MPUG - An Overview of Earned Value Management (EVM) - Part II

Tracking EVM with Microsoft Project

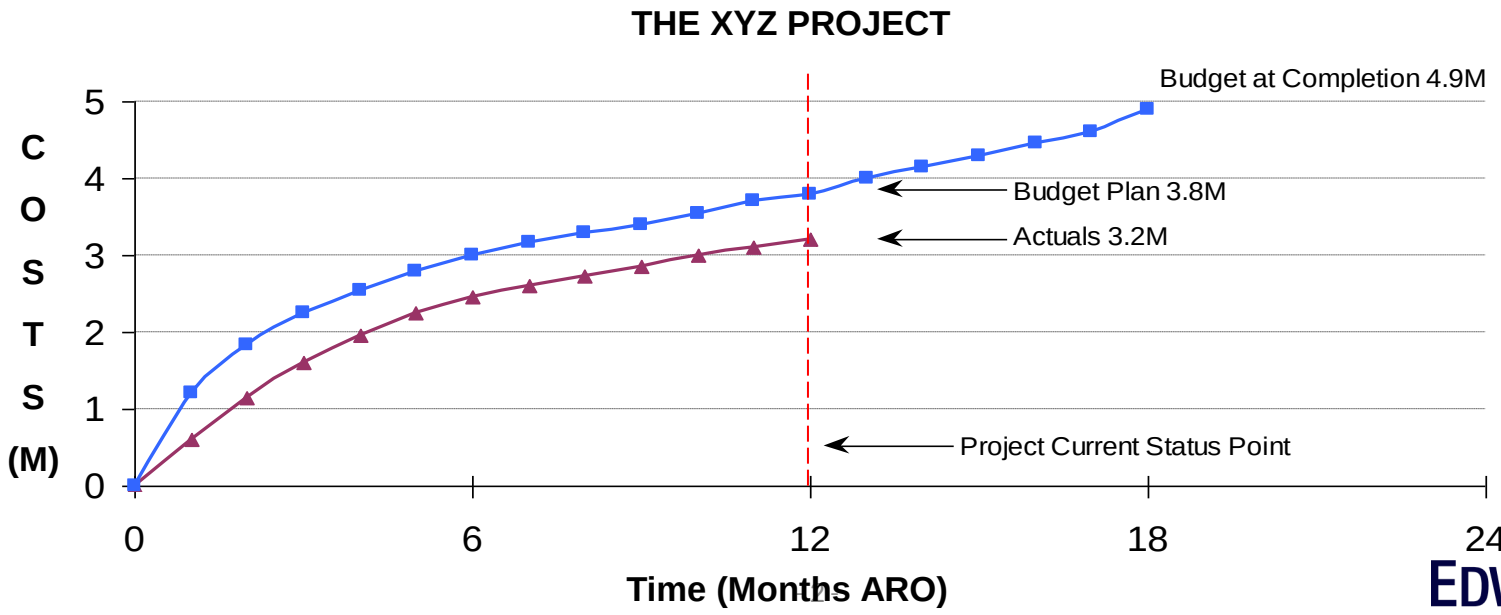
you

EDWARDS
PERFORMANCE SOLUTIONS

Using Earned Value to Track Progress

- We know the original budget (the plan) (Blue Line)
- We know what we spent to date (Red Line) --BUT--
- Without additional information to show the project status
  we DON'T know what progress we have

-- Earned value metrics can give us the whole picture --



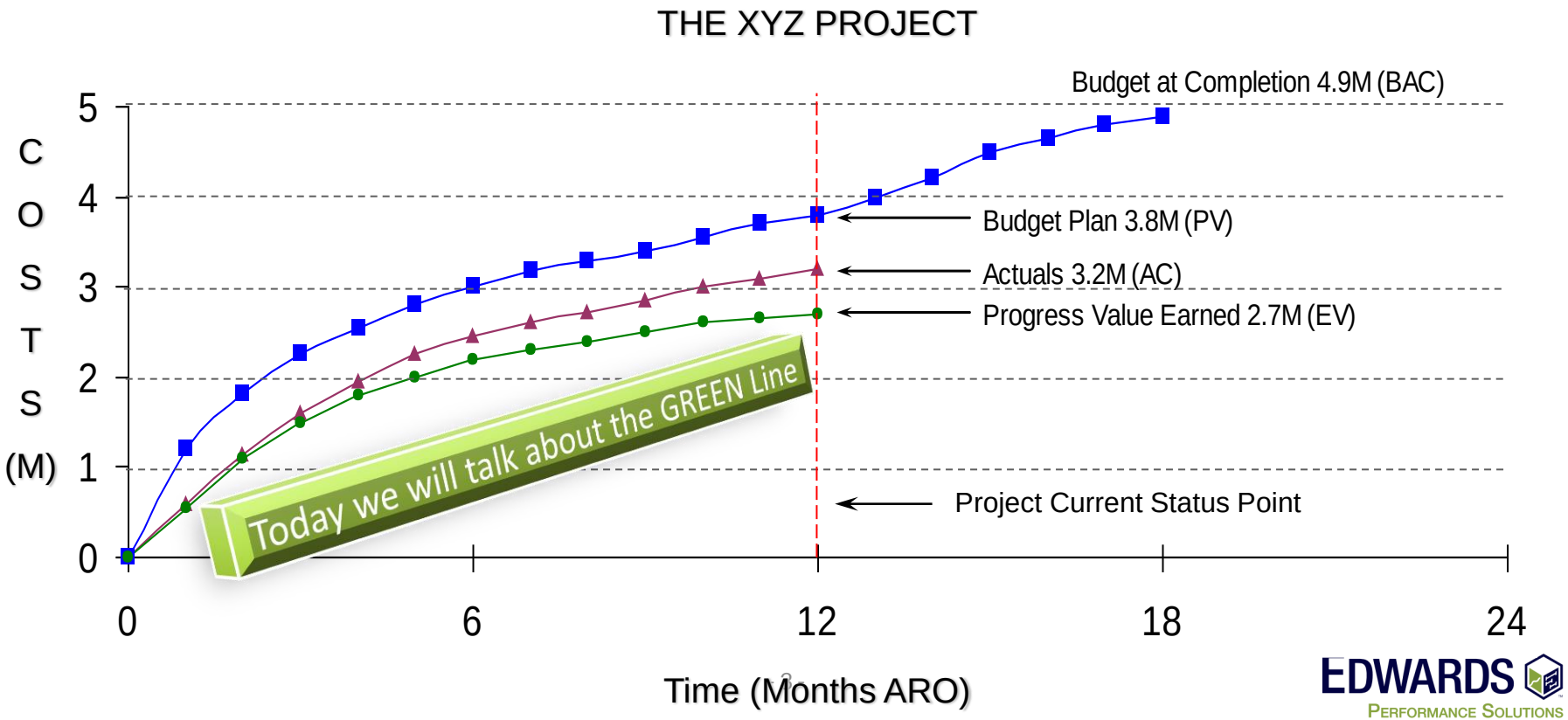
EDWARDS PERFORMANCE SOLUTIONS

Using Earned Value to Track Progress

- So lets take another look at “The XYZ Project”

  This time with earned value performance information included…

  …and we now see *THE REAL STORY* of our project! (Green Line)



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Using Earned Value to Track Progress with Microsoft Project

Setting Up Microsoft Project to track EVM

- Microsoft Field Names – Old vs. New

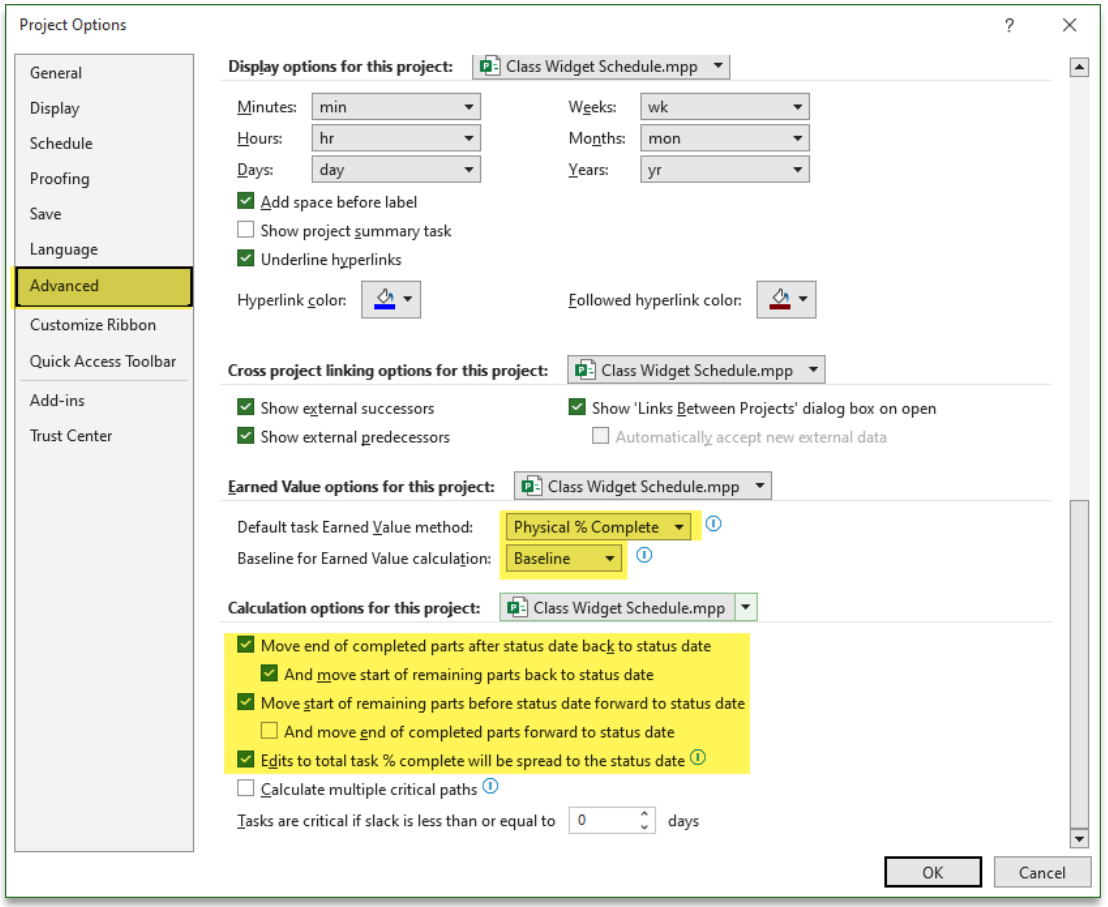
Old Name (what MS Project Uses)	New Name
BCWS – Budgeted Cost of Work Schedule	PV – Planned Value
BCWP – Budgeted Cost of Work Performed	EV – Earned Value
ACWP – Actual Cost of Work Performed	AC – Actual Cost

- PV (BCWS), EV (BCWP), AC (ACWP), CV, SV, and EAC are automatically rolled up to the summary level in the project schedule

Setting Up Microsoft Project to track EVM

- Microsoft Project Options
  - Several option need to be set to correctly track EVM in Project

