Schedule Quality Assessment Tool

A tool to help the Primavera administrators and Project Managers measure and maintain schedule quality in their portfolios.

How do you Assess Schedule Quality?

<u>Schedule</u>

- Constraints
- Open ends
- Activity relationships
- Lags
- Calendar assignment
- Float
- Task settings

<u>Reporting Standards</u>

- Project settings
- Code assignments
- WBS
- Responsibility
- Roles assignments
- Cost assignments
- Timely

Sounds like a lot of work!

Current Situation

- The Administrator/PM manually inspects each project schedule for compliance to standards .
- Using different inspection methods
- Different standards
- Different measures
- Getting different results
- All of which is rarely understood

Wouldn’t it be nice if we could measure schedule quality automatically in a

- Fair
- Fast
- Repeatable
- Visible
- Understandable
- And Easy manner

That gave an overall view of quality

ORACLE Primavera P6

Print | Help | Pre

Dashboards | Portfolios | Projects | Resources | Administration

Project Engineer Gro... | Project Manager Grou... | Executive Dashboard | Management Group | Specialty Group | Personal Workspace | **Project Controls**

Project Controls

Expand All | Collapse All | Customize

Filter by Portfolio: Active Pro

Filter last refr

Project Statistics

Expand | Collapse | Customize

Display ○ List ◉ Group

Name	Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings	*MDL Coverage (%)	*Role / Resource / Owner Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI
FUCHS, S.				**38.17**	**4.72**	**5.22**	**6.31**	**8-1-10**		**0.16**
Design/PS&E				**38.17**	**4.72**	**5.22**	**6.31**	**8-1-10**		**0.16**
Design Authorized				**56.20**	**5.79**	**13.77**	**3.86**	**8-1-10**		**0.93**
SR 162/Puyallup River Bridge - Bridge Replac...	C16219A			56.20	5.79	13.77	3.86	8-1-10		0.93
Design Initiated				**31.72**	**4.33**	**2.17**	**7.19**	**8-1-10**		**0.13**
US 101/Shore Rd. to Kitchen-Dick Rd. - Wide...	C10107G			31.72	4.33	2.17	7.19	8-1-10		0.13
GILES, R.				**84.69**	**100.00**	**76.02**	**5.44**	**8-1-10**		**0.97**
Design/PS&E				**84.69**	**100.00**	**76.02**	**5.44**	**8-1-10**		**0.97**
Design Initiated				**84.69**	**100.00**	**76.02**	**5.44**	**8-1-10**		**0.97**
I-90/Snoqualmie Pass East - Hyak to Keechel...	E09009B			84.69	100.00	76.02	5.44	8-1-10		0.97
GOLBECK, S. (ACTING)				**92.05**	**100.00**	**96.59**	**3.41**	**8-1-10**		**0.98**
Design/PS&E				**92.05**	**100.00**	**96.59**	**3.41**	**8-1-10**		**0.98**
Design Initiated				**92.05**	**100.00**	**96.59**	**3.41**	**8-1-10**		**0.98**
I-90/Hyak to Easton	E09007X			92.05	100.00	96.59	3.41	8-1-10		0.98
GONSETH, P.J.				**36.12**	**17.06**	**29.43**	**15.05**	**6-1-09**		**0.62**
Design/PS&E				**36.12**	**17.06**	**29.43**	**15.05**	**6-1-09**		**0.62**
Design Initiated				**46.71**	**20.39**	**43.42**	**22.37**	**8-1-10**		**0.54**
US 12/4.5 Miles East of SR 123 - Stabilize Slo...	D01207G			41.38	19.54	37.93	31.03	8-1-10		0.53
US 12/4.4 Miles East of SR 123 - Stabilize Slo...	D01207F			53.85	21.54	50.77	10.77	8-1-10		0.56
On Ad								**6-1-09**		**1.00**
US 101/SR 6 to Grays Harbor County Line-Pa...	D10105A			-- -- --	-- -- --	-- -- --	-- -- --	6-1-09		1.00
PS&E Review				**75.51**	**40.82**	**44.90**	**22.45**	**8-1-10**		**0.55**
I-82/Terrace Heights Off Ramp - Improvements	E08202I			75.51	40.82	44.90	22.45	8-1-10		0.55

Timeline

- Quality Measures Presentation given in Feb 2010
- Direction given by Jerry Lenzi to have measures in place by July 2010
- First iteration of the Quality Assessment Measures tool provided to WSDOT July 2010
- Regions will have the opportunity to modify and customize measures as needed

What are the measures?

Basic Measures

- Baseline Status
- Baseline Review and Exception Report
- Standard Project settings (*%*)
- Standard Activity settings (*%*)
- MDL Coverage (*%*)
- Role/Resource/Owner coverage (*%*) (*At Least One Responsible Party*)
- Critical Path Hindrance Factor (*%*)
- Updated Schedule

Intermediate Measures

- Questionable Dependencies Report
- SPI
- Remaining Finish Variance (*%*)
- CPI
- Funding – BAC Variance (*$*)
- Funding – EAC Variance (*$, %*)
- At Complete P6 Cost Variance (*%*)
- Remaining Authorization (*$, %*)
- MDL Tier w/Actual Cost (*%*)
- MDL Tier w/Budget (*%*)

Measure Guide

Definitions & How to Fix

Baseline Status

Measures: The status of the baseline Plan.

Calculated: Approved by management and set by regional Primavera administrator.

Why this is important: The Baseline is management's approved plan that provides a comparison with actual progress of work to determine if performance is meeting managements expectations.

Green – Has an approved baseline or has been submitted for approval ("OK")

Yellow – Baseline currently under development

Red – Baseline not approved

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
			55.16	**103.66**	**17.73**	**16.48**	**07/01/10**		**0.71**	**26.17**
A00522B			82.82	288.96	0.61	57.06	07/01/10		0.63	0.00
A09060D			72.12	11.54	0.00	9.62	07/01/10		0.97	41.30
A16718P			80.36	75.00	32.14	15.18	07/01/10		1.03	0.00
A20201W			25.00	353.79	0.00	7.58	07/01/10		0.97	27.27
A52234E			43.40	23.94	12.53	10.74	07/01/10		0.96	46.26
A00912D			78.43	10.78	1.96	13.73	07/01/10		0.72	38.89
A09946S			32.73	63.64	19.39	13.94	07/01/10		0.14	66.67

How to Improve (and Manage) Baseline Status

- Follow your Regional process for baseline approval.
- Many times this is done concurrently with PMP endorsement.
- A senior scheduler or above will have permission to save and assign your baseline.
- After which your status will be set to Green.
- Reference: PMRS Primavera Scheduler Version 2.2.20 Supplement - Page 22
- Periodically run the report “QC – Baseline Review and Exception Report” to review any baselines recently added to schedules that have already been coded as having an approved baseline

Standard Project Settings

Measures: Whether the standard project settings are being used.

Calculated: Green if using standard settings, yellow if a few settings deviate and are not approved, red if many settings deviate and are not approved.

Why this is important: Standard project settings ensure correct calculations throughout the project schedule and budget.

Green - All standard settings used or approved non-standard settings

Yellow – Few non-standard settings used and not reviewed or approved

Red – Non-standard settings used and not reviewed or approved

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How to Improve Project Settings

If these setting match or if deviation is approved, measure is green, if not, it is red (or yellow for minor deviations). Match the settings below.

Planning Resources | Budget Log | Spending Plan | Budget Summary | Dates | Funding | Codes | Defaults | Resources | Settings

Summarized Data

- [ ] Contains Summarized Data Only

Last Summarized On: 8-2-10

Summarize to WBS Level: 5

Summarize project based on

- ( ) High level resource planning
- (•) Detail activity resource assignments

Project Settings

Character for separating code fields for the WBS tree: .

