

# (OWN-2509) Program Level Scheduling - Enterprise Alignment for Programmatic and CPM Schedules

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## Brian Criss, PSP – Biography

### Degree and University:

- B.A., History – University of California, Los Angeles
- M.A., Education – Azusa Pacific University

### Years of Experience:

- 18 years experience in Project Controls

### Professional Field:

- Vice President, Professional Services at DR McNatty & Associates



## John Blodgett – Biography

### Degree and University:

- Political Science and Environmental Studies - USC

### Years of Experience:

- 20 years Experience in Project Management / Project Controls

### Professional Field:

- Manager of Electric Distribution Project & Construction Management at PG&E



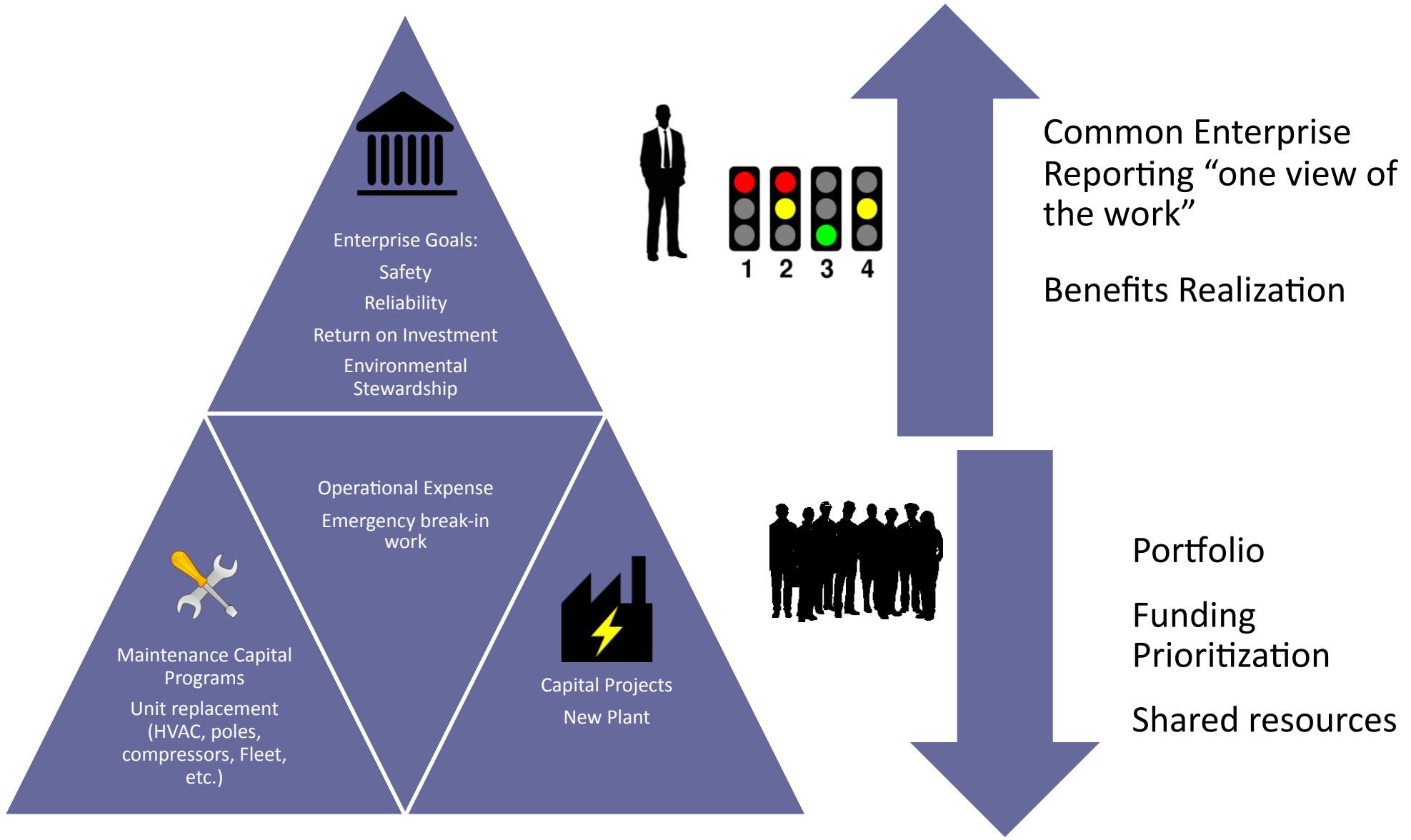
# The Starting Point....