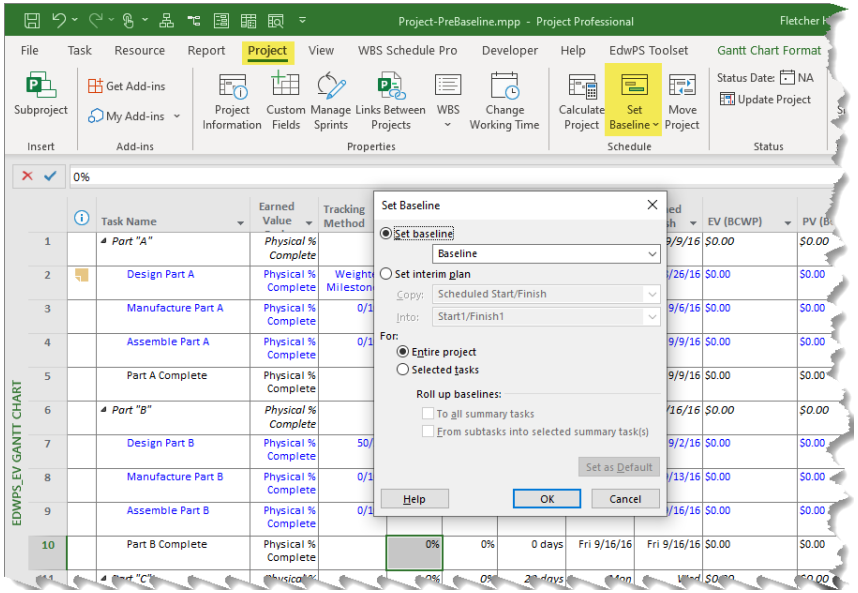
- Earned Value method – Physical % Complete
- Baseline used for EVM Calculations
- Calculation options easy project updating

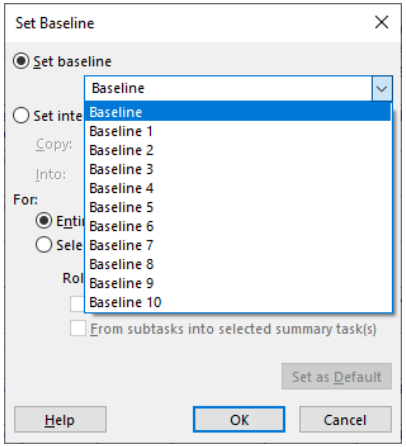


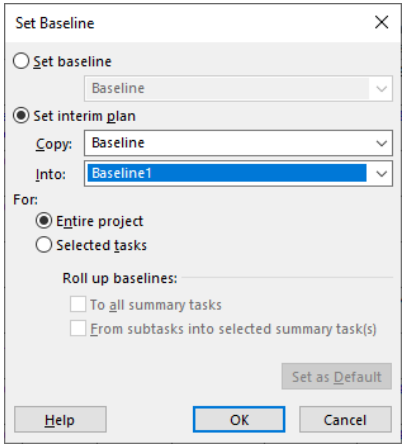
EDWARDS PERFORMANCE SOLUTIONS

Setting Up Microsoft Project to track EVM

- Project Baselines
  - **Must** set prior to calculating EVM
  - Microsoft Project Support 10 baseline







- Baseline Management
  - Copy Baselines from one to another
  - Support Change Request Tracking

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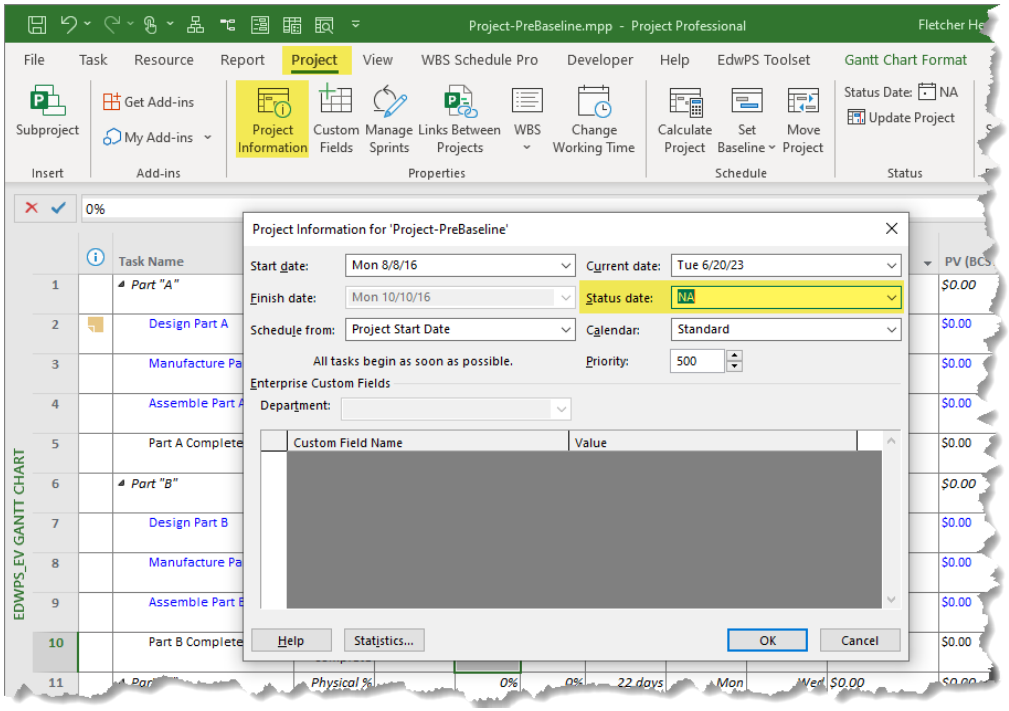
Setting Up Microsoft Project to track EVM

- Status Date
  - All work performed prior to this date – changes with each update
  - Allows MS Project to know the time frame when actuals were done



- **MUST** be updated prior to updating your project

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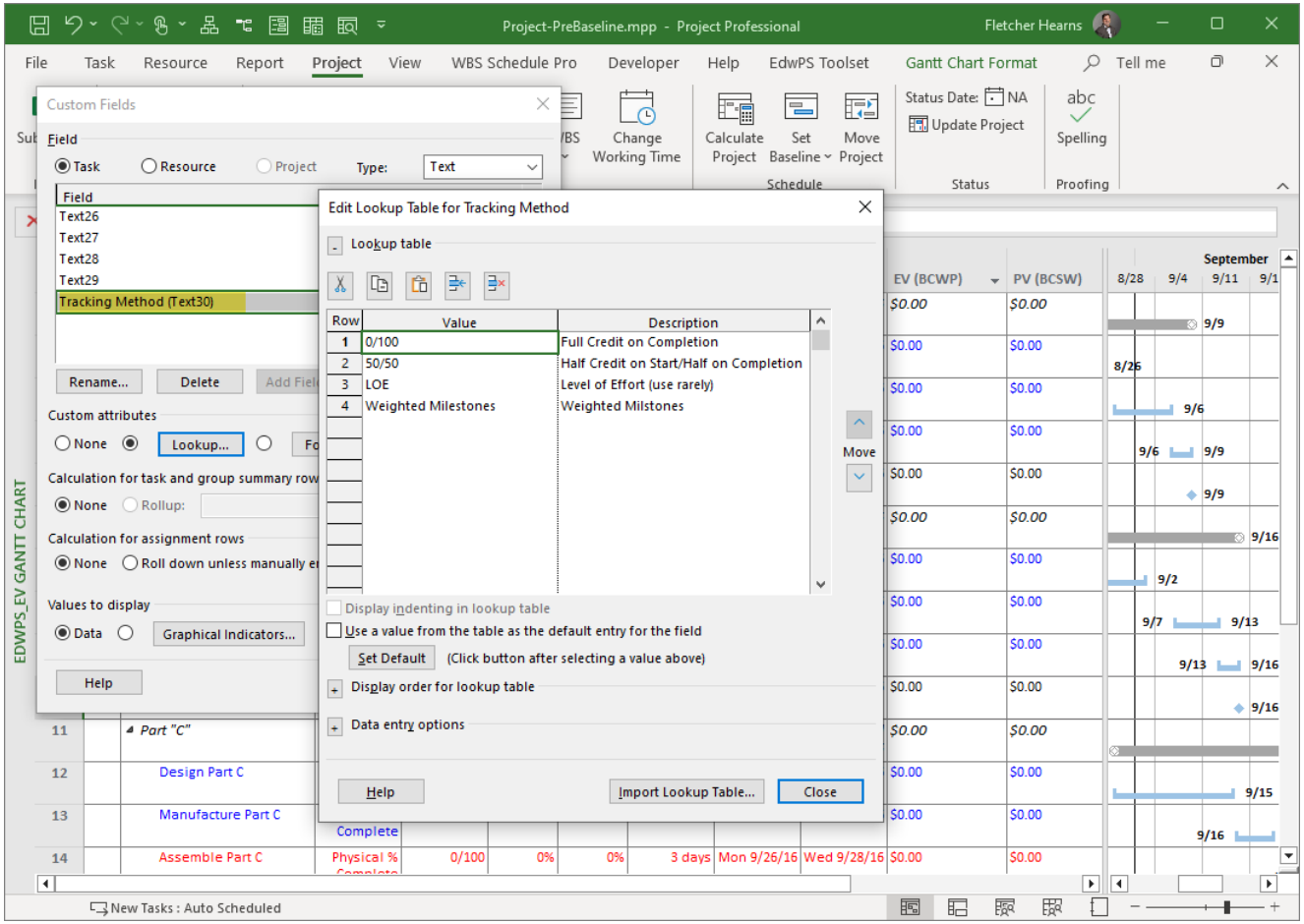
Setting Up Microsoft Project to track EVM

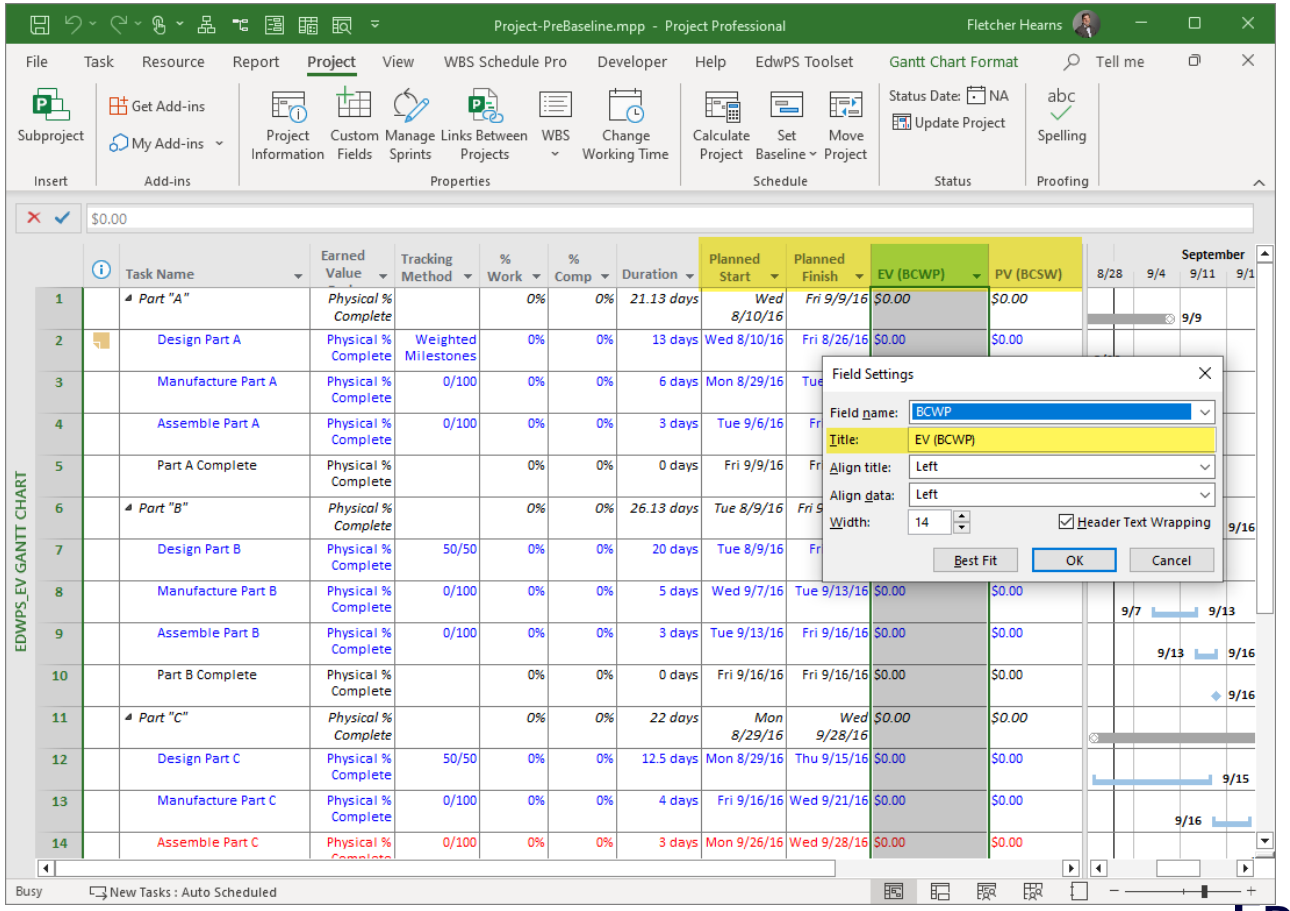
- Custom Fields - ease in updating and reporting
  - Tracking Method
  - Control accounts
  - OBS
  - Others