Fiscal year begins on the 1st day of: July

Baseline for earned value calculations

- (•) Project baseline
- ( ) User's primary baseline

Define Critical Activities

- ( ) Total Float less than or equal to: 0h
- (•) Longest Path

Planning Resources | Budget Log | Spending Plan | Budget Summary | Dates | Funding | Codes | Defaults | Resources | Settings

Defaults for New Activities

Duration Type	Fixed Duration & Units	Cost Account	
Percent Complete Type	Physical	Calendar	5 D w/ WSDOT Holidays
Activity Type	Task Dependent		

Auto-numbering Defaults

Activity ID Prefix	Activity ID Suffix	Increment
A	1000	10

- [x] Increment Activity ID based on selected activity

Budget Log | Spending Plan | Budget Summary | Dates | Funding | Codes | Defaults | Resources | Settings | Calculations

Activities

Default Price / Unit for activities without resource or role Price / Units: $0/h

- [x] Activity percent complete based on activity steps
- [x] Link Planned and At Completion for not started activities

- ( ) Reset Planned Duration and Units to Remaining
- (•) Reset Remaining Duration and Units to Planned

Resource Assignments

When updating Actual Units or Cost

- ( ) Add Actual to Remaining
- (•) Subtract Actual from At Completion

- [ ] Recalculate Actual Units and Cost when duration % complete changes
- [ ] Update units when costs change on resource assignments
- [x] Link Actual and Actual This Period Units and Cost

General | Notebook | Planning Resources | Budget Log | Spending Plan | Budget Summary | Dates | Funding | Codes | Defaults | Resources | Settings | Calculations

Progress Reporter

- [ ] Resource can view activities from an inactive project
- [ ] Resources can assign themselves to activities
- [ ] Primary resources can mark activities as completed
- [ ] Resources can mark assignments as completed

- ( ) Resources can edit activity assignment percent complete
- (•) Resources can edit activity assignment remaining units

Assignment Defaults

Specify the default Rate Type for new assignments

WSDOT

- [x] Drive activity dates by default

Resource Assignments

- [x] Resources can be assigned to the same activity more than once

Standard Activity settings

Measures: The % of activities that comply with standard activity settings.

Calculated: By dividing the number of activities that are using the standard settings by total activities in the project. An activity is considered to be standard if settings are: Duration Type set to “Fixed Duration & Units”, Percent Complete Type set to “Physical” and the calendar set to “5 D w/ WSDOT Holidays”.

Why this is important: Standard activity settings ensure correct calculations throughout the project schedule and budget.

Green - Greater than 85% are standard

Yellow – Less than 85% are standard

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
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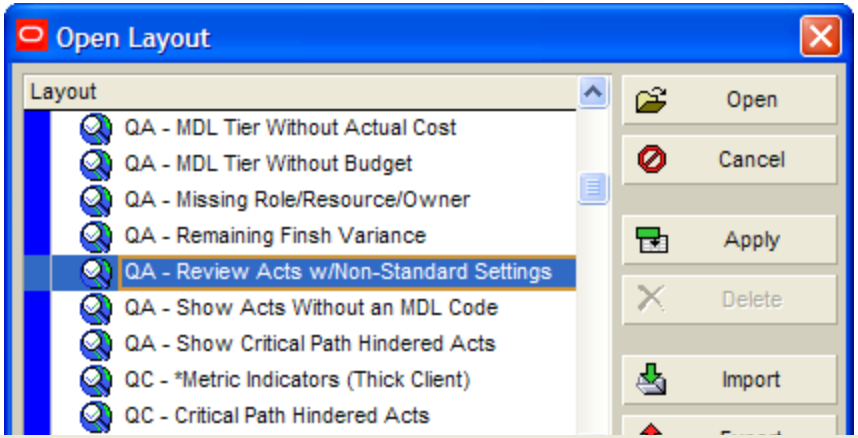
How to Improve Activity Settings

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout - "QA – Review Acts w/Non-Standard Settings"



Layout: QA - Review Acts w/Non-Standard Settings | Filter All: QA - Review Acts w/Non-Standard Settings

Activity Name	Activity Count	Start	Finish	Percent Complete Type	Duration Type	Calendar
A00099E SR 169 and SR 900 Roadside Safety Ir	103	07/01/08 A	06/06/11			5 D w/ WSDOT Holidays
Additional Clear Zone Inventory	1	10/27/09 A	11/06/...	Physical	Fixed Units	5 D w/ WSDOT Holidays
Sign Inventory	1	10/27/09 A	11/06/...	Physical	Fixed Duration and Units/Time	5 D w/ WSDOT Holidays
Address Proof Copy Review Comments	1	02/03/10 A	02/16/...	Physical	Fixed Duration and Units/Time	5 D w/ WSDOT Holidays
A00099E.PE Preliminary Engineering	96	07/01/08 A	06/06/11			5 D w/ WSDOT Holidays
A00099E.PE.PS Project Planning and Scoping	7	07/01/08 A	08/26/...			5 D w/ WSDOT Holidays
A00099E.PE.PS.01 Preliminary Estimates & Schedules	2	07/01/08 A	07/15/...			5 D w/ WSDOT Holidays
PE Estimate	1	07/01/08 A	07/01/...	Physical	Fixed Units	5 D w/ WSDOT Holidays
CN Estimate	1	07/09/08 A	07/15/...	Physical	Fixed Units	5 D w/ WSDOT Holidays
A00099E.PE.PS.08 Project Summary	5	07/16/08 A	08/26/...			5 D w/ WSDOT Holidays
Project Definition	1	07/16/08 A	07/22/...	Physical	Fixed Units	5 D w/ WSDOT Holidays
Design Decisions Summary	1	07/16/08 A	07/23/...	Physical	Fixed Units	5 D w/ WSDOT Holidays
Environmental Review Summary	1	07/16/08 A	07/22/...	Physical	Fixed Units	5 D w/ WSDOT Holidays

•Review each activity appearing on this list for conformance to the standards.

MDL Coverage (%)

Measures: The percentage of activities that have an MDL code assigned.

Calculated: By dividing the number of activities that have an MDL code assigned by total activities in the project "Coded activities/total activities".

Why this is important: This measures the project's relationship to standard WSDOT deliverables.

Green - Greater than 90%	Yellow – 50%-75% and 75%-90%	Red – Fewer than 50%

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
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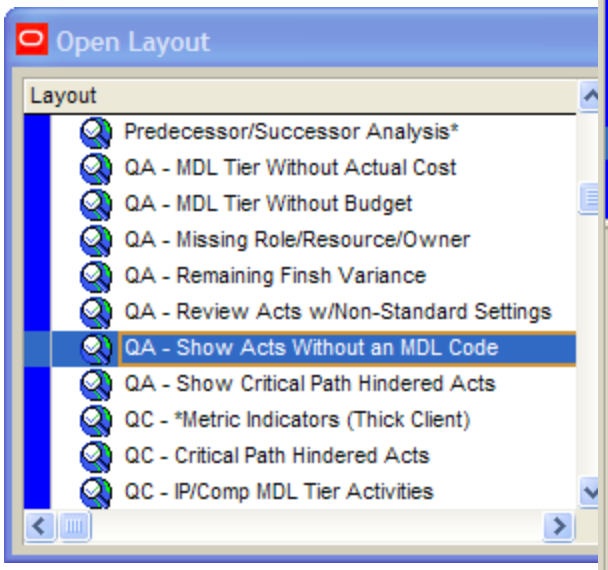
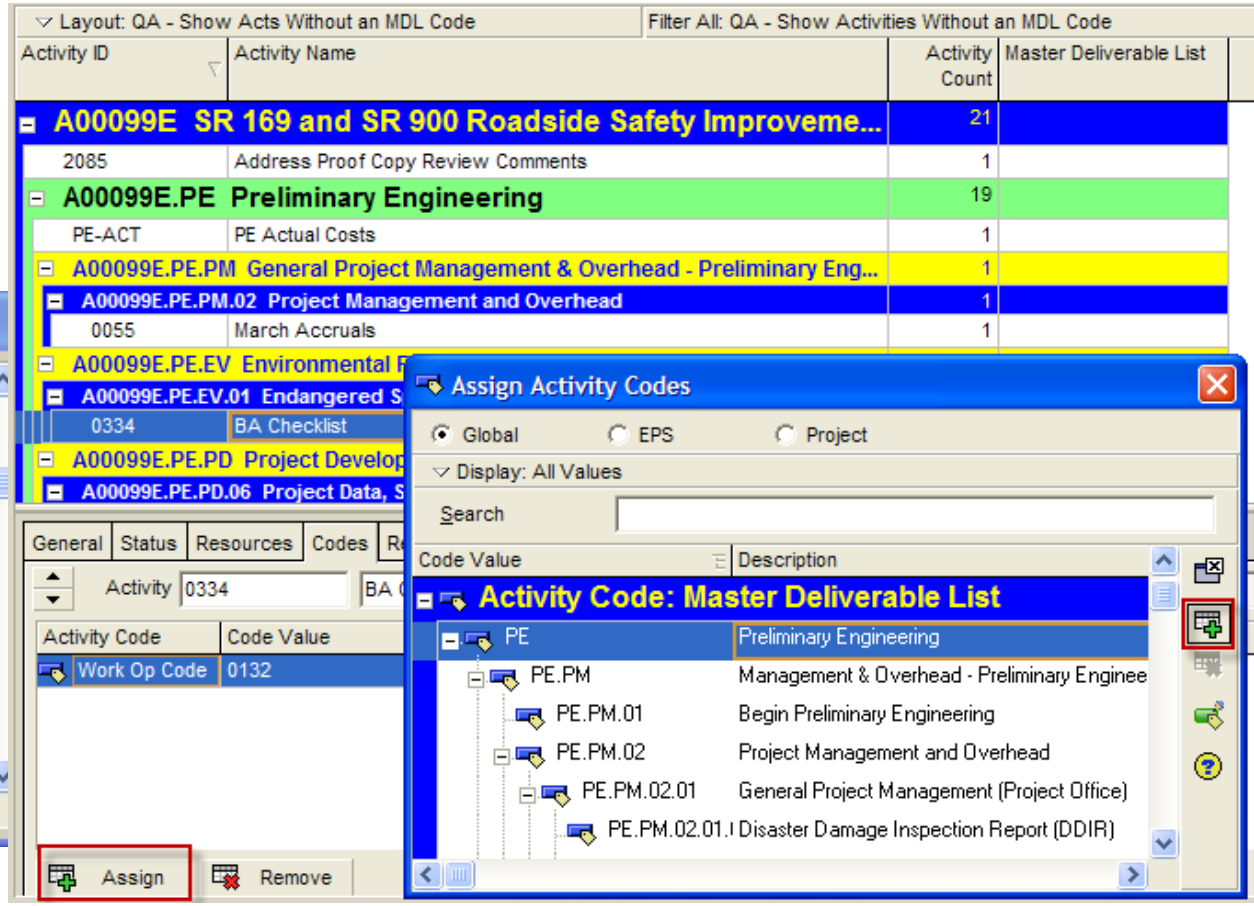
How to improve MDL Coverage (%)