# What we want to achieve in Program Level Scheduling!







1. Singular in purpose
  - All details pertain to just the single project for which the schedule is being developed.
2. Details...Details....Details
  - Lots of activities, relationships
3. Heavy emphasis on traditional schedule metrics such as activity Total Float
4. Strong aversion to activity constraints

# Consider the flow of projects



Project Timeline



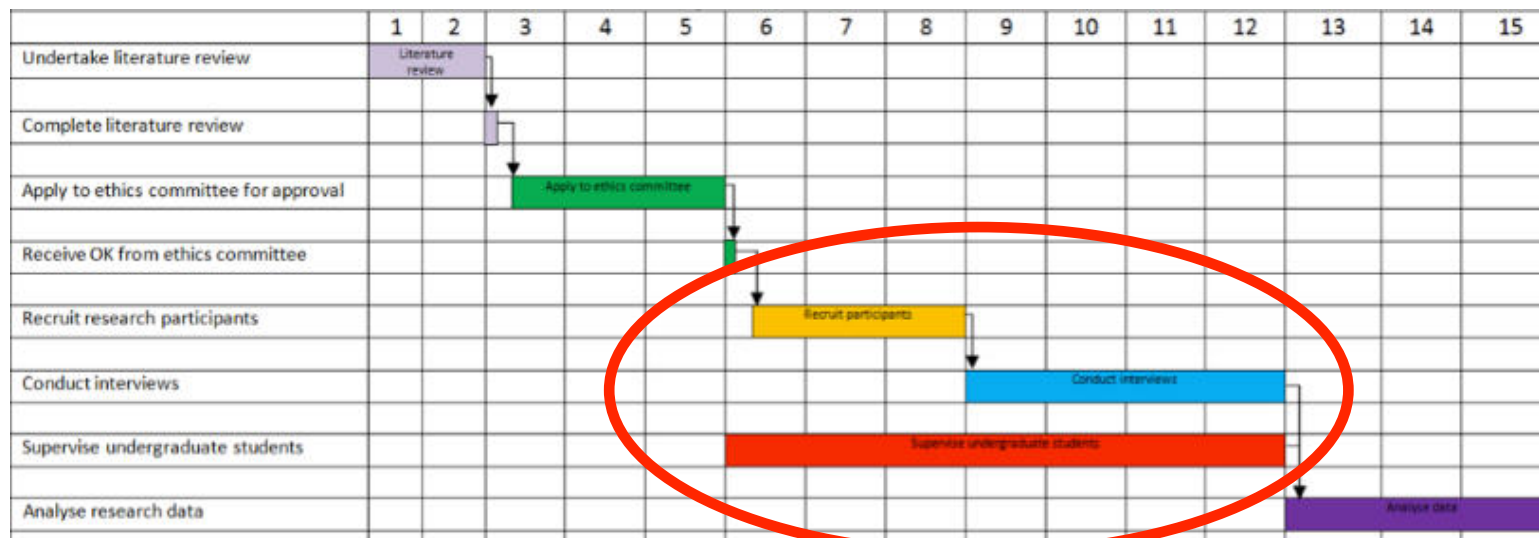
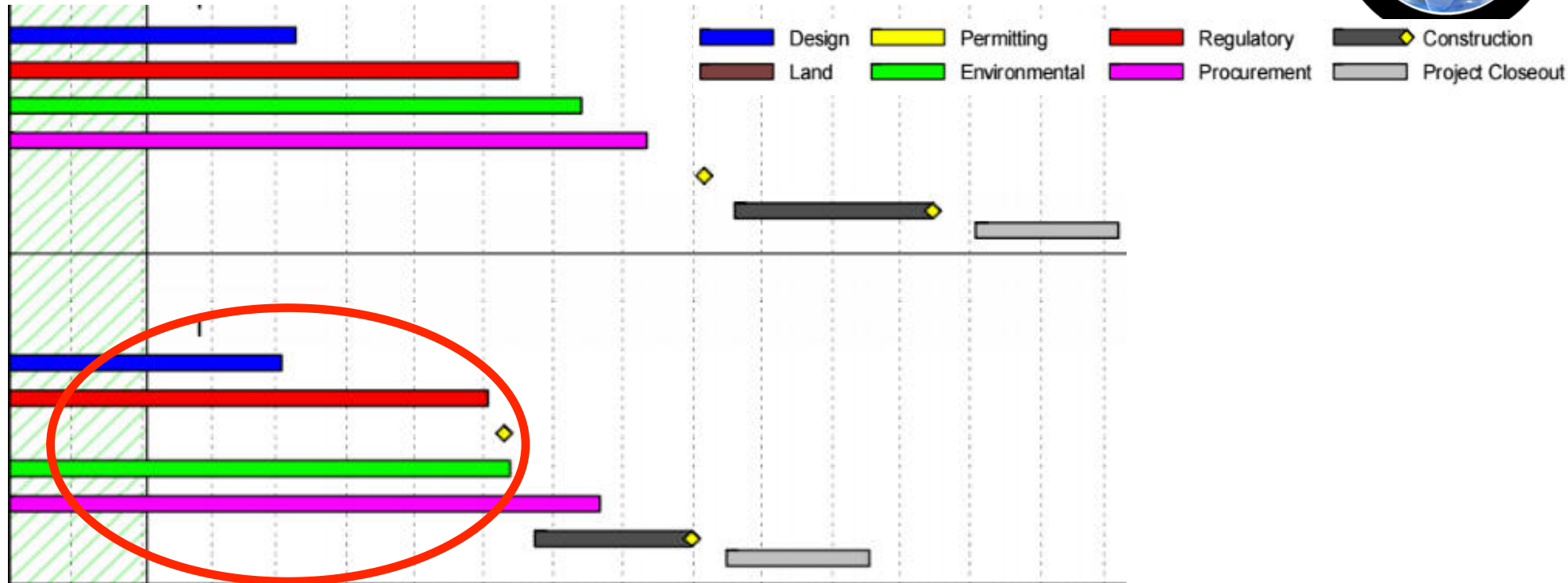
- **Clear transition (“Handoff”) among gates**
- **Roll up of information to a single row should be clean and simple to read**



