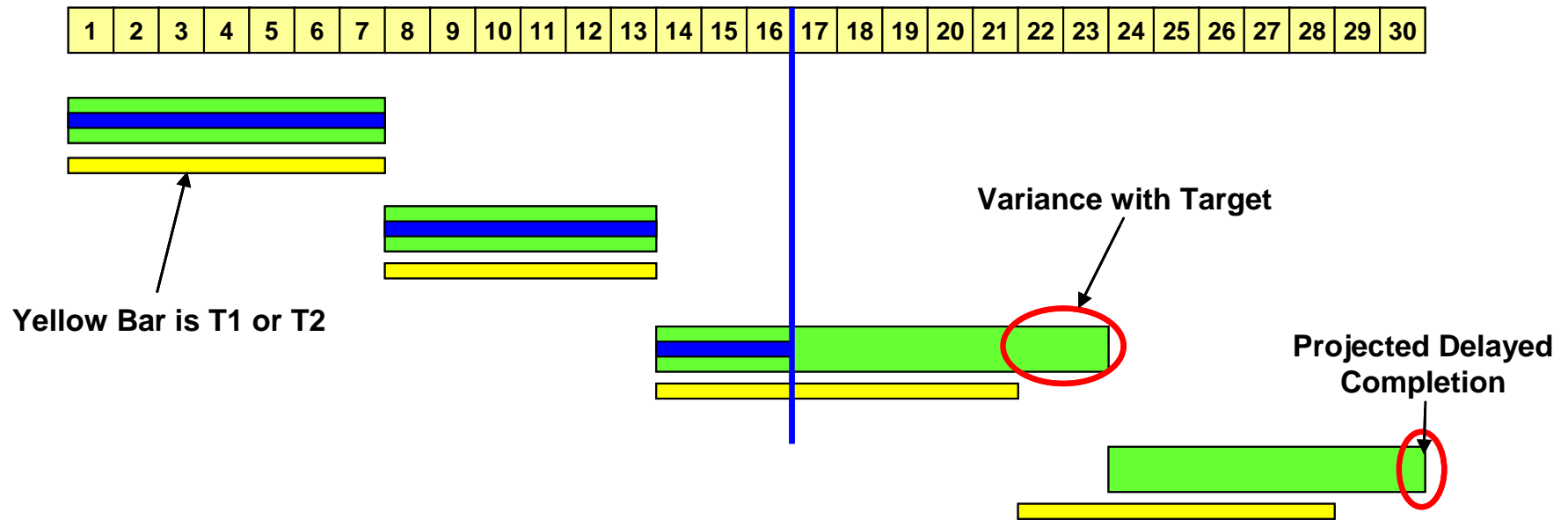
Baseline vs Actual Comparison – Bars

❖ Compare the Baseline vs the Current Update for analysis

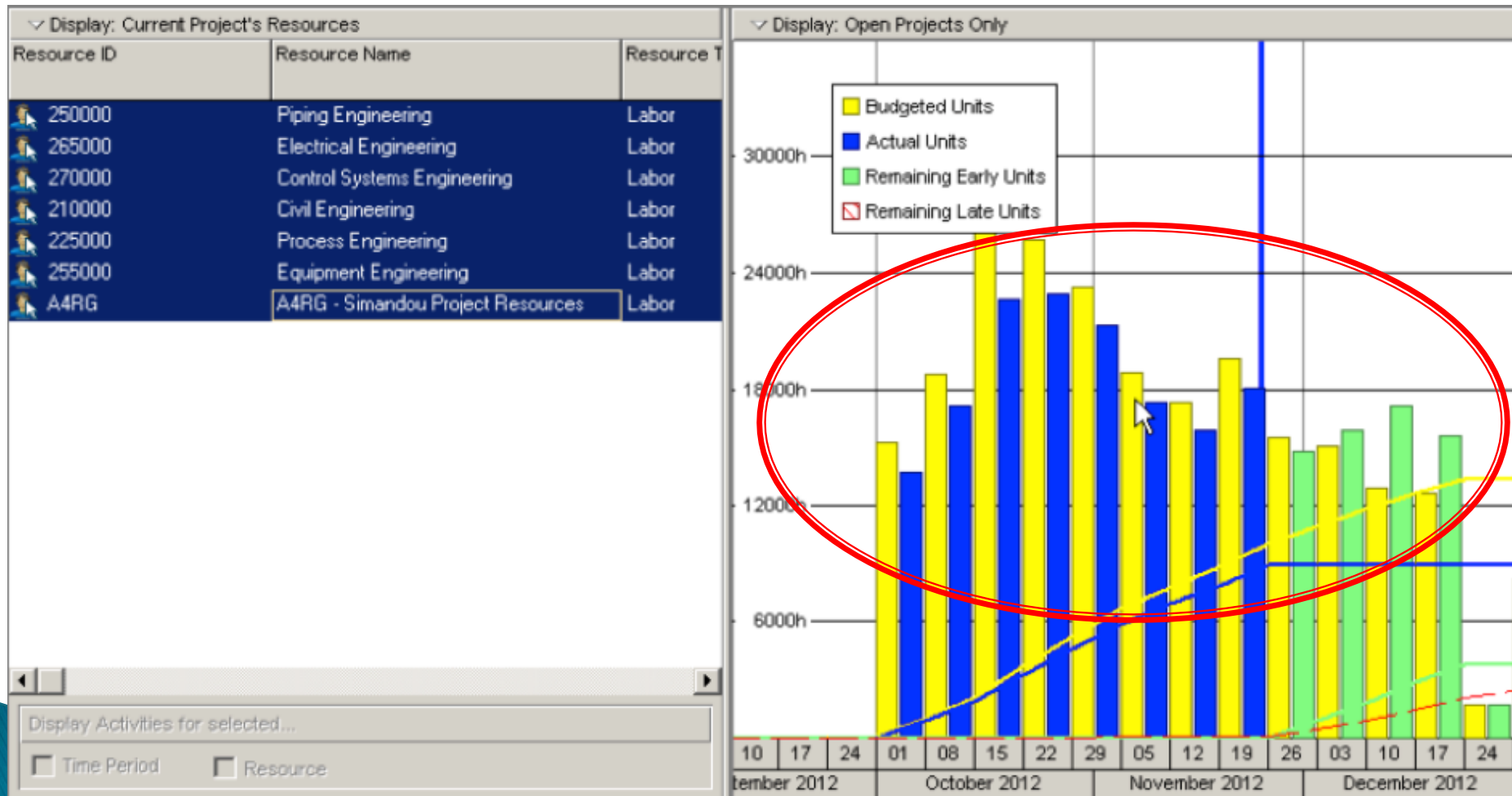# Baseline vs Actual Comparison – Graphs

❖ Compare the Baseline vs the Current Update for analysis

Schedule Baseline Comparison

❖ Compare the Baseline vs the Current Update for analysis

Scheudle Dates	Baseline	Update 01