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout "QA - Show Acts Without an MDL Code"

Assign an MDL Code to every activity that appears this layout.





Role/Resource/Owner Coverage (%)

Measures: The percentage of activities that have primary responsibility assigned.

Calculated: By dividing the number of activities that have primary responsibility assigned by total activities in the project.

Why this is important: It's easier to track down ownership and measure progress when a project task has a primary responsibility assigned. It is unrealistic to expect work to get done if no one has been assign to be responsible to do the work.

Green – At least 85% assigned resources

Yellow – Less than 85% assigned resources

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
			55.16	**103.66**	**17.73**	**16.48**	**07/01/10**		**0.71**	**26.17**
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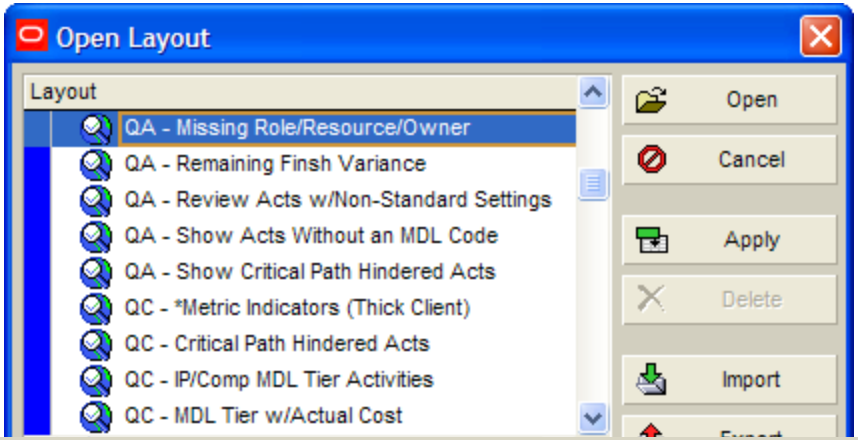
How to improve Role/Resource/Owner Coverage (%)

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout

"QA – Missing Role/Resource/Owner"



Layout: QA - Missing Role/Resource/Owner | Filter All: QA - Missing Primary Assignments

Activity ID	Activity Name	Start	Finish	Resources	Roles	Owner
A00099E.PE	Preliminary Engineering	07/01/08...	06/06/11			
A00099E.PE.PM	General Project Management & Overhead - Preliminary Engine...	07/28/08...	06/06/11			
A00099E.PE.PS	Project Planning and Scoping	07/01/08...	08/26/08...			
A00099E.PE.EV	Environmental Review and Permitting	02/24/09...	02/01/10...			
A00099E.PE.EV.01	Endangered Species Act Compliance	02/24/09...	05/04/09...			
0334	BA Checklist	02/24/09...	03/10/09...			
0335	Environmental Biological Assessment - NE Letter Sent	03/10/09...	05/04/09...			
A00099E.PE.EV.10	Discipline Studies	08/03/09...	11/16/09...			
0445	Wetland/Biology Discipline Report	08/03/09...	11/16/09...			
A00099E.PE.EV.11	NEPA/SEPA Compliance	09/01/09...	10/13/09...			
0745	SEPA Checklist/DNS	09/01/09...	10/13/09...			

- Assign one responsible party to every activity that appears this layout.

Critical Path Hindrance Factor (%)

Measures: The validity of the critical path calculation.

Calculated: By dividing the number of critical path hindered activities by the total number of activities in the project. An activity is considered to be critical path hindered if it's constrained, missing dependencies or is a Level of Effort activity.

Why this is important: The critical path is the longest duration path in the project. Any delay to a critical path activity will delay the end date of the project. If this calculation is hindered, the project manager will lose visibility into which activities are most important to keep on schedule.

Green - Less than 15%	Yellow – 15%-50%	Red – Greater than 50%

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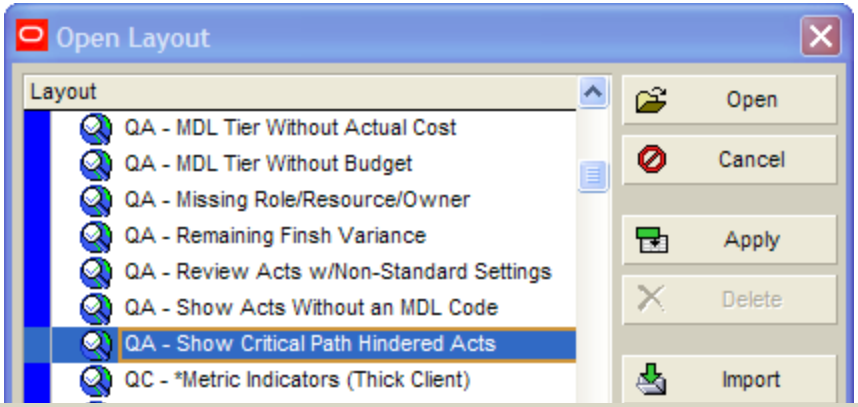
How to improve the Critical Path

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout
  "QA-Show Critical Path Hindered Acts"



Layout: QA - Show Critical Path Hindered Acts | Filter All: QA - Critical Path Hindered

Activity ID	Activity Name	Original Duration	Start	Finish	Activity Type	Primary Constraint	Primary Constraint Date	Predecessors	Successors
SR 169 and SR 900 Roadside Safety Improvement		440d	07/22/08 A	06/06/11					
Preliminary Engineering		440d	07/22/08 A	06/06/11					
General Project Management & Overhead - Preliminary Engineering		440d	07/28/08 A	06/06/11					
Project Management and Overhead		440d	07/28/08 A	06/06/11					
0040	Management Reserve (LOE)	275d	01/08/09 A	05/03/10	Level of Effort			0045	
0025	Managing the Project Hammock Task (LOE)	440d	01/08/09 A	08/25/10	Level of Effort			0015, 0045	2630
0055	March Accruals	5d	12/01/09 A	05/07/10	Task Dependent				
0050	Project Contingency	275d	07/28/08 A	06/06/11	Task Dependent			0015	
Project Development		111d	07/22/08 A	11/10/09 A					
Constructability Reviews		111d	07/22/08 A	11/10/09 A					
1945	60% Constructability Meeting/Review	7d	11/02/09 A	11/10/09 A	Task Dependent	Start On or ...	10/26/09	1603, 1320, 1...	1946
1930	Scoping Phase Review (PDR)	0d	07/22/08 A	07/22/08 A	Task Dependent				0305, 0310, 030
Construction		1d	08/27/10	08/27/10					
Construction Milestones		1d	08/27/10	08/27/10					
Completion		1d	08/27/10	08/27/10					
2675	Final Contract Completion	1d	08/27/10	08/27/10	Task Dependent			2650	

- Review every constraint, missing dependency or type of activity for every activity that appears in this layout.