- **Project Lifecycle (WBS)...more important than details**
- **Focus on Key Milestones & Handoffs**
- **More general in their scope descriptions**
  - *This allows programs to track different projects*
- **Use all available options found in P6**
  - *Constraints / Expected Finish / UDF's / Steps / Notebooks / Issues / Custom Bars*

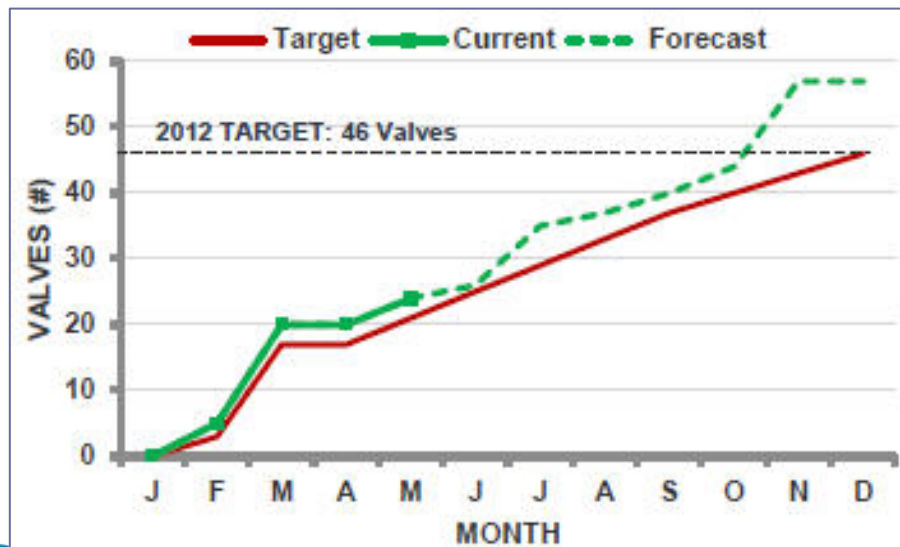
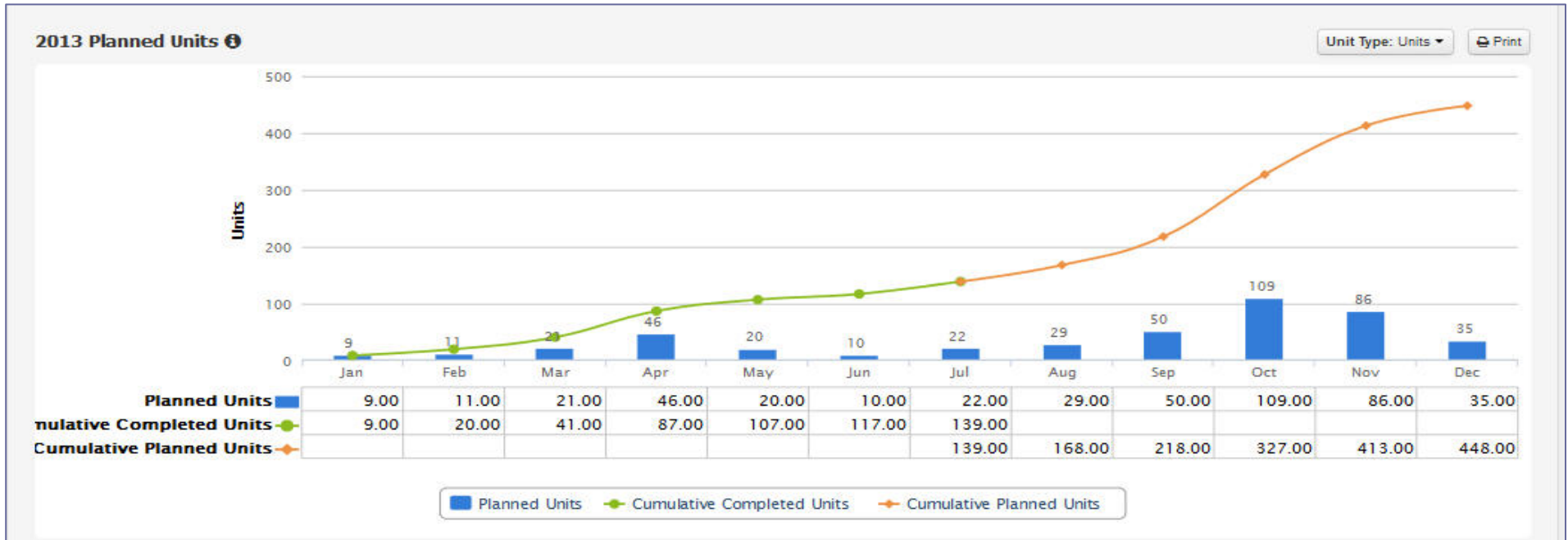