Contract Start Date	4/24/2013	4/24/2013
Data Date	4/24/2013	5/8/2013
Finish Date	12/31/2013	1/15/2013
Total Float	0	-11

Questions or Comments

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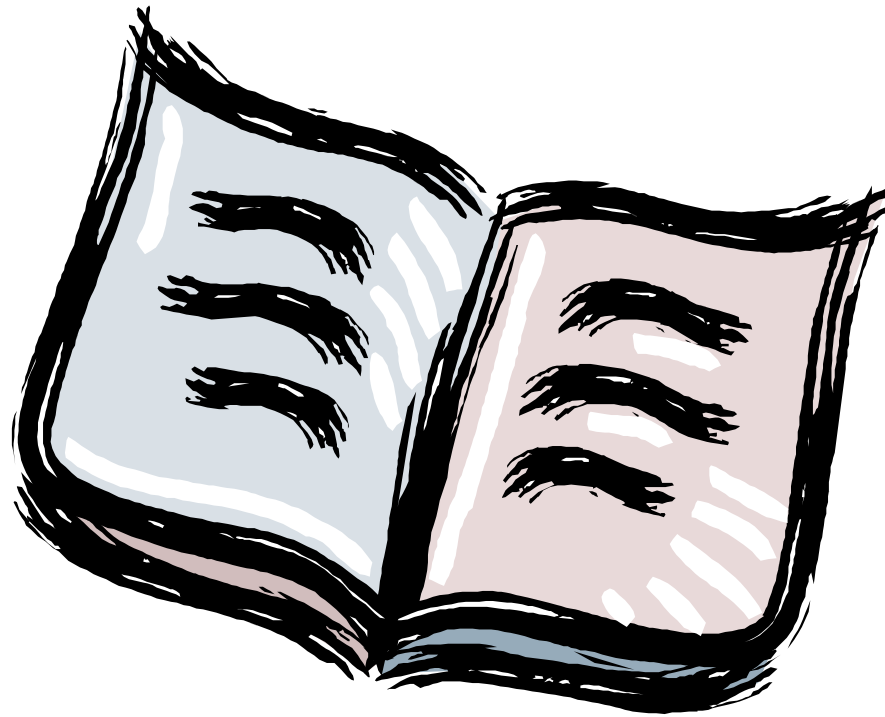**Next Webinar:** Wednesday, May 01, 2013
Time: 1:00 p.m.
Topic: Project Reporting
Presenter: Jonathan McNatty
DRMcNatty & Associates, Inc.