EDWARDS PERFORMANCE SOLUTIONS

Setting Up Microsoft Project to track EVM

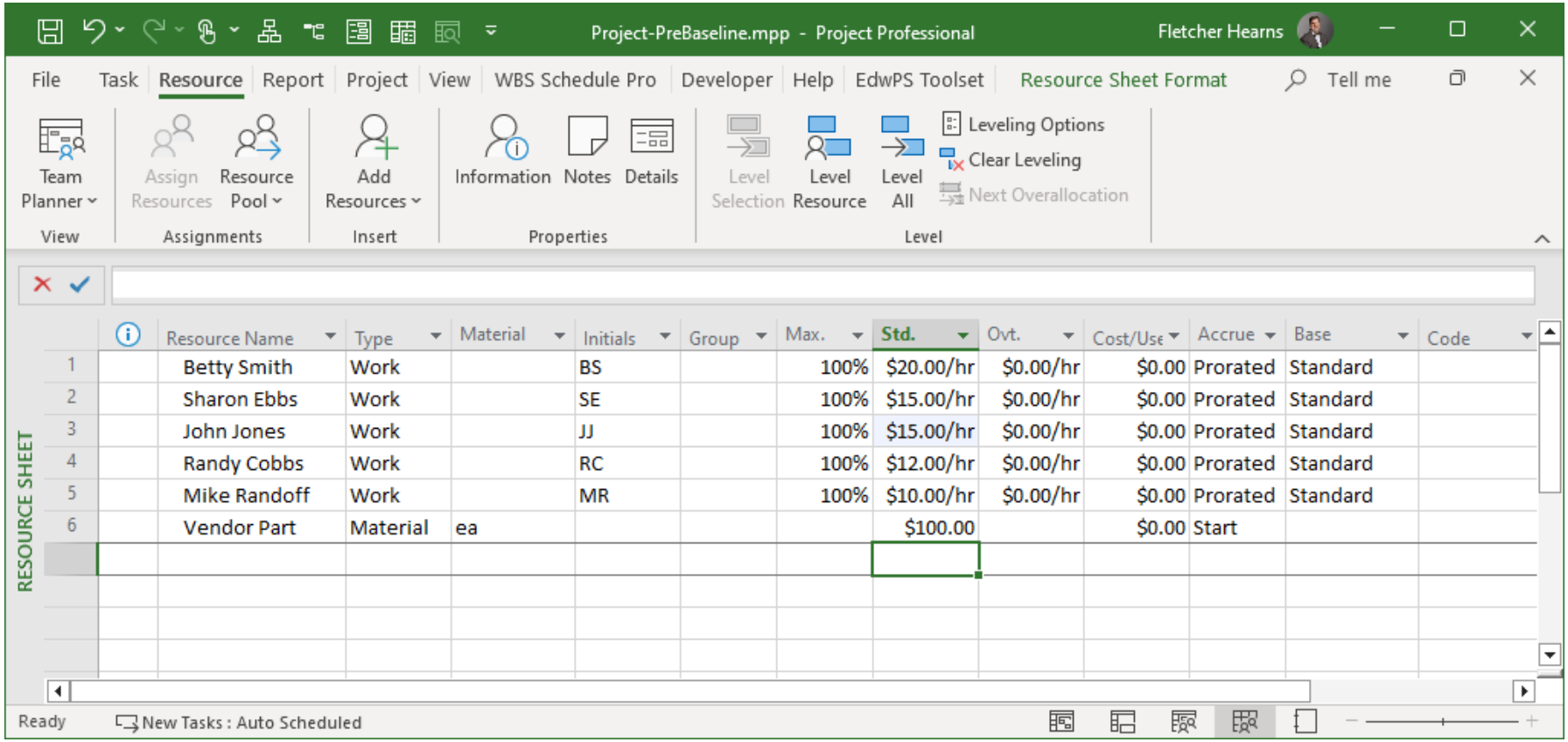
- Microsoft Filed Names – Old vs. New
  - Change how field is displayed



EDWARDS PERFORMANCE SOLUTIONS

Setting Up Microsoft Project to track EVM

- Use must have a resource loaded schedule with cost
- So, we need all resource loaded into MS Project and assigned to tasks

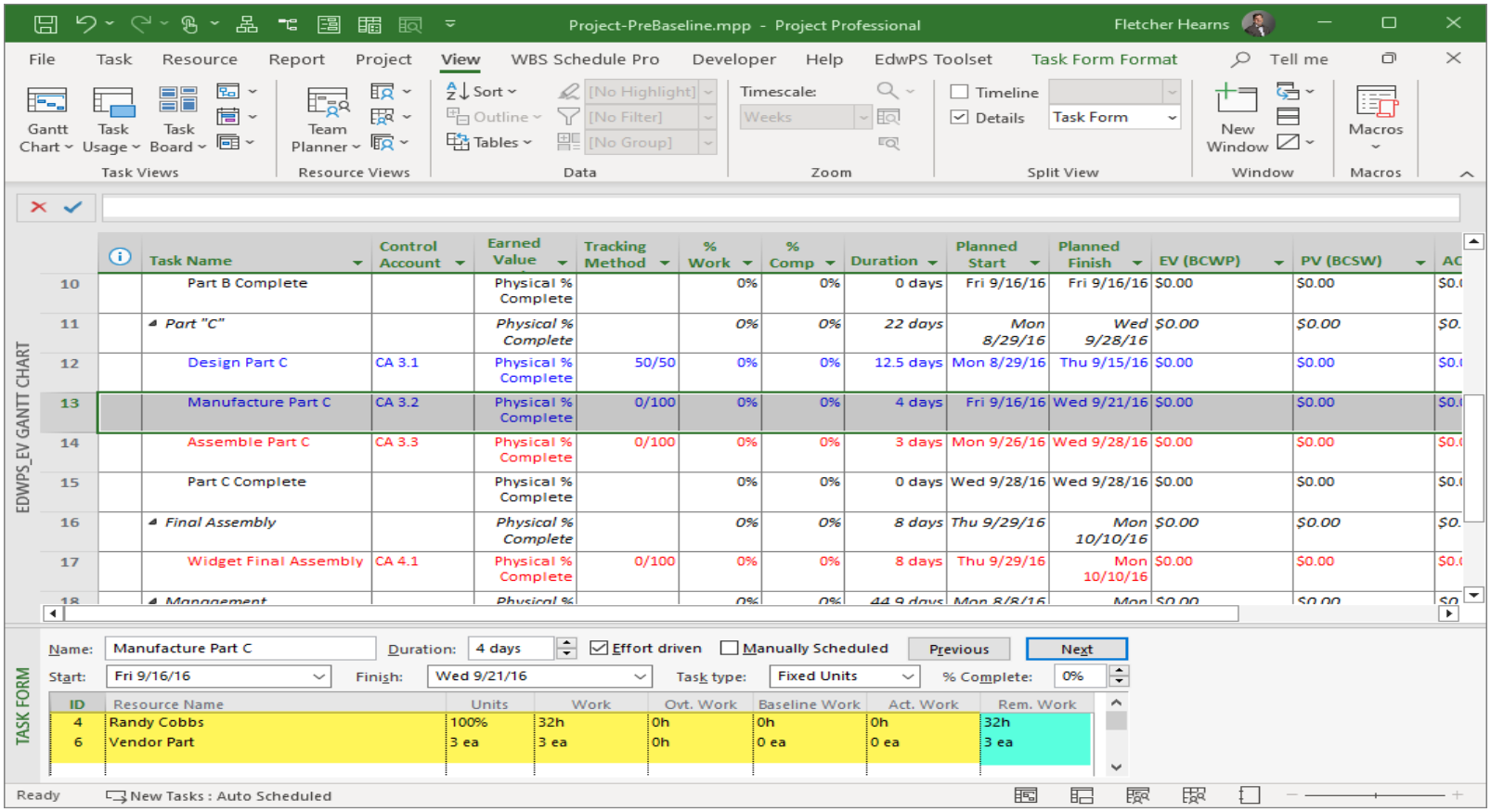


	Resource Name	Type	Material	Initials	Group	Max.	Std.	Ovt.	Cost/Use	Accrue	Base	Code
1	Betty Smith	Work		BS		100%	$20.00/hr	$0.00/hr	$0.00	Prorated	Standard	
2	Sharon Ebbs	Work		SE		100%	$15.00/hr	$0.00/hr	$0.00	Prorated	Standard	
3	John Jones	Work		JJ		100%	$15.00/hr	$0.00/hr	$0.00	Prorated	Standard	
4	Randy Cobbs	Work		RC		100%	$12.00/hr	$0.00/hr	$0.00	Prorated	Standard	
5	Mike Randoff	Work		MR		100%	$10.00/hr	$0.00/hr	$0.00	Prorated	Standard	
6	Vendor Part	Material	ea				$100.00		$0.00	Start		