# Can we effectively Summarize??





## – Planned vs. Actual Samples



1. Identify Trends in Production
2. Are targets achievable based on performance?
3. Can corrective action be taken?

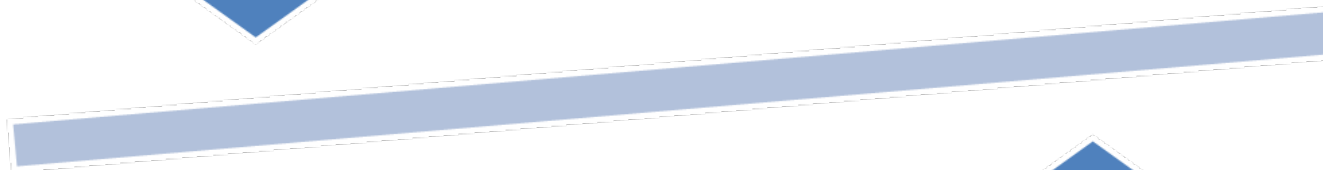


# Programmatic Schedules allow Project Controls to serve two masters



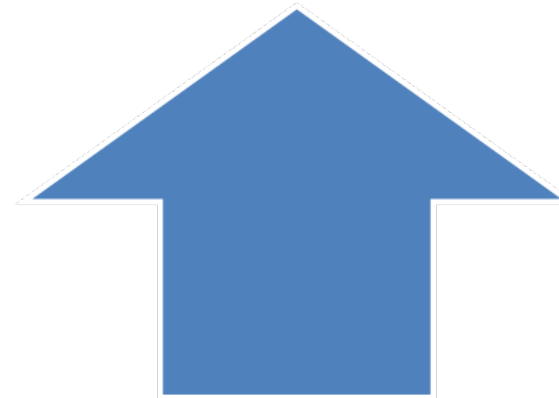
## Executive requirements

- Top-down command and control
- Providing visibility to simplify vast amounts of data down into focus areas
- Providing resources
- Decision-making to select projects
- Enforcement of Standards



## Project Manager needs

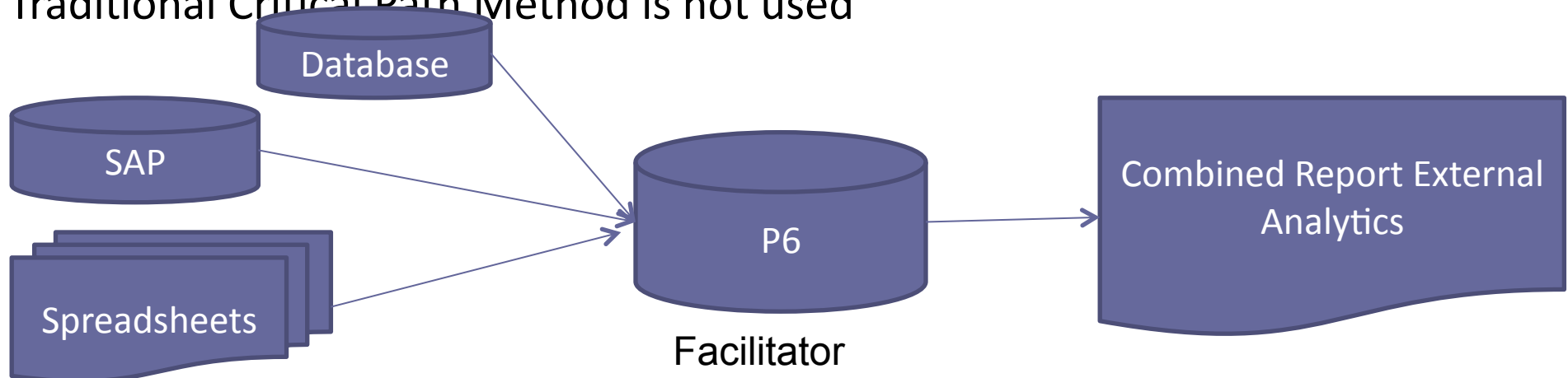
- Buy-in and consensus to use tools
- Execution, milestones, and resource utilization
- Providing real-time updates and data
- Acceptance of Standards while balancing uniqueness of projects