Glossary of CPM Terms

Glossary of CPM Terms

Activity - An individual work task that is the basic component of a project.

Activity Codes - Values assigned to project activities to organize then 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 original planned schedule for a project.

Budget - The estimate of the total units or costs required by a resource or cost account for an activity.
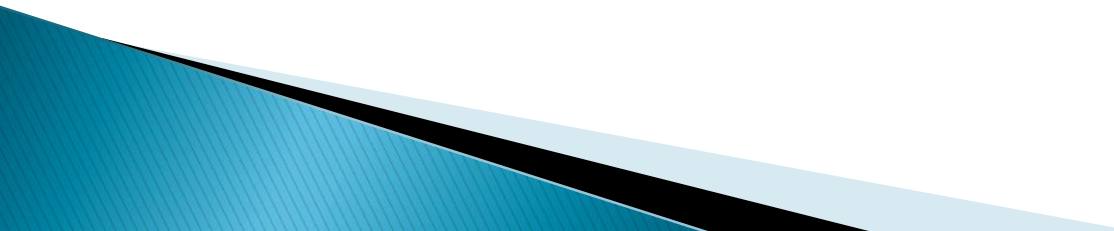
Glossary of CPM Terms

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.

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 series of activities in a project that will take the longest to complete.

Critical Path Method (CPM) - The calculation of the earliest and latest start and finish dates of activities based on their duration and relationships to other activities.

Data Date - The date used as the starting point for schedule calculations.

Driving - A predecessor/successor relationship in which the predecessor

Relationship - Determines the successor's early dates.

Duration - The amount of time (in workdays) needed to complete an activity.

Glossary of CPM Terms

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 - A type of relationship in which a successor activity finish depends on its **(FF)** predecessor activity's finish.

Finish-to Start - A type of relationship in which a successor activity can begin only when its **(FS)** predecessor activity finishes.

Float - The amount of time that the start or finish of an activity can be delayed without affecting the project finish date.

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.

Glossary of CPM Terms

Late Start (LS) - The latest date when an activity can start without delaying the project's completion.

Loop - Circular logic within a network.

Milestone - An activity that represents a significant point in time, that has no duration.

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.

Glossary of CPM Terms

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.
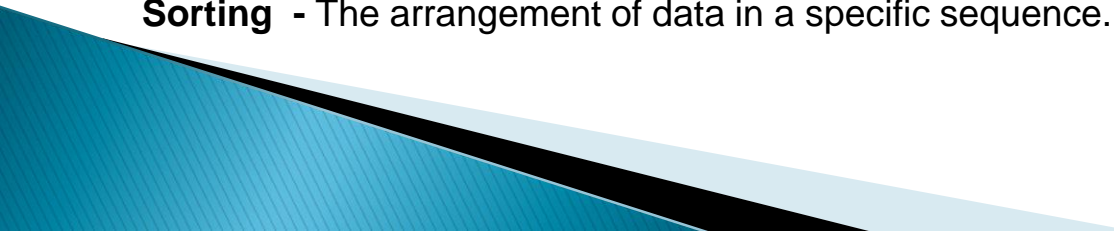
Schedule - A list of the activities needed to complete a project, along with their start and finish dates.

Schedule Calculation - The calculation of early and late dates for each activity in the project.

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.

Glossary of CPM Terms

Start-to Start - A type of relationship in which a successor's start depends on the start of **(SS)** its predecessor.

Status - The process of updating a project by indicating progress at regular intervals.

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.

Total Float (TF) - The total number of days that the start or finish of an activity can be delayed without affecting the project finish date. Float can be negative,zero, or positive.

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.

MnDOT Goals Going Forward

Projects in Construction Phase

❖ Contractor's Build Their Schedule in our Network 1/1/13

❖ Piloting Providing BIM Models and CTD Schedules to Contractors 3/1/13

❖ Select "Unit Rate" project– Resource and Cost Loaded 3/1/13

❖ Role and Resource Loaded of CE&I staff 6/1/14

MnDOT Goals Going Forward

Projects in Scoping and Design Phase

❖ "Active Projects" Role and Resource Loaded 6/30/13

❖ All planned projects Role loaded by June 30, 2014

❖ Taxpayer Transportation Accountability Act