EDWARDS PERFORMANCE SOLUTIONS

Setting Up Microsoft Project to track EVM

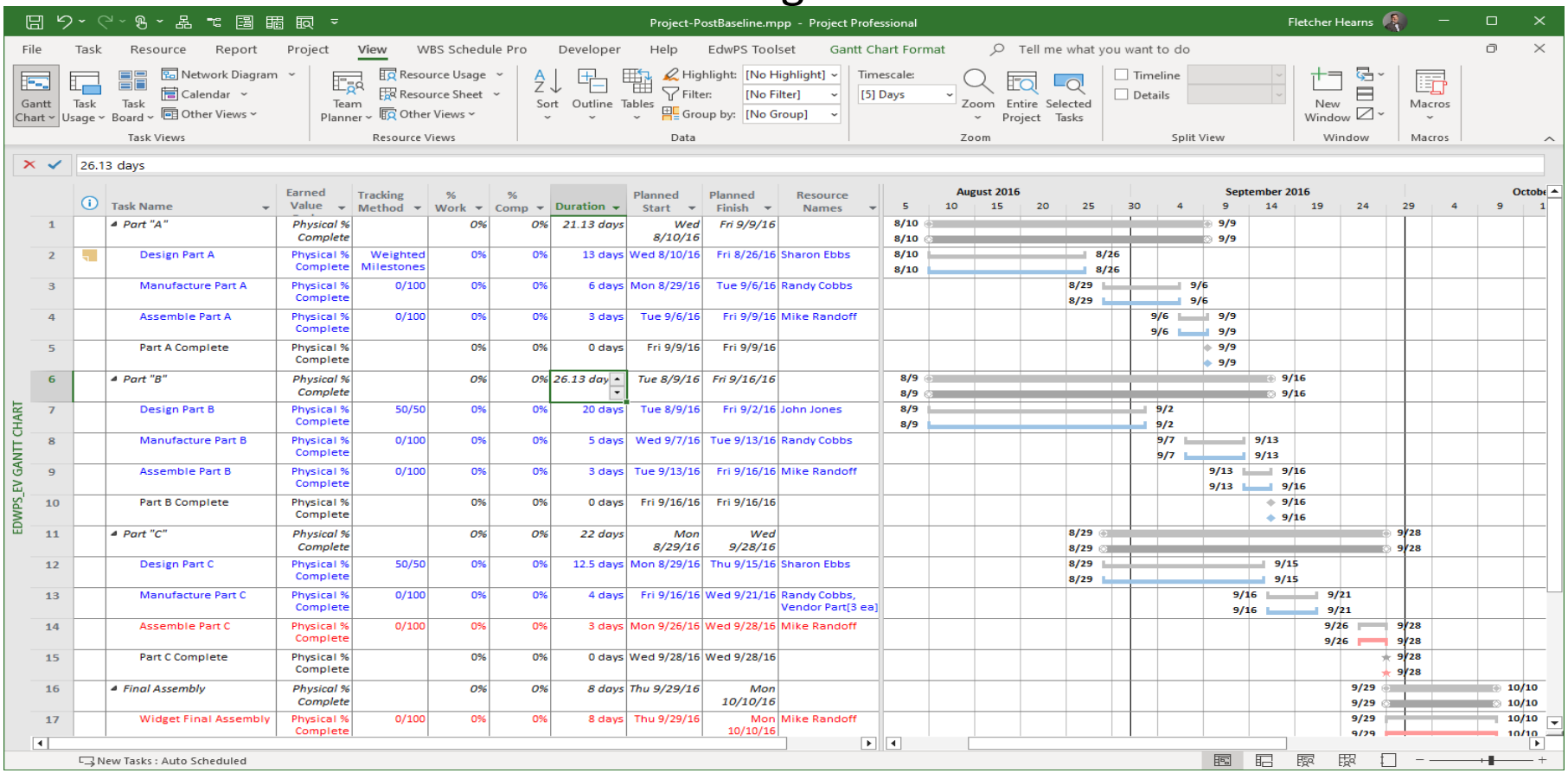
- Use must have a resource loaded schedule with cost
- So, we need all resource loaded into MS Project and assigned to tasks



EDWARDS PERFORMANCE SOLUTIONS

Setting Up Microsoft Project to track EVM

- Now that everything is setup (P-P-P-P-P)
- Set the BASELINE and start tracking EVM



EDWARDS PERFORMANCE SOLUTIONS

EVM - Updating The schedule to track EVM

Statusing your project - Schedule Control

- Controlling (or status updating) the project schedule involves
  - Determining if the schedule has changed
  - Managing the actual changes when they occur *(update often)*
- To determine and manage the changes to the project schedule, track the actual project progress against the original project plan. (the BASELINE)
- How?
  - Status Sheets
  - Microsoft Project Server
    - Task Update via Timesheets or User Updates
  - Time reporting systems don't give enough information

Statusing your project - Information Needed

- Available information for each resource
  - Was the resource available as planned during the status period?
  - Is the resource going to be available as planned moving forward?
  - Update resource calendars 1st
- Task schedule information
  - If the task has started, when did the work *actually* start (Actual Start)?
  - If the task is complete, when did it *actually* finish (Actual Finish)?
- Task Work/Cost Information for each resource for each task
  - How many hours were worked on the task by the resource?
  - How many more hours are needed to complete the work by each resource?

Statusing your project - Schedule Control

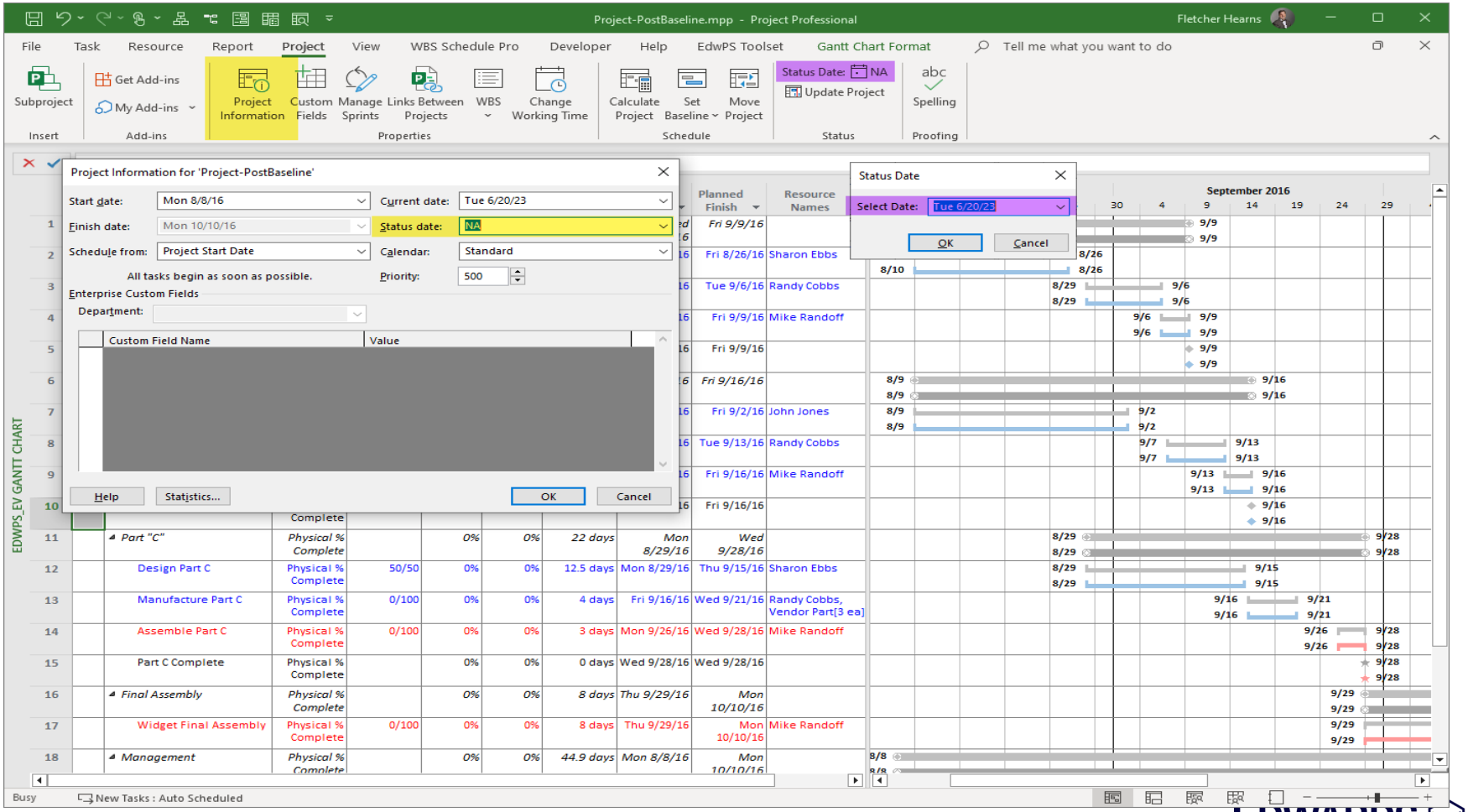
- You need not only what work was performed
- You also need remaining work. Do not assume – Ask the question

Status Report - 8/7/16 through 8/13/16						Actual Work Performed							
Tasks		Reporting Period	Est. Remain.	Actual	Est	Smith		Ebbs		Jones		Randoff	
ID	Description	Actual Work	Work	Start	Comp	8/7	ETC	8/7	ETC	8/7	ETC	8/7	ETC
1	Part A												
2	Design Part A	24	80	8/9/16	8/26/16			24	80				
3	Manufacture Part A												
4	Assemble Part A												
5	Complete Part A												
6	Part B												
7	Design Part B	27	133	8/10/16	9/2/16					27	133		
8	Manufacture Part B												
9	Assemble Part B												
10	Complete Part B												
11	Part C												
12	Design Part C												
13	Manufacture Part C												
14	Assemble Part C												
15	Complete Part C												
16	Final Assembly												
17	Widget Final Assembly												
18	Management												
19	Project Plan	8	0	8/8/16	8/9/16	8	0						
20	Deliver Project Plan			8/9/16	8/9/16								
21	Project Management	32		8/8/16		32							

EDWARDS PERFORMANCE SOLUTIONS

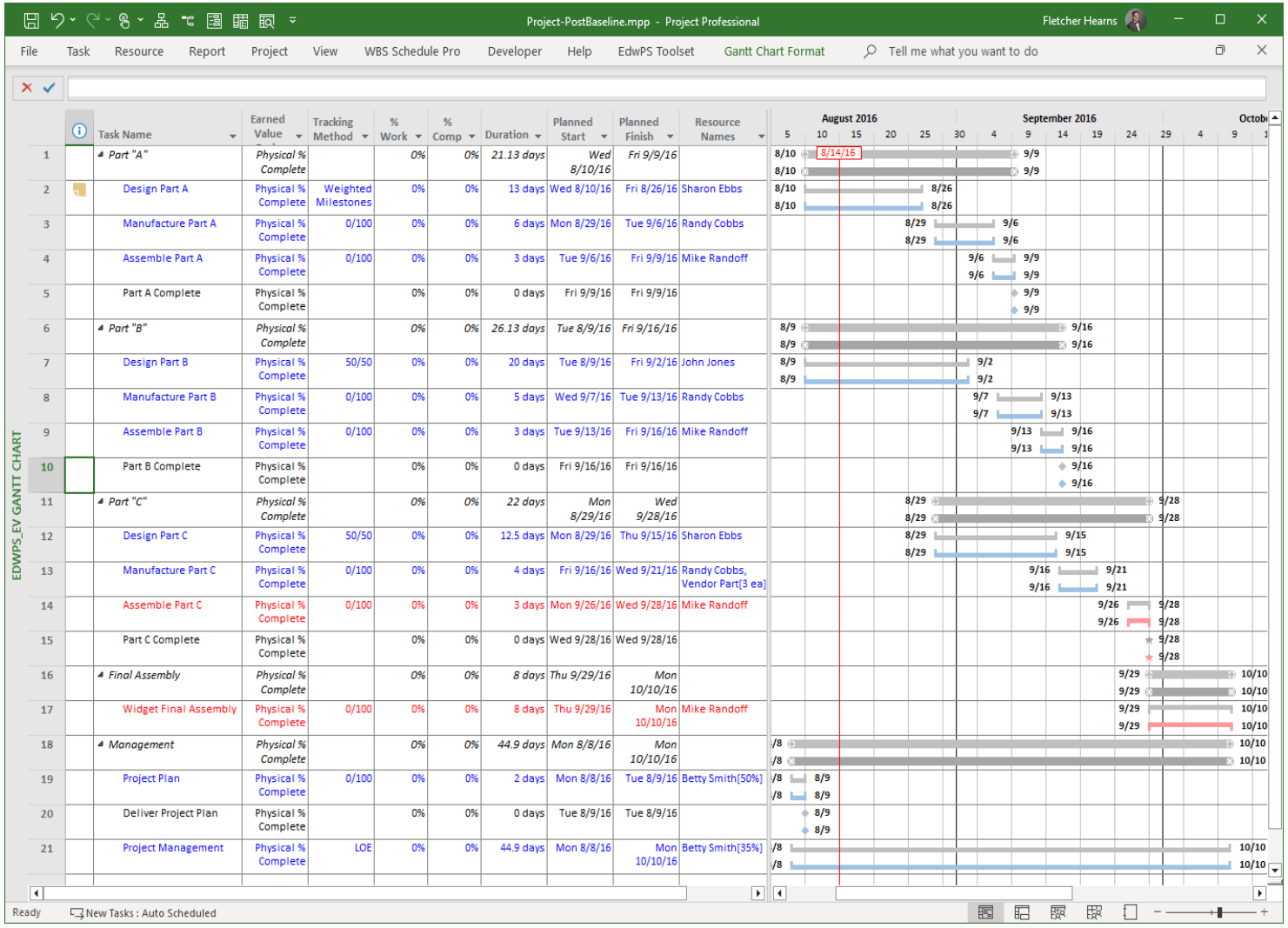
Stutusing your project - Schedule Control