# Why use P6?



- Grouping: using project or activity codes to group by different categories (Project Manager, City, Status)
- Sorting: pinpoint issues based on quantitative values
- Filtering: Isolate and simplify data
- Time-phasing: lay out time-phased milestones, cost plan, and resources to visualize issues
- Baseline: Using multiple baseline capabilities to show change and trend.
- UDFs and Layouts: used to graphically show dates and dependencies in Gantt or other graphics
- Traditional Critical Path Method is not used





# Initial Setup of Projects



## Project Level Information

Project ID	Project Name	Responsible Manager	PMIS Project Manager	Measure R Project
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>462316 I-710 South</li> <li>463314 I-605: I-605/SR-60 - Interchange Improvements</li> <li>466314 I-605: I-605/I-405 - Interchange Improvements</li> <li>464314 I-605: I-710/SR-91 - Interchange Improvements</li> <li>463316</li> <li>463416</li> <li>463516</li> <li>462314 I-605: I-605/SR-91 - Interchange Improvements</li> <li>467314 I-605 Hot Spots Arterial Improvements - Whittier</li> <li>468314 I-605 Hot Spots Arterial Improvements - La Mirada</li> <li>469314 I-605 Hot Spots Arterial Improvements - Long Beach</li> <li>468314-A I-605 Hot Spots Arterial Improvements - Cerritos</li> <li>469314-A I-605 Hot Spots Arterial Improvements - Bellflower</li> <li>460336 I-5 South: Alondra Blvd Overcrossing</li> <li>460341 I-5 South: Carmenita Road Interchange</li> <li>460337 I-5 South: Valley View Interchange</li> <li>460338 I-5 South: Shoemaker-Rosecrans-Bloomfield</li> <li>460334 I-5 North: Segment 3 - Buena Vista to Magnolia</li> <li>460327 SR-71 Gap: I-10 to Mission</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Highway Program Detailed Schedules</li> <li>Measure R Highway - Working Schedules</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Highway Detail</li> <li>Highway_PS</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Chaves</li> <li>Chaves</li> <li>Chaves</li> <li>Delgadillo</li> <li>Delgadillo</li> <li>Delgadillo</li> <li>Delgadillo</li> <li>Alvarez</li> <li>Alvarez</li> <li>Alvarez</li> <li>Alvarez</li> <li>Alvarez</li> <li>Alvarez</li> <li>Alvarez</li> <li>Gau</li> <li>Gau</li> <li>Gau</li> <li>Gau</li> <li>Antaramian</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>710S</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>SW</li> <li>SW</li> <li>SW</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>1605</li> <li>15 N</li> <li>SR-71</li> </ul> </li> </ul> </li> </ul> </li> </ul>

**Capture ALL projects!!!**

**Unique Project ID's**

**Use Project Codes for Group/Sort/Filter**



- Project Codes provide excellent visibility within P6 and should be highly developed in working with Program Schedules.

Project Code	Code Value	Code Description
Budget Scenario (Dist)	Future	Future
City	Livermore	Livermore
Contractor	GC/Distribution	GC/Distribution
County	Alameda	Alameda
District / Division	Mission	Mission
Division	Mission	Mission
MAT Code	47B	Cons/Acq New Fac-G-Cap-Mains
MWC	47	G Dist Capacity
Operative Year	2017	2017
Organization	BASE PM	BASE PM
Primary Unit of Measure	Miles	Miles
Project Analyst	Lewis, A	Anitra Lewis
Project Engineer	Samardzic, V	Viktorija Samardzic
Project Manager	Sanchez, T	Tania Sanchez
Project Type	Distr.CAPAC	Capacity
Region	Bay	Bay Area
User Status	CLSD	Closed



- Visibility at the Activity level in P6
- Group and sort Activities
- Display as columns in Layouts