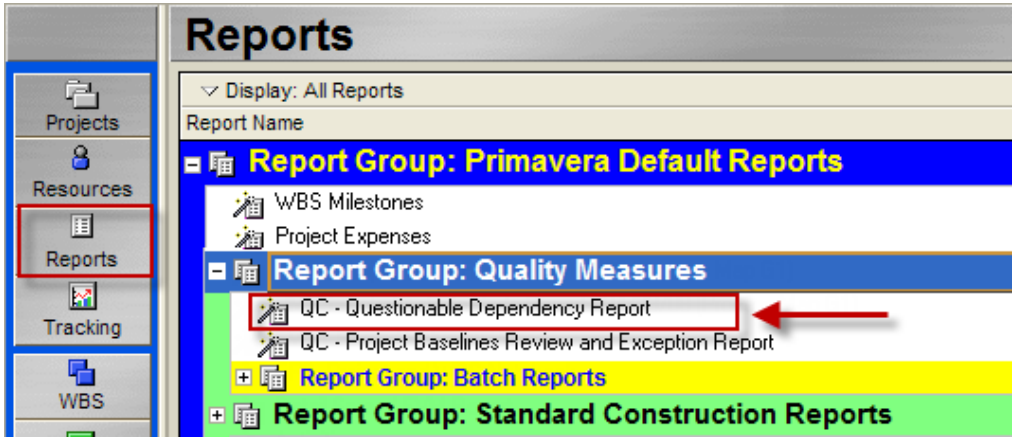
Questionable Dependencies

Measures: The presences of activities with SS, SF, FF, or Lag assigned to them.
Calculated: By a Report that will show lags and non-FS relationships.
Why this is important: Questionable dependencies can prevent scheduler from calculating the true critical path and will limit visibility of the full process required to produce a deliverable.

Report Group: Quality Measures		
QC - Project Baselines Review and Exception Report	Global	7-27-10
QC - Questionable Dependency Report	Global	7-28-10
Report Group: Batch Reports		
QC - Critical Path Hindered Activities	Global	8-2-10
QC - IP/Comp MDL Tier Activities	Global	7-29-10
QC - MDL Coded Activities	Global	8-3-10
QC - MDL Tier w/Actual Cost	Global	7-29-10
QC - MDL Tier w/Budget	Global	7-29-10
QC - Remaining Finish Variance	Global	7-29-10
QC - Role/Resource/Owner Assignments	Global	8-3-10
QC - Standard Activity Settings	Global	8-3-10
QC - Total MDL Tier Activities	Global	7-29-10

How to improve Questionable Dependencies

- Using Primavera Scheduler
- Open the project
- Run the Report "QC – Questionable Dependency Report"
- Review and address every dependency on this report.



Questionable Dependency Report

Project ID Project Name

Activity ID / Questionable Logic	Activity Name	Relationship Type	Original Duration	Early Start	Early Finish	Lag
A00099E	**SR 169 and SR 900 Roadside Safety Improvement**					
0015	**Begin Preliminary Engineering**		**0d**	**05/01/10**	**05/01/10**	
Questionable Successor(s)						
0025	Managing the Project Hammock Task (LOE)	FS	440d	05/03/10	08/25/10	112d
0025	**Managing the Project Hammock Task (LOE)**		**440d**	**05/03/10**	**08/25/10**	
Questionable Predecessor(s)						
0015	Begin Preliminary Engineering	FS	0d	05/01/10	05/01/10	112d
0045	PM Plan Initiation Stakeholders Meeting	SS	0d	05/01/10	05/01/10	112d
Questionable Successor(s)						
2630	Construction Work Start	FF	60d	06/02/10	08/25/10	0d

Updated Schedule

Measures: How current the project plan is.

Calculated: Primavera data date is compared to the current date.

Why this is important: A plan is only as good as the information put into it. Without current status, the schedule is useless for managing the project.

Green – Less than 45 days ago | Yellow – Within 45 to 90 days in the past | Red – More than 90 days ago

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
			55.16	**103.66**	**17.73**	**16.48**	**07/01/10**		**0.71**	**26.17**
A00522B			82.82	288.96	0.61	57.06	07/01/10		0.63	0.00
A09060D			72.12	11.54	0.00	9.62	07/01/10		0.97	41.30
A16718P			80.36	75.00	32.14	15.18	07/01/10		1.03	0.00
A20201W			25.00	353.79	0.00	7.58	07/01/10		0.97	27.27
A52234E			43.40	23.94	12.53	10.74	07/01/10		0.96	46.26
A00912D			78.43	10.78	1.96	13.73	07/01/10		0.72	38.89
A09946S			32.73	63.64	19.39	13.94	07/01/10		0.14	66.67

How to improve the Updated Schedule metric

- Update the status of your plan and calculate the schedule using the most recent Data Date (the first workday of the current month).

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	Planned Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
Ponds		28	28	0%	6-2-10	7-12-10	8
A1220	Ponds - Earthwork	15	15	0%	6-2-10	6-22-10	8
A1219	Ponds - Bioswale/Ditch (Structures D10 - 1 &2)	3	3	0%	6-2-10	6-4-10	33
A1230	Ponds - Drainage Structure/Spall installation	5	5	0%	6-23-10	6-29-10	8
A1240	Ponds - Blanket/Seeding	5	5	0%	6-30-10	7-7-10	8
A1250	Ponds - Erosion Control	3	3	0%	7-8-10	7-12-10	8
A1260	Ponds Complete	0	0	0%		7-12-10	8
SB Ramps RAB		40	40	0%	6-2-10	7-28-10	-4
A1040	SB Ramps RAB - Select Borrow	15	15	0%	6-2-10	6-22-10	-4
A1043	SB Ramps RAB - CSBC	5	5	0%	6-23-10	6-29-10	-4

Apr | May | Jun | Jul

General | Status | Resources | Relationships

Activity 2390 — Travel To & From the Office to the Job Site — Project A01100G

Duration	
Planned	0
Actual	0
Remaining	0
At Complete	0
Total Float	710
Free Float	710

Labor Units: Planned, Actual, Remaining, At Complete

Schedule

Project(s) to schedule	5
Earliest Data Date	7-1-10
Earliest Project Forecast Start Date	

☐ Set Data Date and Planned Start to Project Forecast Start during scheduling

☐ Log to file

H:\archish's Documents\SchedLog.txt

Cancel | Schedule | View Log | Help | Options...

Referenced SPI

Measures: How well the project is following its baseline schedule.

Calculated: By dividing the Value of work completed by the Value of work planned to be completed (to date) as recorded in the baseline (EV/PV).

Why this is important: This measures how closely the project is following its planned schedule dates as recorded in the baseline (This is a *hindsight* metric that assesses past performance).