- You **MUST** always start by updating Project Status date



EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Schedule Control



	Task Name	Earned Value	Tracking Method	% Work	% Comp	Duration	Planned Start	Planned Finish	Resource Names
1	*Part "A"*	*Physical % Complete*		*0%*	*0%*	*21.13 days*	*Wed 8/10/16*	*Fri 9/9/16*	
2	Design Part A	Physical % Complete	Weighted Milestones	0%	0%	13 days	Wed 8/10/16	Fri 8/26/16	Sharon Ebbs
3	Manufacture Part A	Physical % Complete	0/100	0%	0%	6 days	Mon 8/29/16	Tue 9/6/16	Randy Cobbs
4	Assemble Part A	Physical % Complete	0/100	0%	0%	3 days	Tue 9/6/16	Fri 9/9/16	Mike Randoff
5	Part A Complete	Physical % Complete		0%	0%	0 days	Fri 9/9/16	Fri 9/9/16	
6	*Part "B"*	*Physical % Complete*		*0%*	*0%*	*26.13 days*	*Tue 8/9/16*	*Fri 9/16/16*	
7	Design Part B	Physical % Complete	50/50	0%	0%	20 days	Tue 8/9/16	Fri 9/2/16	John Jones
8	Manufacture Part B	Physical % Complete	0/100	0%	0%	5 days	Wed 9/7/16	Tue 9/13/16	Randy Cobbs
9	Assemble Part B	Physical % Complete	0/100	0%	0%	3 days	Tue 9/13/16	Fri 9/16/16	Mike Randoff
10	Part B Complete	Physical % Complete		0%	0%	0 days	Fri 9/16/16	Fri 9/16/16	
11	*Part "C"*	*Physical % Complete*		*0%*	*0%*	*22 days*	*Mon 8/29/16*	*Wed 9/28/16*	
12	Design Part C	Physical % Complete	50/50	0%	0%	12.5 days	Mon 8/29/16	Thu 9/15/16	Sharon Ebbs
13	Manufacture Part C	Physical % Complete	0/100	0%	0%	4 days	Fri 9/16/16	Wed 9/21/16	Randy Cobbs, Vendor Part[3 ea]
14	Assemble Part C	Physical % Complete	0/100	0%	0%	3 days	Mon 9/26/16	Wed 9/28/16	Mike Randoff
15	Part C Complete	Physical % Complete		0%	0%	0 days	Wed 9/28/16	Wed 9/28/16	
16	*Final Assembly*	*Physical % Complete*		*0%*	*0%*	*8 days*	*Thu 9/29/16*	*Mon 10/10/16*	
17	Widget Final Assembly	Physical % Complete	0/100	0%	0%	8 days	Thu 9/29/16	Mon 10/10/16	Mike Randoff
18	*Management*	*Physical % Complete*		*0%*	*0%*	*44.9 days*	*Mon 8/8/16*	*Mon 10/10/16*	
19	Project Plan	Physical % Complete	0/100	0%	0%	2 days	Mon 8/8/16	Tue 8/9/16	Betty Smith[50%]
20	Deliver Project Plan	Physical % Complete		0%	0%	0 days	Tue 8/9/16	Tue 8/9/16	
21	Project Management	Physical % Complete	LOE	0%	0%	44.9 days	Mon 8/8/16	Mon 10/10/16	Betty Smith[35%]

- The RED line represents the Status Date
- To the left - work completed
- To the right – work to be completed

Note: Want status line on your project – send email to presenter

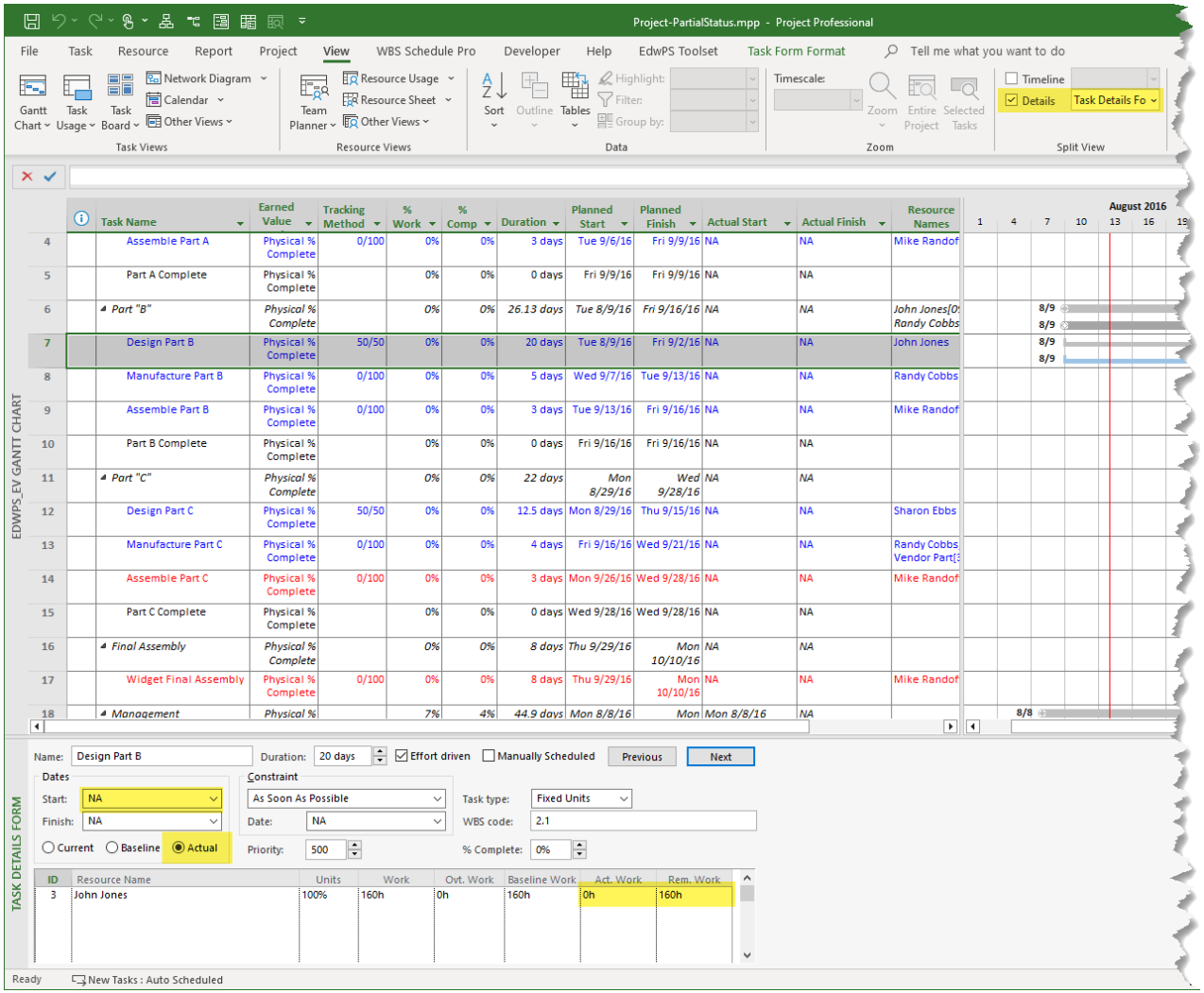
EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Schedule Control

Status Report - 8/7/16 through 8/13/16						Actual Work Performed							
Tasks		Reporting Period	Est. Remain.	Actual	Est	Smith		Ebbs		Jones		Randoff	
ID	Description	Actual Work	Work	Start	Comp	8/7	ETC	8/7	ETC	8/7	ETC	8/7	ETC
1	Part A												
2	Design Part A	24	80	8/9/16	8/26/16			24	80				
3	Manufacture Part A												
4	Assemble Part A												
5	Complete Part A												
6	Part B												
7	Design Part B	27	133	8/10/16	9/2/16					27	133		
8	Manufacture Part B												
9	Assemble Part B												
10	Complete Part B												
11	Part C												
12	Design Part C												
13	Manufacture Part C												
14	Assemble Part C												
15	Complete Part C												
16	Final Assembly												
17	Widget Final Assembly												
18	Management												
19	Project Plan	8	0	8/8/16	8/9/16	8	0						
20	Deliver Project Plan			8/9/16	8/9/16								
21	Project Management	32		8/8/16		32							

Statusing your project - Update task based on input

- Let update “Design Part B”



What we know:

Started on: 8/10/16

Actual work: 27 hrs.

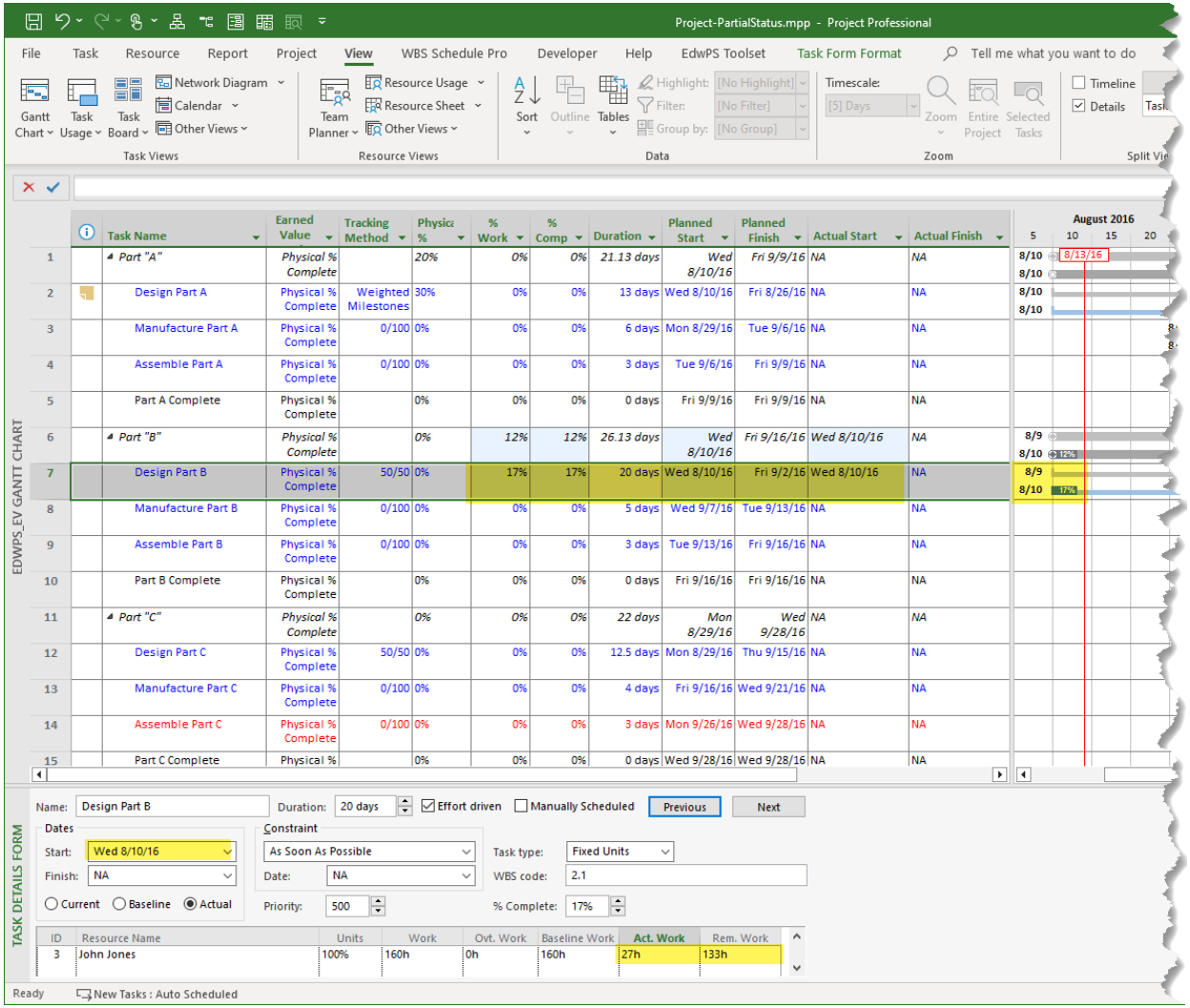
Remaining work: 133 hrs.