Activity ID	Activity Name	Budget Scenario (Dist)	District / Division	Project Manager	M/V/C	MAT Code	User Status	Project Type	SCADA Type	Start	Finish
▣	<b>35TH AVE &amp; SALISBURY</b>	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	01-May-15 A	09-Dec-15
	Design /Estimating	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	01-May-15 A	03-Aug-15 A
	Project Environmental Review / Permitting	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	14-Jul-15 A	21-Sep-15
	Land Review	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	24-Aug-15	21-Sep-15
	Project Authorization	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	22-Sep-15	28-Sep-15
	Pre-Construction	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	25-Sep-15	16-Oct-15
	Construction	2016	E Bay	Price, J	4A	4AA	PEND	SCADA.SCADA-1	Type 1N	19-Oct-15	09-Dec-15
▣	<b>6TH AND ESPLANADE</b>	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	09-Feb-15 A	08-Feb-16
	Design /Estimating	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	09-Feb-15 A	30-Sep-15
	Project Environmental Review / Permitting	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	31-Jul-15 A	07-Oct-15
	Land Review	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	24-Aug-15	04-Sep-15
	Project Authorization	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	31-Aug-15	07-Oct-15
	Pre-Construction	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	30-Sep-15	19-Oct-15
	Construction	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	22-Oct-15	02-Dec-15
	Close Out	2016	N Valle	Wittman C	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	03-Dec-15	08-Feb-16
▣	<b>PLYMOUTH &amp; SAGAMORE</b>	2016	S Fran	Digilov J	4A	4AA	ESTS	SCADA.SCADA-1	Type 1N	01-May-15 A	27-Apr-16



Should be simple and applicable to ALL projects

- Creates Standards for tracking progress
- Use “General” Terminology
- Capture phases or life cycle of work within the program
- Use P6 WBS Categories if needed





# P6 WBS Categories



Used to Create Standards for WBS elements

Activity ID	Activity Name	WBS Categories	WBS Name
<b>Project: R-XXX-13 Replace Template</b>			
<b>WBS Categories: Planning</b>			
R13XXX.000	Planning	Planning	Planning
R13XXX.01010	Project Kick-Off	Planning	General Coordination
R13XXX.01020	Table Top Review	Planning	General Coordination
R13XXX.01030	Design Job Walk	Planning	General Coordination
R13XXX.02010	Customer Pre-Event Letters Mailed	Planning	Outreach
R13XXX.02020	Hold Open House(s)	Planning	Outreach
R13XXX.02030	Pre-Clearance IVR	Planning	Outreach
R13XXX.02050	Tie-In IVR	Planning	Outreach
R13XXX.02060	Post Event Letters	Planning	Outreach
R13XXX.01040	All Project Activities Complete	Planning	General Coordination
<b>WBS Categories: Make Ready</b>			
R13XXX.001	Engineering	Make Ready	Engineering
R13XXX.03010	Prepare 30% Design Package/Obtain As-Built Drawings	Make Ready	Preliminary Engineering
R13XXX.03020	30% Design Available	Make Ready	Preliminary Engineering
R13XXX.03015	Identify Long Lead Times and Send To Procurement	Make Ready	Preliminary Engineering
R13XXX.03040	Prepare 60% Design Package	Make Ready	Preliminary Engineering
R13XXX.03030	Initial CNG Evaluation	Make Ready	Preliminary Engineering
R13XXX.03050	60% Design Available (Issue for Permit)	Make Ready	Preliminary Engineering
R13XXX.003	Land	Make Ready	Land
R13XXX.10010	Identify Temp Construction/Laydown Areas/Land Access Issues	Make Ready	Land Access/Rights
R13XXX.002	Permitting	Make Ready	Permitting

# Importance of Standards in the Program Schedule



WBS Standard	Building a House	Baking a Cake
Initiate	Is a new home a good idea?	Do we need a cake for an upcoming event?
Plan / Analyze	Single or two story? Do we have a lot to build on?	Chocolate or lemon? How much do we want to spend?
Design	Home construction drawings, plan to build and costs.	Decision on size and flavors for cake along with costs to bake.
Execution	Build it!	Bake it!
Close	Final Documents and close out accounting	Clean up mess!

# Document project templates



For the templates to be effective, ALL must understand the meaning!