Green - Within .9 to 1.1 | Yellow – .8 to .9 and 1.1 to 1.2 | Red– Below .8 and above 1.2

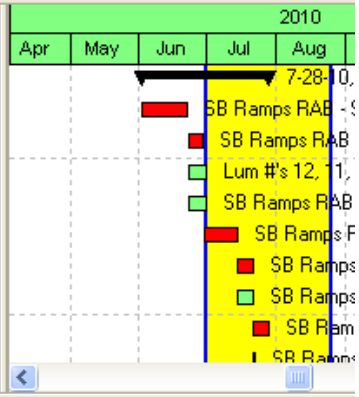
Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
			55.16	**103.66**	**17.73**	**16.48**	**07/01/10**		**0.71**	**26.17**
A00522B			82.82	288.96	0.61	57.06	07/01/10		0.63	0.00
A09060D			72.12	11.54	0.00	9.62	07/01/10		0.97	41.30
A16718P			80.36	75.00	32.14	15.18	07/01/10		1.03	0.00
A20201W			25.00	353.79	0.00	7.58	07/01/10		0.97	27.27
A52234E			43.40	23.94	12.53	10.74	07/01/10		0.96	46.26
A00912D			78.43	10.78	1.96	13.73	07/01/10		0.72	38.89
A09946S			32.73	63.64	19.39	13.94	07/01/10		0.14	66.67

How to improve SPI

- Accelerate *all* work to “catch up” to the original plan (add resources, complete future work more quickly or in parallel, etc)

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	Planned Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
SB Ramps RAB		40	40	0%	6-2-10	7-28-10	-4
A1040	SB Ramps RAB - Select Borrow	15	15	0%	6-2-10	6-22-10	-4
A1043	SB Ramps RAB - CSBC	5	5	0%	6-23-10	6-29-10	-4
A1050	Lum #'s 12, 11, 10, 7, 15 &16	6	6	0%	6-23-10	6-30-10	15
A1090	SB Ramps RAB - Drainage	6	6	0%	6-23-10	6-30-10	15
A1060	SB Ramps RAB - Curbing	10	10	0%	6-30-10	7-14-10	-4
A1080	SB Ramps RAB - Truck Apron	5	5	0%	7-15-10	7-21-10	-4
A1070	SB Ramps RAB - PCCP	5	5	0%	7-15-10	7-21-10	1
A1200	SB Ramps RAB - Signing	5	5	0%	7-22-10	7-28-10	-4
A1100	SB Ramps RAB - Striping	1	1	0%	7-22-10	7-22-10	1



General | Status | Resources | Relationships

Activity A1250 — Ponds - Erosion Control — Project A01100F

Duration		Status			
Planned	3	Started	7-8-10	Physical %	0%
Actual	0	Finished	7-12-10	Suspend	
Remaining	3	Exp Finish		Resume	

Labor Units: Planned, Actual, Remaining

Remaining Finish Variance (%)

Measures: The percent of not-completed activities that are at least 10 days late compared to the Baseline.

Calculated: By dividing the number of not-completed activities that are at least 10 days late by the number of not-completed activities in the schedule.

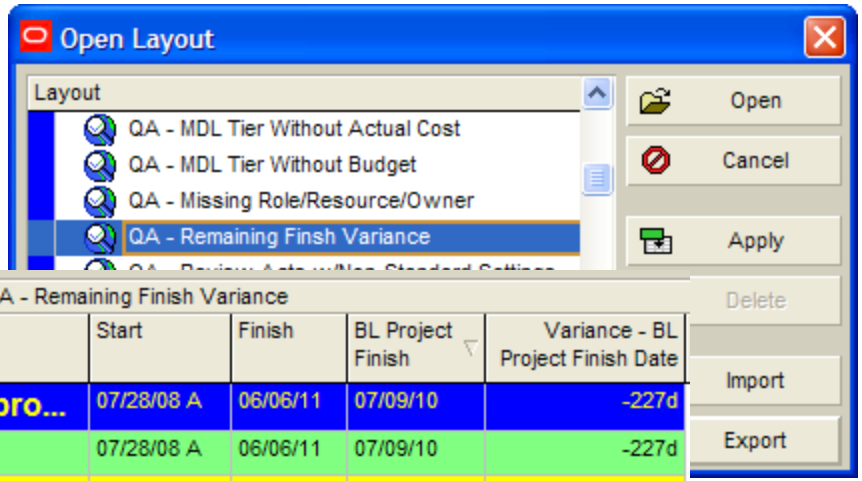
Why this is important: The amount of remaining work that is late compared to the baseline generates a risk factor in on-time delivery (This is a *foresight* metric and looks at the future or forecasted dates of delivery).

Green – Fewer than 15%	Yellow – 15% to 30%	Red– Greater than 30%

Project ID	*Baseline Status	*Standard Project Settings	*Standard Activity Settings (%)	*MDL Coverage (%)	*Role/Resource Coverage (%)	*Critical Path Hindrance Factor (%)	Data Date	*Updated Schedule	*Referenced SPI	*Remaining Finish Variance (%)
			55.16	**103.66**	**17.73**	**16.48**	**07/01/10**		**0.71**	**26.17**
A00522B			82.82	288.96	0.61	57.06	07/01/10		0.63	0.00
A09060D			72.12	11.54	0.00	9.62	07/01/10		0.97	41.30
A16718P			80.36	75.00	32.14	15.18	07/01/10		1.03	0.00
A20201W			25.00	353.79	0.00	7.58	07/01/10		0.97	27.27
A52234E			43.40	23.94	12.53	10.74	07/01/10		0.96	46.26
A00912D			78.43	10.78	1.96	13.73	07/01/10		0.72	38.89
A09946S			32.73	63.64	19.39	13.94	07/01/10		0.14	66.67

How to improve Remaining Finish Variance (%)

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout - "QA – Remaining Finish Variance"



Layout: QA - Remaining Finsh Variance | Filter All: QA - Remaining Finish Variance

Activity ID	Activity Name	Start	Finish	BL Project Finish	Variance - BL Project Finish Date
A00099E	SR 169 and SR 900 Roadside Safety Impro...	07/28/08 A	06/06/11	07/09/10	-227d
A00099E.PE	Preliminary Engineering	07/28/08 A	06/06/11	07/09/10	-227d
A00099E.PE.PM	General Project Management & Overhead - Prelimina...	07/28/08 A	06/06/11	07/09/10	-227d
A00099E.PE.PM.02	Project Management and Overhead	07/28/08 A	06/06/11	07/09/10	-227d
0050	Project Contingency	07/28/08 A	06/06/11	07/08/08	-730d
0040	Management Reserve (LOE)	01/08/09 A	05/03/10	02/02/10	-62d
0025	Managing the Project Hammock Task (LOE)	01/08/09 A	08/25/10	07/09/10	-33d
A00099E.CN	Construction	03/16/10 A	08/27/10	05/11/10	-77d
A00099E.CN.10	Construction Milestones	03/16/10 A	08/27/10	05/11/10	-77d
A00099E.CN.10.01	Contract Execution	03/16/10 A	06/01/10	05/11/10	-15d
2595	Contract Execution	03/16/10 A	06/01/10	05/11/10	-15d
A00099E.CN.10.08	Construction Work Start	06/02/10	08/25/10	07/01/08	-541d
2630	Construction Work Start	06/02/10	08/25/10	07/01/08	-541d
A00099E.CN.10.21	Operationally Complete	08/27/10	08/27/10	07/01/08	-543d
2650	Operationally Complete		08/27/10	07/01/08	-543d

•Accelerating near-term work, especially *critical path* work, will move many of the planned dates for remaining activities earlier in time, reducing the finish variance of remaining work.

Referenced CPI

Measures: How well the project is following its baseline budget.

Calculated: By dividing the earned value of work by the actual cost of work (EV/AC).

Why this is important: This measures how closely the project is following its planned budget.

Green - Within 90% to 110% | Yellow – 80% to 120% | Red– Outside 80% to 120%

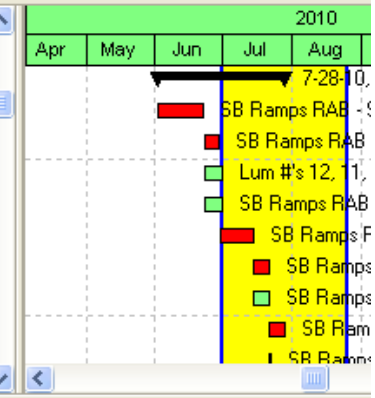
Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve CPI

- Improve efficiency; Complete remaining work for lower actual cost than planned and budgeted in the baseline

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	Planned Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
	SB Ramps RAB	40	40	0%	6-2-10	7-28-10	-4
A1040	SB Ramps RAB - Select Borrow	15	15	0%	6-2-10	6-22-10	-4
A1043	SB Ramps RAB - CSBC	5	5	0%	6-23-10	6-29-10	-4
A1050	Lum #'s 12, 11, 10, 7, 15 &16	6	6	0%	6-23-10	6-30-10	15
A1090	SB Ramps RAB - Drainage	6	6	0%	6-23-10	6-30-10	15
A1060	SB Ramps RAB - Curbing	10	10	0%	6-30-10	7-14-10	-4
A1080	SB Ramps RAB - Truck Apron	5	5	0%	7-15-10	7-21-10	-4
A1070	SB Ramps RAB - PCCP	5	5	0%	7-15-10	7-21-10	1
A1200	SB Ramps RAB - Signing	5	5	0%	7-22-10	7-28-10	-4
A1100	SB Ramps RAB - Striping	1	1	0%	7-22-10	7-22-10	1



General | Status | Resources | Relationships

Activity A1250 — Ponds - Erosion Control — Project A01100F

Duration		Status			
Planned	3	Started	7-8-10	Physical %	0%
Actual	0	Finished	7-12-10	Suspend	
Remaining	3	Exp Finish		Resume	

Labor Units: Planned / Actual / Remaining

Funding – BAC Variance ($)

Measures: The alignment of the projected at complete cost in the baseline (BAC; Baseline At Complete) to the amount of funding held in CPMS for the WIN.