Planned finish: 9/2/16

EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Update task information

- We have updated “Design Part B”



What we know:

Started on: 8/10/16

Actual work: 27 hrs.

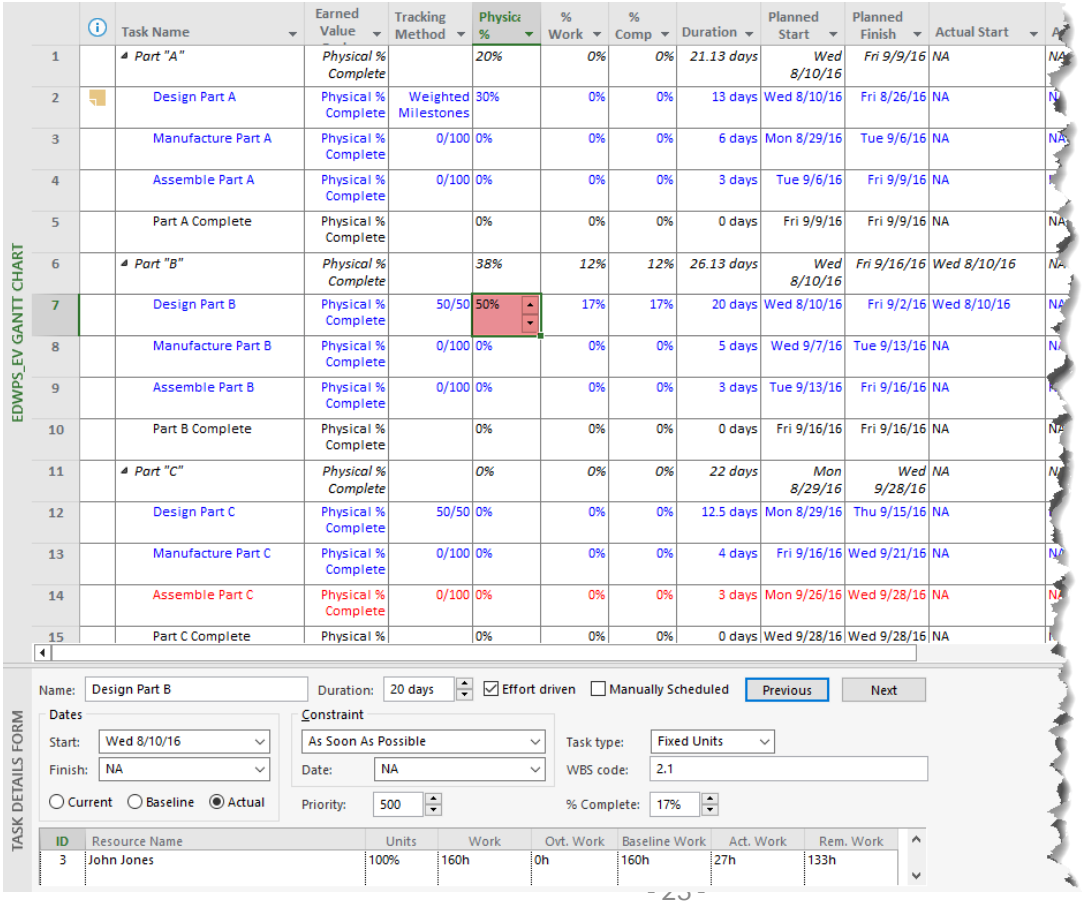
Remaining work: 133 hrs.

Planned finish: 9/2/16

EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Claim the EV

- Now take the Earned Value for the task – 50%
  - We get 50% at start and 50% when complete



EDWPS_EV GANTT CHART

	Task Name	Earned Value	Tracking Method	Physic %	% Work	% Comp	Duration	Planned Start	Planned Finish	Actual Start	A
1	*Part "A"*	*Physical % Complete*		*20%*	*0%*	*0%*	*21.13 days*	*Wed 8/10/16*	*Fri 9/9/16*	NA	NA
2	Design Part A	Physical % Complete	Weighted Milestones	30%	0%	0%	13 days	Wed 8/10/16	Fri 8/26/16	NA	N
3	Manufacture Part A	Physical % Complete	0/100	0%	0%	0%	6 days	Mon 8/29/16	Tue 9/6/16	NA	NA
4	Assemble Part A	Physical % Complete	0/100	0%	0%	0%	3 days	Tue 9/6/16	Fri 9/9/16	NA	
5	Part A Complete	Physical % Complete		0%	0%	0%	0 days	Fri 9/9/16	Fri 9/9/16	NA	NA
6	*Part "B"*	*Physical % Complete*		*38%*	*12%*	*12%*	*26.13 days*	*Wed 8/10/16*	*Fri 9/16/16*	*Wed 8/10/16*	NA
7	Design Part B	Physical % Complete	50/50	50%	17%	17%	20 days	Wed 8/10/16	Fri 9/2/16	Wed 8/10/16	NA
8	Manufacture Part B	Physical % Complete	0/100	0%	0%	0%	5 days	Wed 9/7/16	Tue 9/13/16	NA	N
9	Assemble Part B	Physical % Complete	0/100	0%	0%	0%	3 days	Tue 9/13/16	Fri 9/16/16	NA	
10	Part B Complete	Physical % Complete		0%	0%	0%	0 days	Fri 9/16/16	Fri 9/16/16	NA	NA
11	*Part "C"*	*Physical % Complete*		*0%*	*0%*	*0%*	*22 days*	*Mon 8/29/16*	*Wed 9/28/16*	NA	N
12	Design Part C	Physical % Complete	50/50	0%	0%	0%	12.5 days	Mon 8/29/16	Thu 9/15/16	NA	
13	Manufacture Part C	Physical % Complete	0/100	0%	0%	0%	4 days	Fri 9/16/16	Wed 9/21/16	NA	N
14	Assemble Part C	Physical % Complete	0/100	0%	0%	0%	3 days	Mon 9/26/16	Wed 9/28/16	NA	N
15	Part C Complete	Physical %		0%	0%	0%	0 days	Wed 9/28/16	Wed 9/28/16	NA	

TASK DETAILS FORM

Name: Design Part B Duration: 20 days Effort driven Manually Scheduled Previous Next

Dates
Start: Wed 8/10/16
Finish: NA
Current Baseline Actual

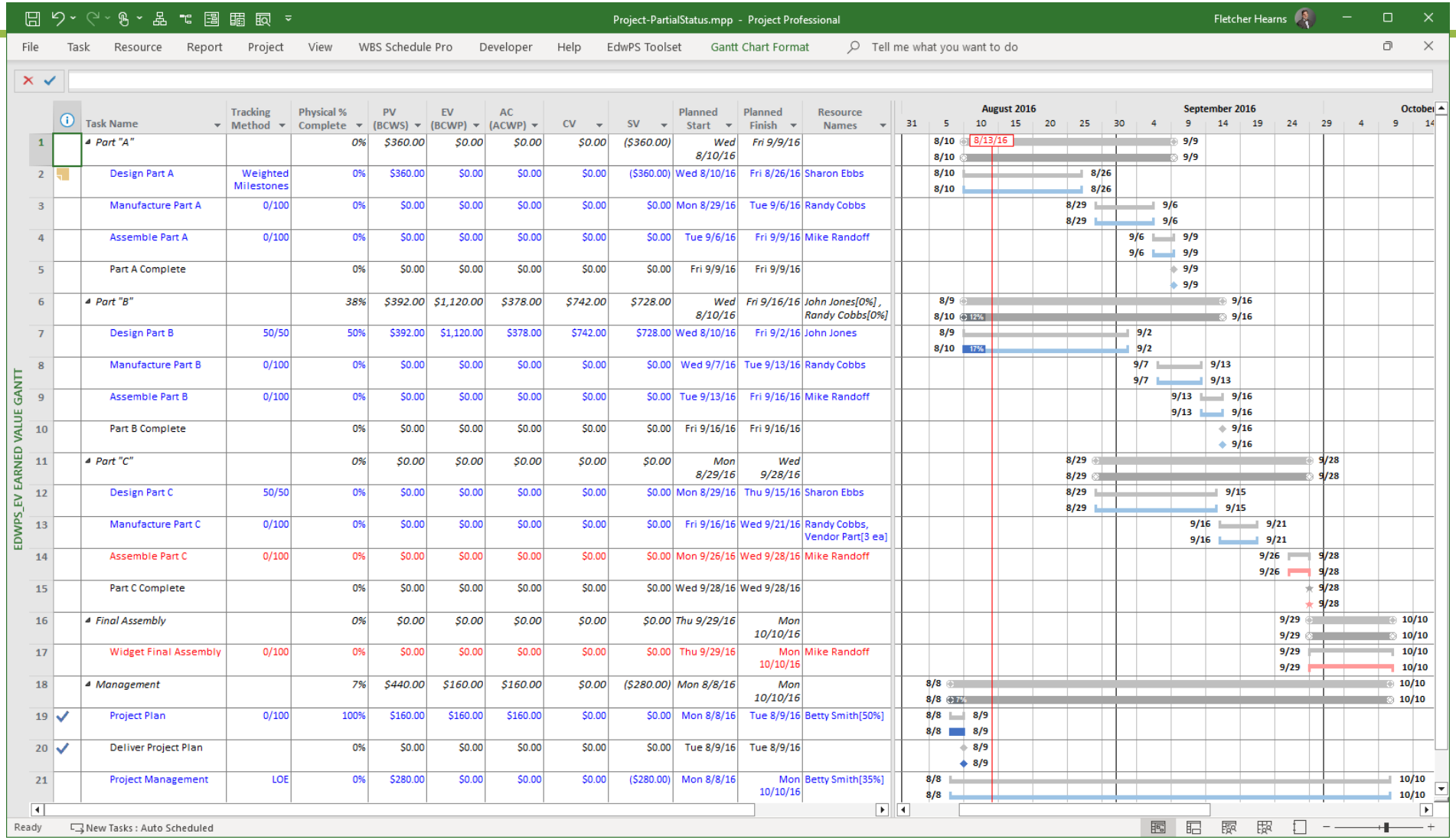
Constraint
As Soon As Possible
Date: NA
Priority: 500

Task type: Fixed Units
WBS code: 2.1
% Complete: 17%

ID	Resource Name	Units	Work	Ovt. Work	Baseline Work	Act. Work	Rem. Work
3	John Jones	100%	160h	0h	160h	27h	133h

EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Review EVM



	Task Name	Tracking Method	Physical % Complete	PV (BCWS)	EV (BCWP)	AC (ACWP)	CV	SV	Planned Start	Planned Finish	Resource Names
1	*Part "A"*		0%	$360.00	$0.00	$0.00	$0.00	($360.00)	Wed 8/10/16	Fri 9/9/16	
2	Design Part A	Weighted Milestones	0%	$360.00	$0.00	$0.00	$0.00	($360.00)	Wed 8/10/16	Fri 8/26/16	Sharon Ebbs
3	Manufacture Part A	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Mon 8/29/16	Tue 9/6/16	Randy Cobbs
4	Assemble Part A	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Tue 9/6/16	Fri 9/9/16	Mike Randoff
5	Part A Complete		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Fri 9/9/16	Fri 9/9/16	
6	*Part "B"*		38%	$392.00	$1,120.00	$378.00	$742.00	$728.00	Wed 8/10/16	Fri 9/16/16	John Jones[0%], Randy Cobbs[0%]
7	Design Part B	50/50	50%	$392.00	$1,120.00	$378.00	$742.00	$728.00	Wed 8/10/16	Fri 9/2/16	John Jones
8	Manufacture Part B	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Wed 9/7/16	Tue 9/13/16	Randy Cobbs
9	Assemble Part B	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Tue 9/13/16	Fri 9/16/16	Mike Randoff
10	Part B Complete		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Fri 9/16/16	Fri 9/16/16	
11	*Part "C"*		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Mon 8/29/16	Wed 9/28/16	
12	Design Part C	50/50	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Mon 8/29/16	Thu 9/15/16	Sharon Ebbs
13	Manufacture Part C	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Fri 9/16/16	Wed 9/21/16	Randy Cobbs, Vendor Part[3 ea]
14	Assemble Part C	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Mon 9/26/16	Wed 9/28/16	Mike Randoff
15	Part C Complete		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Wed 9/28/16	Wed 9/28/16	
16	*Final Assembly*		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Thu 9/29/16	Mon 10/10/16	
17	Widget Final Assembly	0/100	0%	$0.00	$0.00	$0.00	$0.00	$0.00	Thu 9/29/16	Mon 10/10/16	Mike Randoff
18	*Management*		7%	$440.00	$160.00	$160.00	$0.00	($280.00)	Mon 8/8/16	Mon 10/10/16	
19	Project Plan	0/100	100%	$160.00	$160.00	$160.00	$0.00	$0.00	Mon 8/8/16	Tue 8/9/16	Betty Smith[50%]
20	Deliver Project Plan		0%	$0.00	$0.00	$0.00	$0.00	$0.00	Tue 8/9/16	Tue 8/9/16	
21	Project Management	LOE	0%	$280.00	$0.00	$0.00	$0.00	($280.00)	Mon 8/8/16	Mon 10/10/16	Betty Smith[35%]

EDWARDS PERFORMANCE SOLUTIONS

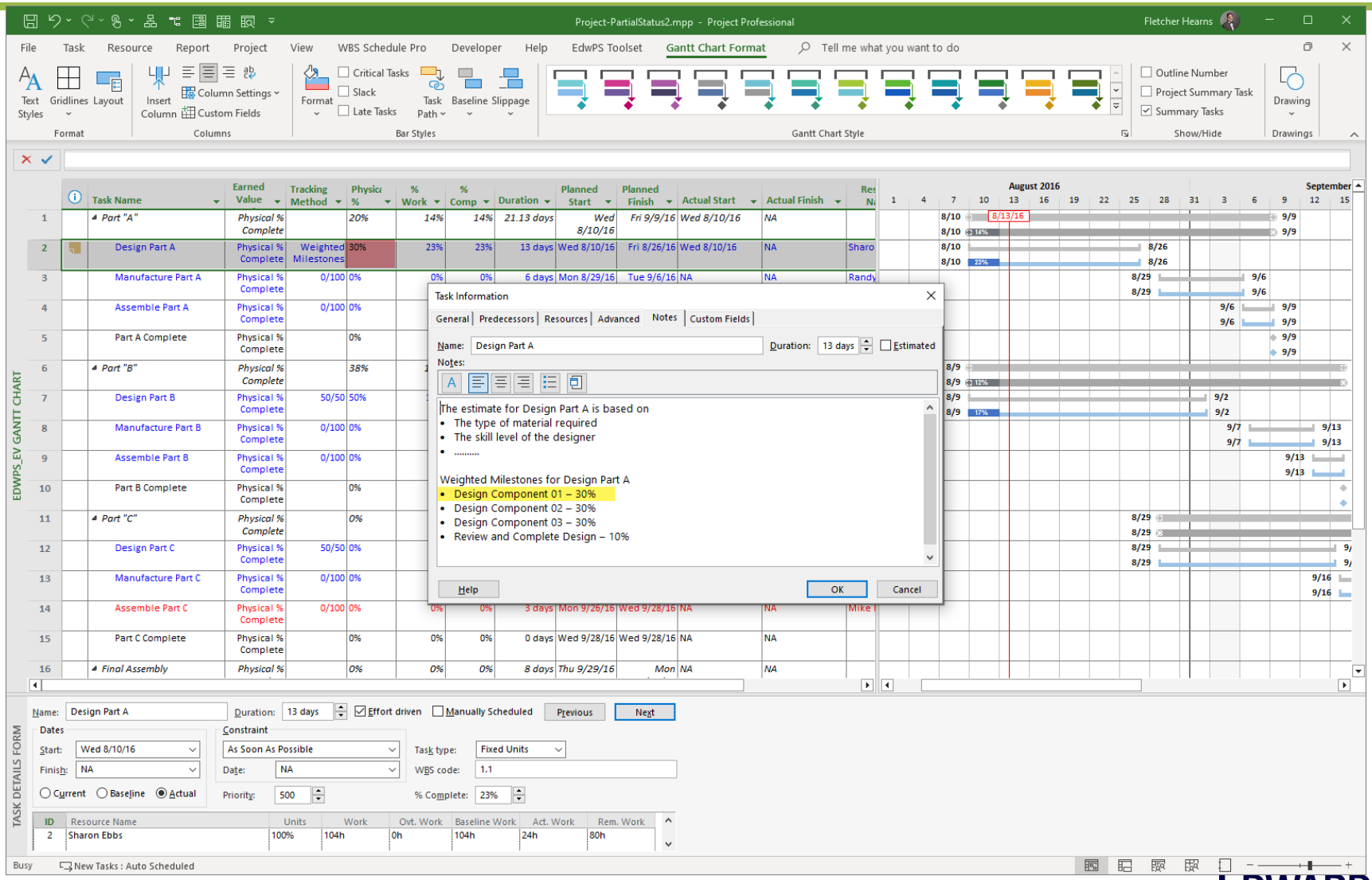
Statusing your project - Schedule Control

Status Report - 8/7/16 through 8/13/16						Actual Work Performed							
Tasks		Reporting Period	Est. Remain.	Actual	Est	Smith		Ebbs		Jones		Randoff	
ID	Description	Actual Work	Work	Start	Comp	8/7	ETC	8/7	ETC	8/7	ETC	8/7	ETC
1	Part A												
2	Design Part A*	24	80	8/9/16	8/26/16			24	80				
3	Manufacture Part A												
4	Assemble Part A												
5	Complete Part A												
6	Part B												
7	Design Part B	27	133	8/10/16	9/2/16					27	133		
8	Manufacture Part B												
9	Assemble Part B												
10	Complete Part B												
11	Part C												
12	Design Part C												
13	Manufacture Part C												
14	Assemble Part C												
15	Complete Part C												
16	Final Assembly												
17	Widget Final Assembly												
18	Management												
19	Project Plan	8	0	8/8/16	8/9/16	8	0						
20	Deliver Project Plan			8/9/16	8/9/16								
21	Project Management	32		8/8/16		32							

* - Component 01 Complete

EDWARDS PERFORMANCE SOLUTIONS

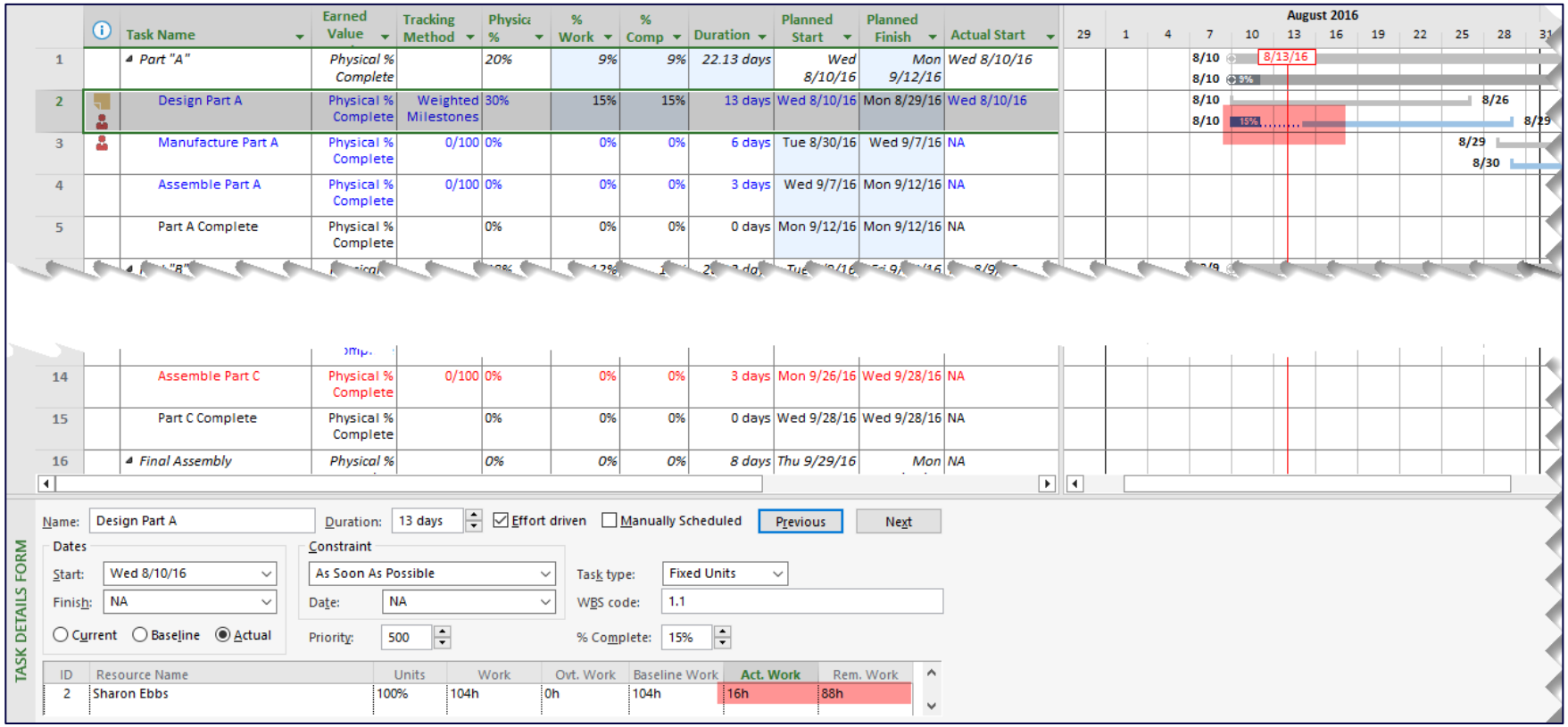
Statusing your project - Task Update



EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - Task Update – Not as planned

- Work not completed as planned (16 hrs. vs 24 hrs.)