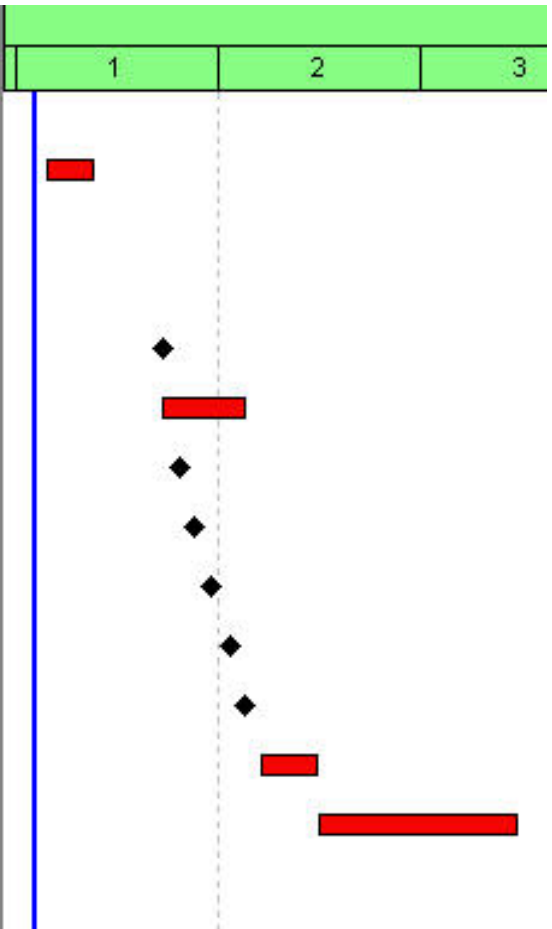
The screenshot displays a software interface for a project management template. The title bar shows 'TEMPLATE.05' and the main window title is 'Estimating and Project Authorization'. Below the title bar is a navigation menu with tabs: 'General', 'Notebook', 'Planning Resources', 'Budget Log', 'Spending Plan', 'Budget Summary', 'WBS Milestones', 'WPs & Docs', and 'Earned Value'. The 'Notebook' tab is active, showing a 'Notebook Topic' list with 'Scope' selected. The main content area is titled 'Scope' and contains a section for 'Key Deliverables' with the following list:

- Estimator receive SOW from Engineer
- Summary of Business Case
- Receive any available drawings
- Produce an overall cost for the project (Cost Detail Report)
- Final output is JE (Job Estimate)
- Route final estimate for approval from key stakeholders.



## Keep Simple...Document Assumptions

Activity ID	Activity Name	Original Duration	Start	Finish	Activity Count			
						1	2	3
<b>Base Template</b>		732d	01-Mar-13	29-Jan-16	33			
+ Initial Planning		60d	01-Mar-13	24-May-13	5			
+ PA&ED		121d	31-May-13	21-Nov-13	5			
- PS&E		100d	24-Sep-13	20-Feb-14	7			
100M210	Begin Design	0d		24-Sep-13	1			
1001820	PS & E	100d	25-Sep-13	20-Feb-14	1			
100M265	Final right of way requirements	0d		22-Oct-13	1			
100M311	30% Const Review Completed	0d		20-Nov-13	1			
100M313	60% Const Review Completed	0d		20-Dec-13	1			
100M315	95% Const Review Completed	0d		22-Jan-14	1			
1001930	Finish PS&E	0d		20-Feb-14	1			
+ ROW		71d	20-Mar-14	30-Jun-14	5			
+ Construction		244d	01-Jul-14	22-Jun-15	8			
+ Closeout		150d	23-Jun-15	29-Jan-16	3			





# P6 Activity Steps



Good place for the Details!

General | Status | Steps

Activity: MP100-112 | Delevan-Cortina 230kV - Dist'n - Steel Structures

Step Name	Completed	Cost	Duration
All Ordered			
All Received			
All Materials Delivered to Yard			
Did you update brief scope in contract layout?	<input type="checkbox"/>		
did you send this to Land for Desktop review?	<input type="checkbox"/>		

General | Status | Steps

Activity: MM1200-901 | Grant-Eastshore #1 & 2 115kV - All Construction Contracts Awarded

Step Name	Completed
Supply IFC Drawing to Contracts Group	<input type="checkbox"/>
Supply Schedule to Contracts Group	<input type="checkbox"/>
Supply RTC Details to Contract Group	<input type="checkbox"/>
Kick Off Meeting	<input type="checkbox"/>
Request for Proposal Issued	<input type="checkbox"/>
Bids Received	<input type="checkbox"/>
Bids Evaluated	<input type="checkbox"/>
RTC Issued and sent to Contracts Group	<input type="checkbox"/>
Clarification completed	<input type="checkbox"/>
Contract Awarded	<input type="checkbox"/>
Contract Executed	<input type="checkbox"/>

General | Status | Steps

Activity: 11122 | 30-60% Design

Step Name	Completed
Structure Check Sheet	<input type="checkbox"/>
Structure/Foundation Analysis	<input type="checkbox"/>
Structure (TSP) Requirement Drawing	<input type="checkbox"/>
Final Scope	<input type="checkbox"/>
Job Estimate	<input type="checkbox"/>
Final Job Walkdown Notes	<input type="checkbox"/>
F-1004 Form	<input type="checkbox"/>
Material List	<input type="checkbox"/>
EMM	<input type="checkbox"/>



More frequent the Better!