Calculated: By subtracting the BAC value from the CPMS Current funding level for the WIN.

Why this is important: Accurate forecasted costs in the baseline are essential for cost and schedule metrics such as CPI, SPI, To Complete requirements, At Complete Variances, etc.

Green – Zero variance

Yellow – Positive or Negative variance

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve Funding – BAC Variance

- Correct the sum of your line-item Project Baseline budgeted values to match current funding levels

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	BL Project Total Cost	Planned Duration	Remaining Duration
SR 11/ I-5 Interchange-Josh Wilson Rd-Rebuild Intercha...		$11,222,728	2085	997
Preliminary Engineering		$2,400,224	1110	22
PE-ACT	PE Actual Costs	$0	0	0
General Project Management & Overhead - Preliminary Engineering		$1,901,908	157	22
Environmental Review and Permitting		$12,592	173	0
Project Development		$485,725	273	0
Right of Way		$100,000	465	0
Construction		$8,722,504	1020	997

Funding – EAC Variance ($,%)

Measures: Whether the project will be delivered on-budget, regardless of Baseline accuracy.

Calculated: By subtracting the Schedule's Estimate At Complete value from the amount of funding held in CPMS for the WIN.

Why this is important: This is a stop-gap measure to provide an accurate assessment of on-budget performance in cases where baselines do not exist or hold incorrect BAC values. This metric in percent form provides a GMAP-based assessment of "on-budget" performance (within 5%)

Green – Dollar form- Below funding; Percent form- Less than 5% over funding level

Yellow – Dollar form - Exceeds funding; Percent form– More than 5% over funding level

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve Funding – EAC Variance

- Update your current schedule's remaining costs so that when combined with actual costs, the at complete cost is an accurate representation of the estimated final cost of the project. Ideally, this will match current funding levels for the WIN; If not, report the estimated cost at complete and adjust CPMS forecasts for the Phase and WIN. A PCRF may be required.

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	Actual Total Cost	Remaining Total Cost	At Completion Total Cost
SR 11/ I-5 Interchange-Josh Wilson Rd-Rebuild Intercha...		$3,853,207	$9,086,429	$12,939,636
Preliminary Engineering		$2,416,696	$115,844	$2,532,541
PE-ACT	PE Actual Costs	$2,093,083	$0	$2,093,083
General Project Management & Overhead - Preliminary Engineering		$104,297	$111,444	$215,741
Environmental Review and Permitting		$0	$2,100	$2,100
Project Development		$219,316	$2,300	$221,616
Right of Way		$112,719	$43,359	$156,078
Construction		$1,323,791	$8,927,226	$10,251,017

At Complete P6 Cost Variance (%)

Measures: Predicts if the baseline budget will be exceeded before the end of project.

Calculated: By subtracting the estimate at completion from the baseline budget and dividing by the baseline budget "(EAC-BAC)/BAC"

Why this is important: This measures the project's variance from its planned at complete cost as recorded in the Project Baseline.

Green – Less than -5% Variance | Yellow – 5% to -20% Variance | Red– Over -20% Variance

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve At Complete P6 Cost Variance (%)

- First, be sure BAC values are correct and aligned to WIN funding levels
- Update your current schedule's remaining costs so that when combined with actual costs, the at complete cost closely matches the true estimate at complete
- If all forecasts in the baseline and the current schedule are correct and significant variation still exists, report the variance and update CPMS forecasts for the WIN. A PCRF may be required- If approved, update the baseline values for future work and review any further variances.

Layout: Standard Activity Status* | Filter: All Activities

Activity ID	Activity Name	Actual Total Cost	Remaining Total Cost	At Completion Total Cost	BL Project Total Cost	Variance - BL Project Total Cost
SR 11/ I-5	Interchange-Josh Wilson Rd-Rebuil...	$3,853,207	$9,086,429	$12,939,636	$11,222,728	($1,716,907)
Preliminary Engineering		$2,416,696	$115,844	$2,532,541	$2,400,224	($132,316)
PE-ACT	PE Actual Costs	$2,093,083	$0	$2,093,083	$0	($2,093,083)
General Project Management & Overhead - Preliminary E...		$104,297	$111,444	$215,741	$1,901,908	$1,686,167
Environmental Review and Permitting		$0	$2,100	$2,100	$12,592	$10,492
Project Development		$219,316	$2,300	$221,616	$485,725	$264,108
Right of Way		$112,719	$43,359	$156,078	$100,000	($56,078)
Construction		$1,323,791	$8,927,226	$10,251,017	$8,722,504	($1,528,513)
SR 11/Reddon Creek- Fish Barrier Removal		$61,170	$0	$61,170	$0	($61,170)

Remaining Authorization ($,%)

Measures: Percentage of authorization remaining on the work order.

Calculated: By dividing the remaining work order authorization by the total work order authorization "(Total Authorization - Actual Cost) / Total Authorization".

Why this is important: This measure provides a warning when the project is low on authorized funds.

Green - 15% and over	Yellow – 1% to 15%	Red – 1% or Less, or negative

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve Remaining Authorization ($,%)

- Submit a request to increase your work order authorization total

Washington State Department of Transportation

WORK ORDER AUTHORIZATION

WORK ORDER: MS 3222
DATE SENT: Mar 24, 1998
DATE REC'D: Mar 24, 1998
WORK ITEM: H00011A
WOA TITLE: Roadway Design Software Maintenance
PIN: 000011A
WORK DESC: Maintenance and Support of CAICE
PHASE: ☒ PE ☐ RW ☐ CN
ORG# / MGR: 303080/Jim Michal
SOURCE OF FUNDS: ☒ State ☐ Federal ☐ Local ☐ TIE ☐ ER
COUNTY(S): 34 THURSTON
SR(s): From: MP: To:
WOA TYPE: ○ Perpetual ◉ Biennial
PREVIOUS AUTHORIZATION: $0.00
Reimbursable From:
Receivable Agmt # % / AMT Date Executed
Group Category:
01 Work Done Contractor
02 Work Done Others
Payable Agmt #
03 Engineering
04 State Force Work 180,000.00
05 Material Furnished
06 Contingencies
07 R/W Acquisition(need true cost)
08 R/W Other
99 Vendor Supplied Serv. & Matls.
NEW TOTAL AUTHORIZATION $180,000.00

FOR FA PROJECTS ONLY:
FA No. F A % FA Approp FHWA Auth Date
R/W cert to OSC ○ Y ○ N/A STIP Ref.
Design Approv NEPA

The CE / PE costs equal % of current est. construction

PIN	Sub Pgm	Fund Acct	Legislative Approp	Finance Codes	Amt Change	Control Section	Distr % by Cont Sect
000011A	P3	108	A10	AA	180,000.00	3400NT	100

Notes: New Setup $180,000.00

MDL Tier w/Budget (%)

Definition: Activities that have a low-level MDL code and a WorkOp code

Measures: The percentage of MDL Tier activities that have budgets assigned.

Calculated: By dividing the number of MDL Tier activities with budgets by total number of MDL Tier activities.

Why this is important: When budgets exist on lower-level deliverables, management of cost forecasts by period becomes more productive and more accurate.