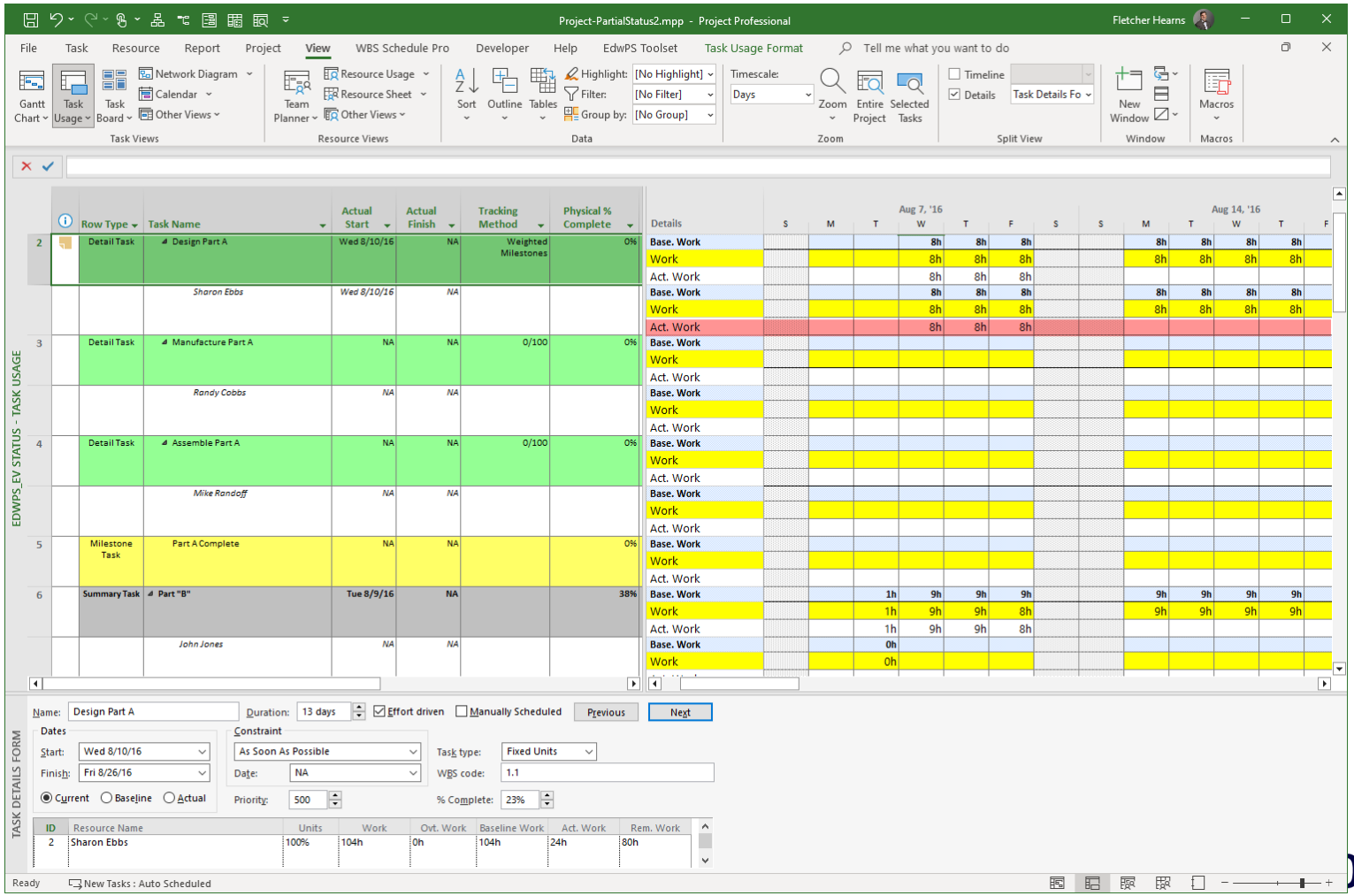


- With options set, Microsoft Project reschedules uncompleted work after Status Date

EDWARDS PERFORMANCE SOLUTIONS

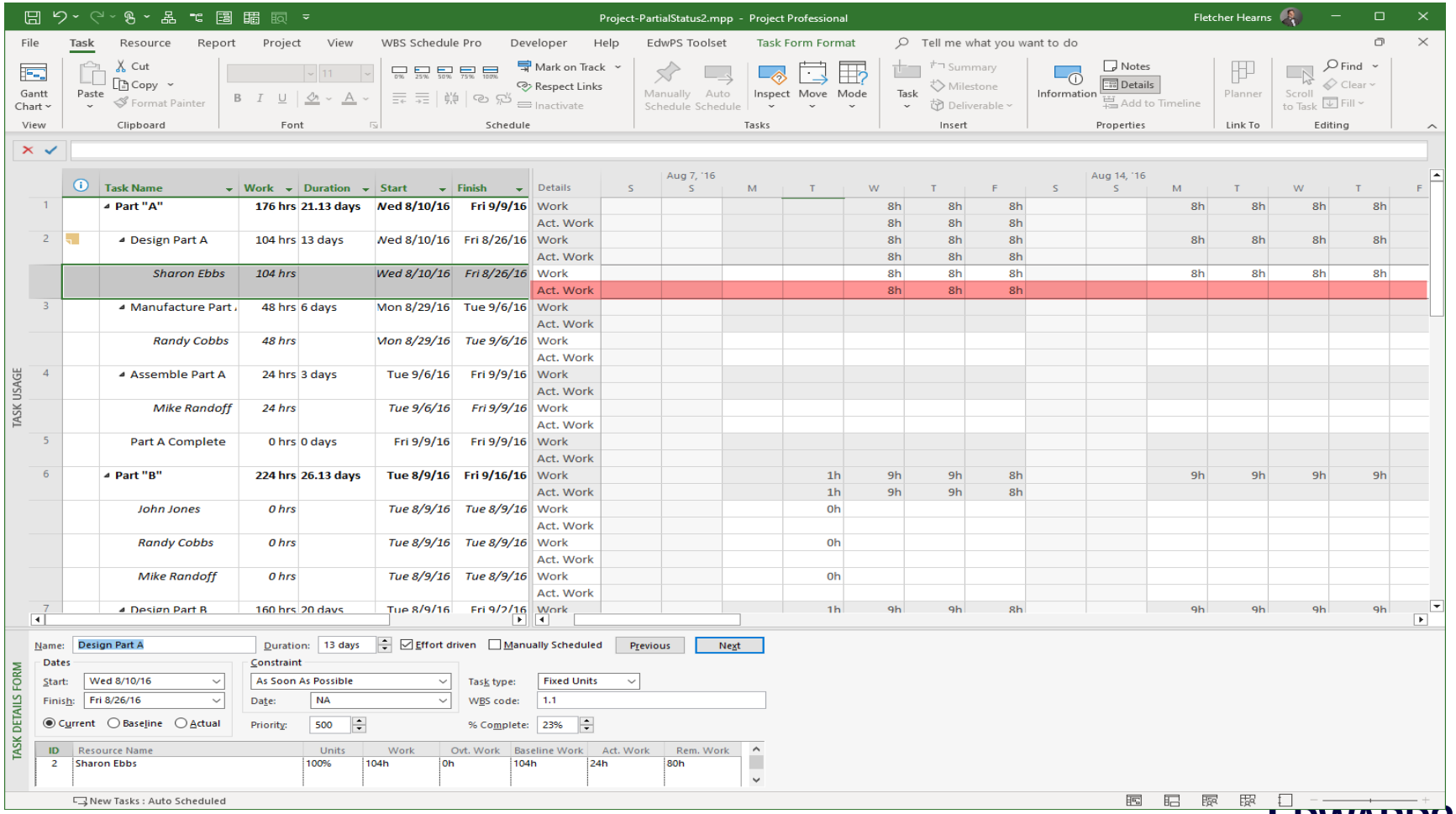
Statusing your project - Task Update – Detailed

- For out friends who need finer granularity….



Statusing your project - Task Update – Detailed

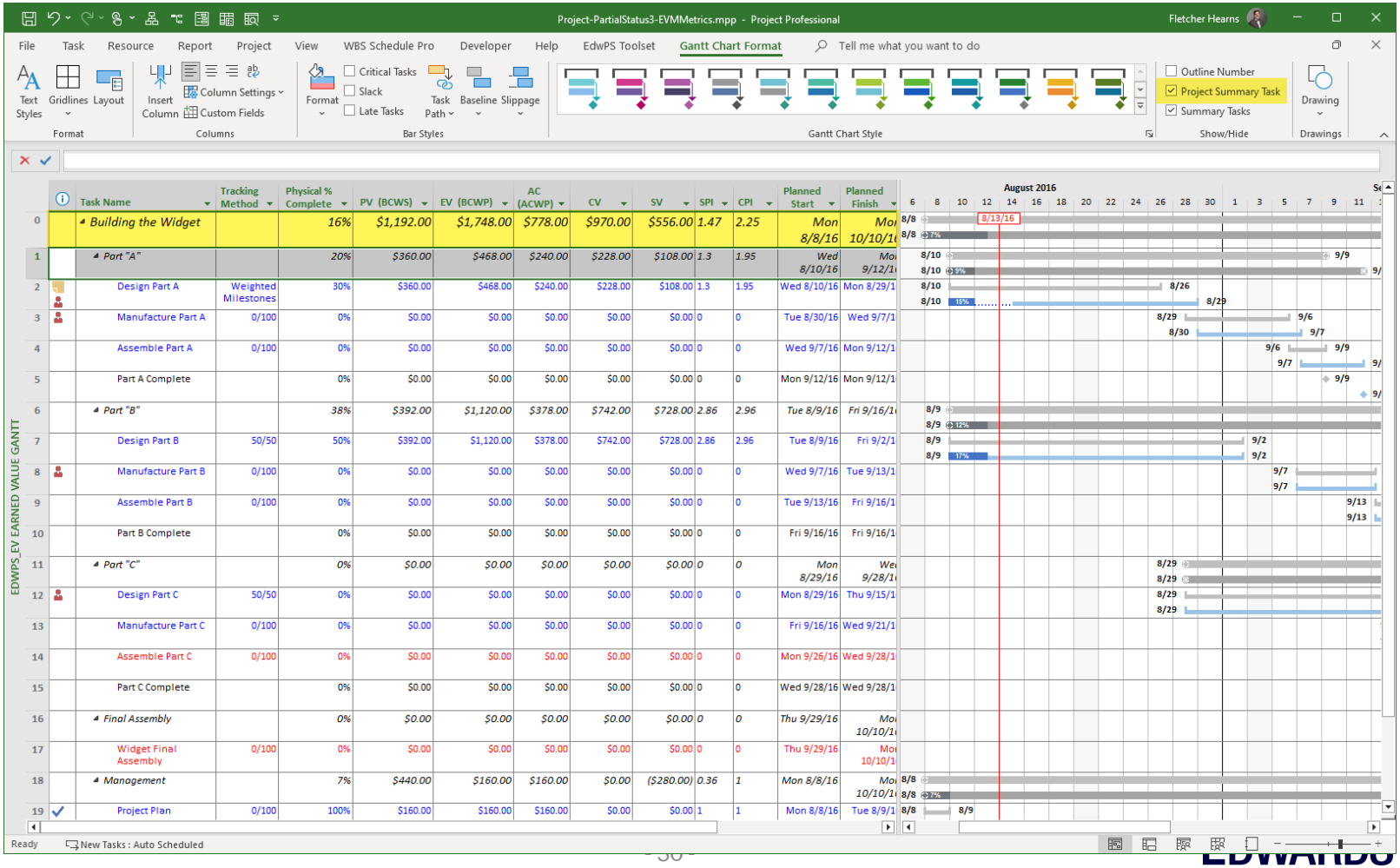
- For out friends who need finer granularity….



EDWARDS PERFORMANCE SOLUTIONS

Statusing your project - EVM Review

- Let's look at the overall EVM Status



EDWARDS PERFORMANCE SOLUTIONS

Earned Value Analysis

- Indicators to Look for in Earned Value Analysis

Measurement	 A Good Thing	 A Bad Thing
Cost Variance (CV)	0 or +	-
Schedule Variance (SV)	0 or +	-
CPI	≥1.0	<1.0
SPI	≥1.0	<1.0
VAC	0 or +	-
TCPI	≤1.0	>1.0

Things to remember

- Update your schedule often
- Don’t make assumptions about Work done or not done
- Don’t make assumptions about Start and Finish dates
- Ask Questions

Questions?

To learn more about the topic of this presentation, please contact…

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