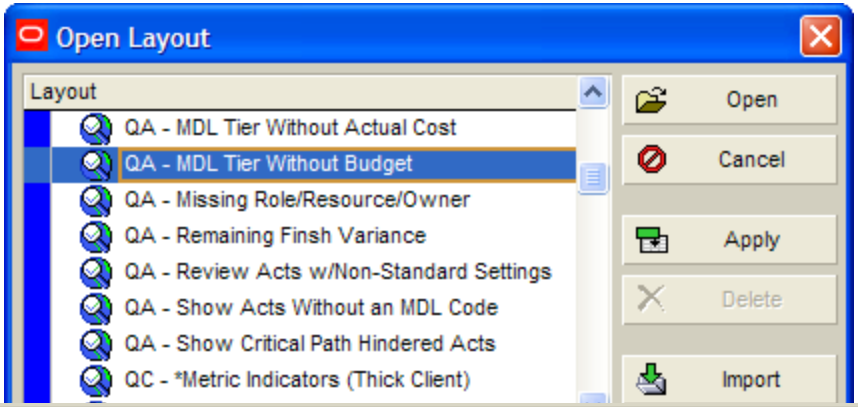
Green – Greater than 85%

Yellow – Less than 85%

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
A00522B	0.82	$5,052,099.22	$4,969,423.08	86.83	-12.32	$706,253.50	84.08	25.81	44.44
A09060D	0.87	($172,736.45)	$2,188,097.54	81.00	82.14	$49,938.44	10.51	94.83	19.23
A16718P	1.02	($100,571.27)	($118,975.45)	-6.49	-0.95	$42,614.76	13.94	84.93	11.11
A20201W	0.90	($5,005.08)	($17,514.42)	-0.87	-0.62	$45,014.10	17.73	87.23	26.19
A52234E	1.19	$17,568,907.10	$131,569,131.39	85.28	83.39	$7,533,565.98	33.46	0.00	9.48
A00912D	1.31	($0.19)	$8,626.93	0.58	0.58	$1,236,629.17	82.44	74.51	20.83
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve MDL Tier w/Budget (%)

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout - "QA – MDL Tier Without Budget"



Layout: QA - MDL Tier Without Budget | Filter All: QA - MDL Teir Without Budget

Activity ID	Activity Name	Start	Finish	Master Deliverable List	Work Op Code	Budgeted Total Cost
A00099E	SR 169 and SR 900 Roadside Safety Improvement	07/01/08 A	02/01/10 A			$0.00
A00099E.PE	Preliminary Engineering	07/01/08 A	02/01/10...			$0.00
A00099E.PE.EV	Environmental Review and Permitting	03/10/09 A	11/06/09...			$0.00
A00099E.PE.EV.01	Endangered Species Act Compliance	03/10/09 A	05/04/09...			$0.00
0335	Environmental Biological Assessment - NE Letter Sent	03/10/09 A	05/04/09...	PE.EV.01.01	0132	$0.00
A00099E.PE.PD	Project Development	07/22/08 A	02/01/10...			$0.00
A00099E.PE.PD.06	Project Data, Survey Data and Basemap	01/20/09 A	03/17/09...			$0.00
1055	As-Built Data Verified	01/20/09 A	01/27/09...	PE.PD.06.10.05	0116	$0.00
1060	Maintenance Review Documentation	02/24/09 A	03/17/09...	PE.PD.06.10.06	0116	$0.00
A00099E.PE.PD.34	Traffic Analysis	07/29/08 A	07/29/08...			$0.00
1560	Collision Data	07/29/08 A	07/29/08...	PE.PD.34.10	0150	$0.00
A00099E.PE.PD.75	Constructability Reviews	07/22/08 A	11/24/09...			$0.00
1930	Scoping Phase Review (PDR)	07/22/08 A	07/22/08...	PE.PD.75.01	0180	$0.00
1952	Address 90% CN Review Comments	11/24/09 A	11/24/09...	PE.PD.75.90	0180	$0.00

- Review and Distribute Budget to every activity that appears on this layout.

MDL Tier w/Actual Cost (%)

Definition: Activities that have a low-level MDL code and a WorkOp code

Measures: The percentage of MDL Tier activities that have actual costs assigned.

Calculated: By dividing the number of MDL Tier activities with actuals by the total number of MDL Tier activities.

Why this is important: When actual costs exist on lower-level deliverables and are aligned to lower-level budget values, management of costs by deliverable becomes more productive and more accurate.

Green - Greater than 85% | Yellow – Less than 85%

Project ID	*Referenced CPI	*Funding - BAC Variance ($)	*Funding - EAC Variance ($)	*Funding - EAC Variance (%)	*At Complete P6 Cost Variance (%)	*Remaining Authorization	*Remaining Authorization (%)	*MDL Tier w/Budget (%)	*MDL Tier w/Actual Cost (%)
	1.17	**$26,386,308.59**	**$142,522,798.59**	**71.91**	**67.59**		**38.04**	**58.05**	**15.14**
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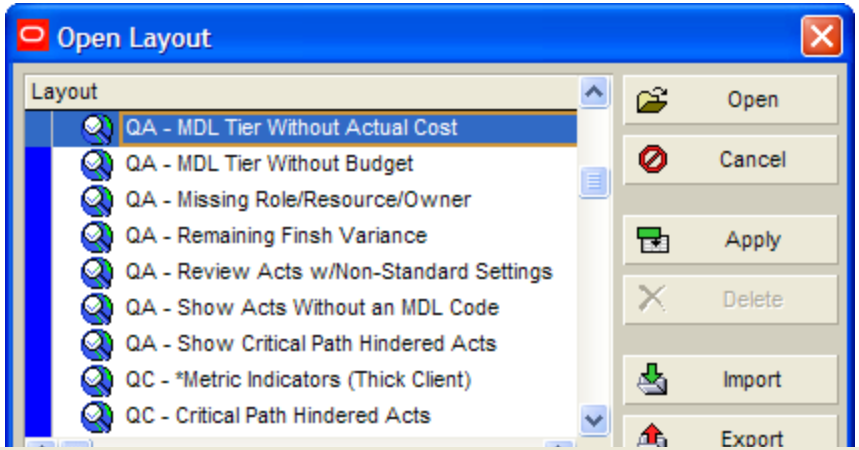
A09946S	1.09	$6,989,778.77	$6,884,404.15	42.15	-1.13	$436,404.47	27.11	71.72	7.58

How to improve MDL Tier w/Actual Cost (%)

- Using Primavera Scheduler
- Open the project
- Open the Activity Layout - "QA – MDL Tier Without Actual Cost"



Layout: QA - MDL Tier Without Actual Cost | Filter All: QA - MDL Teir Without Actual Cost

Activity ID	Activity Name	Start	Finish	Master Deliverable List	Work Op Code	Actual Total Cost
A00099E	**SR 169 and SR 900 Roadside Safety Improvement**	07/01/08	02/03/10			$0.00
1051	Additional Clear Zone Inventory	10/27/09...	11/06/09...	PE.PD.06.10.04	0116	$0.00
1610	Sign Inventory	10/27/09...	11/06/09...	PE.PD.36.10	01TA	$0.00
A00099E.PE	**Preliminary Engineering**	07/01/08...	02/03/10...			$0.00
A00099E.PE.PS	**Project Planning and Scoping**	07/01/08...	08/26/08...			$0.00
A00099E.PE.PS.01	**Preliminary Estimates & Schedules**	07/01/08...	07/15/08...			$0.00
0160	PE Estimate	07/01/08...	07/01/08...	PE.PS.01.01	01AP	$0.00
0170	CN Estimate	07/09/08...	07/15/08...	PE.PS.01.03	01AC	$0.00
A00099E.PE.PS.08	**Project Summary**	07/16/08...	08/26/08...			$0.00
0300	Project Definition	07/16/08...	07/22/08...	PE.PS.08.01	0169	$0.00
0305	Design Decisions Summary	07/16/08...	07/23/08...	PE.PS.08.02	0169	$0.00
0310	Environmental Review Summary	07/16/08...	07/22/08...	PE.PS.08.03	0169	$0.00

- Review and distribute actual costs to activities appearing on this layout.

Thick Client Metrics & Indicators

Instructions to Regional Primavera Administrators

Thick Client Metrics & Indicators

10 Global Changes are available to allow Project Controllers to quickly and easily populate activity-level indicators for some of the metrics discussed above:

*Pop Critical Path Hindered Indicators
*Pop IP/Comp MDL Tier w/AC Indicators #1
*Pop IP/Comp MDL Tier w/AC Indicators #2
*Pop MDL Indicators
*Pop MDL Tier w/Budget Indicators #1
*Pop MDL Tier w/Budget Indicators #2
*Pop Remaining Finish Var Indicators #1
*Pop Remaining Finish Var Indicators #2
*Pop Responsibility Indicators
*Pop Standard Act Settings Indicators

Note that some Global Change processes have two steps (#1 and #2)

Thick Client Metrics & Indicators (Cont'd)

Layout: QC - *Metric Indicators (Thick Client) | Filter: All Activities

Activity ID	Activity Name	*Baseilne Finish Variance	*MDL Assignments	*MDL Tier w/Actual Cost	*MDL Tier w/Budget	*Responsibility Coverage	*Standard Activity Settings	*Critical Path Hindered
A01818U	**SR 18/Issaquah-Hobart Rd. - Retaining Wall Repair**							
A01818U.PE	**Preliminary Engineering**							
PE-ACT	PE Actual Costs							
A01818U.PE.PM	**General Project Management & Overhead - Preliminary Engineering**							
A01818U.PE.PM.01	**Begin Preliminary Engineering**							
0015	Begin Preliminary Engineering		✓			!	!	!
A01818U.PE.PM.02	**Project Management and Overhead**							
0025	General Project Management (Project Office)	!	✓	!	✓	✓	!	!
0035	Environmental Project Management and Overhead	!	!			!	!	!
0040	Redistributed PE Project Management and Overhead (HQ & Region) (LOE)	!	✓	!	✓	!	!	!
0041	Project Contingency		!			!	!	!
A01818U.PE.PM.03	**Project Management Plan Development & Maintenance**							
0065	WSDOT Project Management Plan (PMP)		✓	✓	✓	✓	✓	✓
0070	PMP Endorsement		✓			!	!	✓
0075	Project Handoff	✗	!			!	✓	✓
A01818U.PE.PS	**Project Planning and Scoping**							
A01818U.PE.PS.01	**Preliminary Estimates & Schedules**							
0160	PE Estimate		✓	!	!	!	✓	✓
0165	RW Estimate		✓	!	!	!	✓	✓
0170	CN Estimate		✓	!	!	!	✓	✓
A01818U.PE.PS.03	**Public Involvement for Planning**							
0210	Public Involvement	!	✓	!	✓	!	!	✓
A01818U.PE.PS.07	**Pre-Design Study**							
0290	Pre-Design Study		✓	!	✓	!	✓	✓
A01818U.PE.PS.08	**Project Summary**							
0300	Project Definition		✓	!	!	!	✓	✓
0305	Design Decisions Summary		✓	!	!	!	✓	✓
0310	Environmental Review Summary		✓	!	!	!	✓	✓

Thick Client Metrics & Indicators – How do they work?

<u>Critical Path Hindered Activities</u>

*Pop Critical Path Hindered Indicators

Looks for Critical Path obstructions and flags activities that do not support a critical path schedule (constraints, LOE's, missing predecessors or successors) and places a yellow flag on the activity; Also removes all other indicators (e.g. old flags from previous updates)

Results:

The Critical Path Hindered Activities process results in:

- A yellow indicator placed on any activity that does not support critical path schedules

Optional Feature:

- Secure code available to filter out acceptable deviations from critical path hindered lists. Use of this code is optional.

Thick Client Metrics & Indicators – How do they work? (Cont'd)

Remaining Finish Variance

*Pop Remaining Finish Var Indicators #1

Part 1 looks for In-Progress and Not Started Activities and flags those that exceed [negative] -10 days of total float with a yellow indicator. It then removes all other indicators (e.g. old indicators)

*Pop Remaining Finish Var Indicators #2

Part 2 looks for Activities that are not in the baseline and flags each one with a red indicator

Results:

The Remaining Finish Variance process results in:

- A yellow indicator on activities that are impacting the critical path by more than 10 days
- A red indicator on activities that are in the schedule but not in the baseline
- No indicator on all other activities

Thick Client Metrics & Indicators – How do they work? (Cont'd)

Standard Activity Settings

*Pop Standard Act Settings Indicators

Looks for activities that meet pre-established standard (calendars, duration types, and percent complete types) and flags them with a green indicator; Flags all other activities with a yellow indicator

Results:

The Standard Activity Settings process results in:

- A green indicator placed on all activities that hold all three standards
- A yellow indicator placed on all activities that do not hold all three standards

Optional Feature:

- Secure code available to filter out acceptable deviations from standard settings. Use of this code is optional.

Thick Client Metrics & Indicators – How do they work? (Cont'd)

<u>MDL Assignments</u>

*Pop MDL Indicators

Looks for activities that have an MDL code and flags them with a green indicator; All activities that do not have an MDL Code are flagged with a yellow indicator

Results:

The MDL Assignments process results in:

- A green indicator placed on all activities that hold an MDL Code
- A yellow indicator placed on all activities that do not hold an MDL Code

Thick Client Metrics & Indicators – How do they work? (Cont'd)

MDL Tier w/Budget

*Pop MDL Tier w/Budget Indicators #1

Looks for activities that have an MDL code (other than the top-level of PE, RW, CN) and a WorkOp code and flags those that have a budgeted cost applied with a green indicator; Also removes all other indicators from all other activities

*Pop MDL Tier w/Budget Indicators #2

Looks for activities that have an MDL code (other than the top-level of PE, RW, CN) and a WorkOp code and flags those that DO NOT have a budgeted cost applied with a yellow indicator

Results:

The MDL Tier w/Budget process results in:

- A green indicator placed on all activities that hold an MDL Code AND a WorkOp Code AND budgeted cost
- A yellow indicator placed on all activities that hold an MDL Code AND a WorkOp Code AND NO budgeted cost
- A blank indicator for all other activities

Thick Client Metrics & Indicators – How do they work? (Cont'd)

MDL Tier w/Actuals

*Pop IP/Comp MDL Tier w/AC Indicators #1

Looks for ALL activities that have an MDL code (other than the top-level of PE, RW, CN) and a WorkOp code and flags those that have an actual cost applied with a green indicator; Also removes all other indicators from all other activities

*Pop IP/Comp MDL Tier w/AC Indicators #2

Looks for In-Progress and Completed activities that have an MDL code (other than the top-level of PE, RW, CN) and a WorkOp code and flags those that DO NOT have an actual cost applied with a yellow indicator

Results:

The MDL Tier w/Budget process results in:

- A green indicator placed on all activities that hold an MDL Code AND a WorkOp Code AND actual cost
- A yellow indicator placed on all In-Progress and Completed activities that hold an MDL Code AND a WorkOp Code AND NO actual cost
- A blank indicator for all other activities

Thick Client Metrics & Indicators – Results

Every appropriate activity in your schedule will hold an indicator for each metric discussed above allowing simplified identification of potential problems or inconsistencies

Open the activity layout "QC – Metric Indicators (Thick Client)" to view results

Layout: QC - *Metric Indicators (Thick Client) | Filter: All Activities

Activity ID	Activity Name	*Baseilne Finish Variance	*MDL Assignments	*MDL Tier w/Actual Cost	*MDL Tier w/Budget	*Responsibility Coverage	*Standard Activity Settings	*Critical Path Hindered
A01818U	**SR 18/Issaquah-Hobart Rd. - Retaining Wall Repair**							
A01818U.PE	**Preliminary Engineering**							
PE-ACT	PE Actual Costs							
A01818U.PE.PM	**General Project Management & Overhead - Preliminary Engineering**							
A01818U.PE.PM.01	**Begin Preliminary Engineering**							
0015	Begin Preliminary Engineering		✓			!	!	!
A01818U.PE.PM.02	**Project Management and Overhead**							
0025	General Project Management (Project Office)	!	✓	!	✓	✓	!	!
0035	Environmental Project Management and Overhead	!	!			!	!	!
0040	Redistributed PE Project Management and Overhead (HQ & Region) (LOE)	!	✓	!	✓	!	!	!
0041	Project Contingency		!			!	!	!
A01818U.PE.PM.03	**Project Management Plan Development & Maintenance**							
0065	WSDOT Project Management Plan (PMP)		✓	✓	✓	✓	✓	✓
0070	PMP Endorsement		✓			!	!	✓
0075	Project Handoff	✗	!			!	✓	✓
A01818U.PE.PS	**Project Planning and Scoping**							
A01818U.PE.PS.01	**Preliminary Estimates & Schedules**							
0160	PE Estimate		✓	!	!	!	✓	✓
0165	RW Estimate		✓	!	!	!	✓	✓
0170	CN Estimate		✓	!	!	!	✓	✓
A01818U.PE.PS.03	**Public Involvement for Planning**							
0210	Public Involvement	!	✓	!	✓	!	!	✓
A01818U.PE.PS.07	**Pre-Design Study**							
0290	Pre-Design Study		✓	!	✓	!	✓	✓
A01818U.PE.PS.08	**Project Summary**							
0300	Project Definition		✓	!	!	!	✓	✓
0305	Design Decisions Summary		✓	!	!	!	✓	✓
0310	Environmental Review Summary		✓	!	!	!	✓	✓