- Why are more frequent update beneficial
  - Keep pace with the changing nature of the program
  - Often reporting cycles are weekly (meetings, etc.)
  - Repetition breeds efficiency
  - Accurate update information more readily available





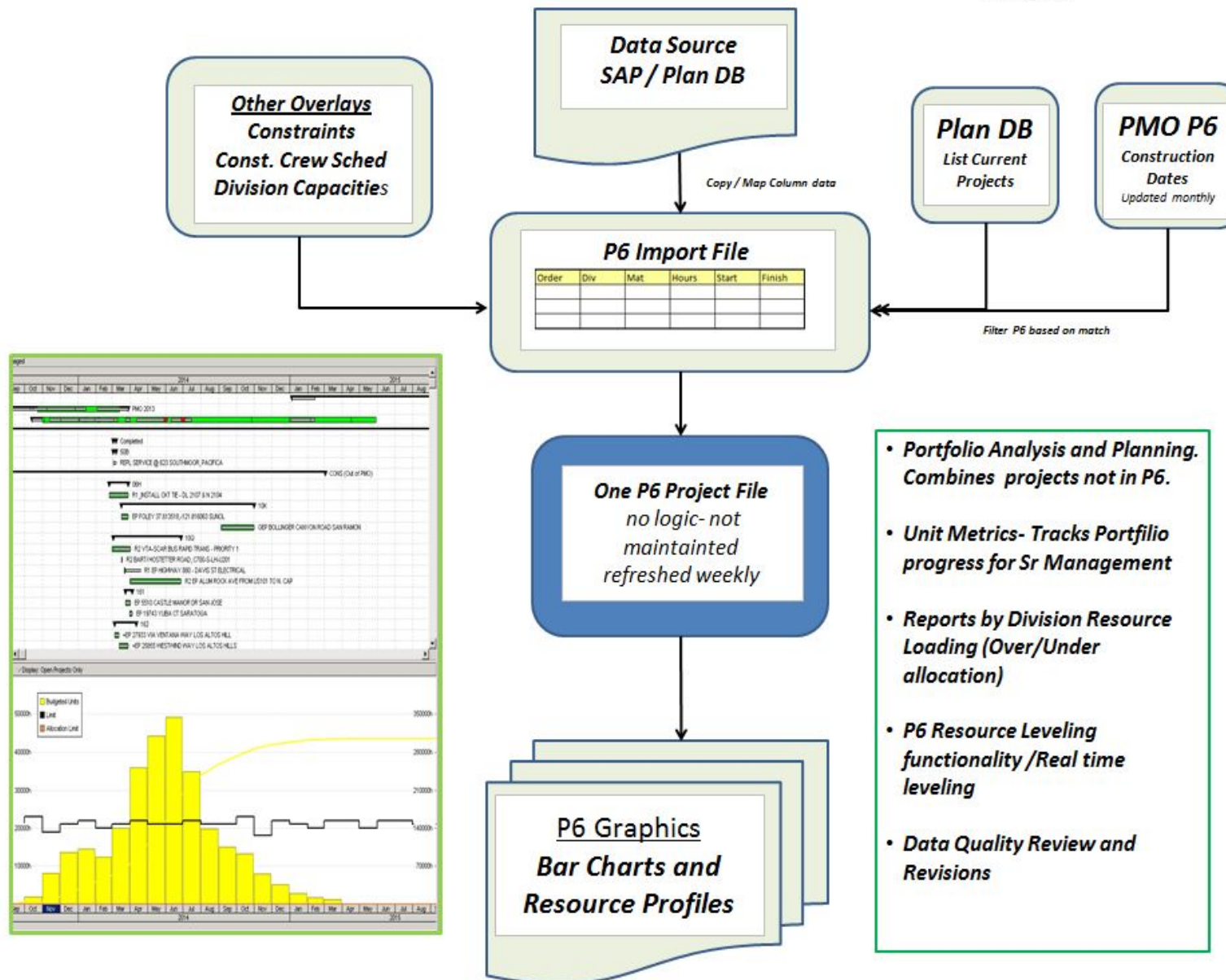
Everyone must do their part

- **Keep it Clean!**
  - ✓ **Populate all required Project/Activity Codes**
  - ✓ **Avoid UDF's that mirror default fields**
    - **“Responsible Manager” or “Status”**
  - ✓ **Only maintain 1 version of the project**
    - **If “what-if” plans are required, use the status function.**

# Consolidated Schedules

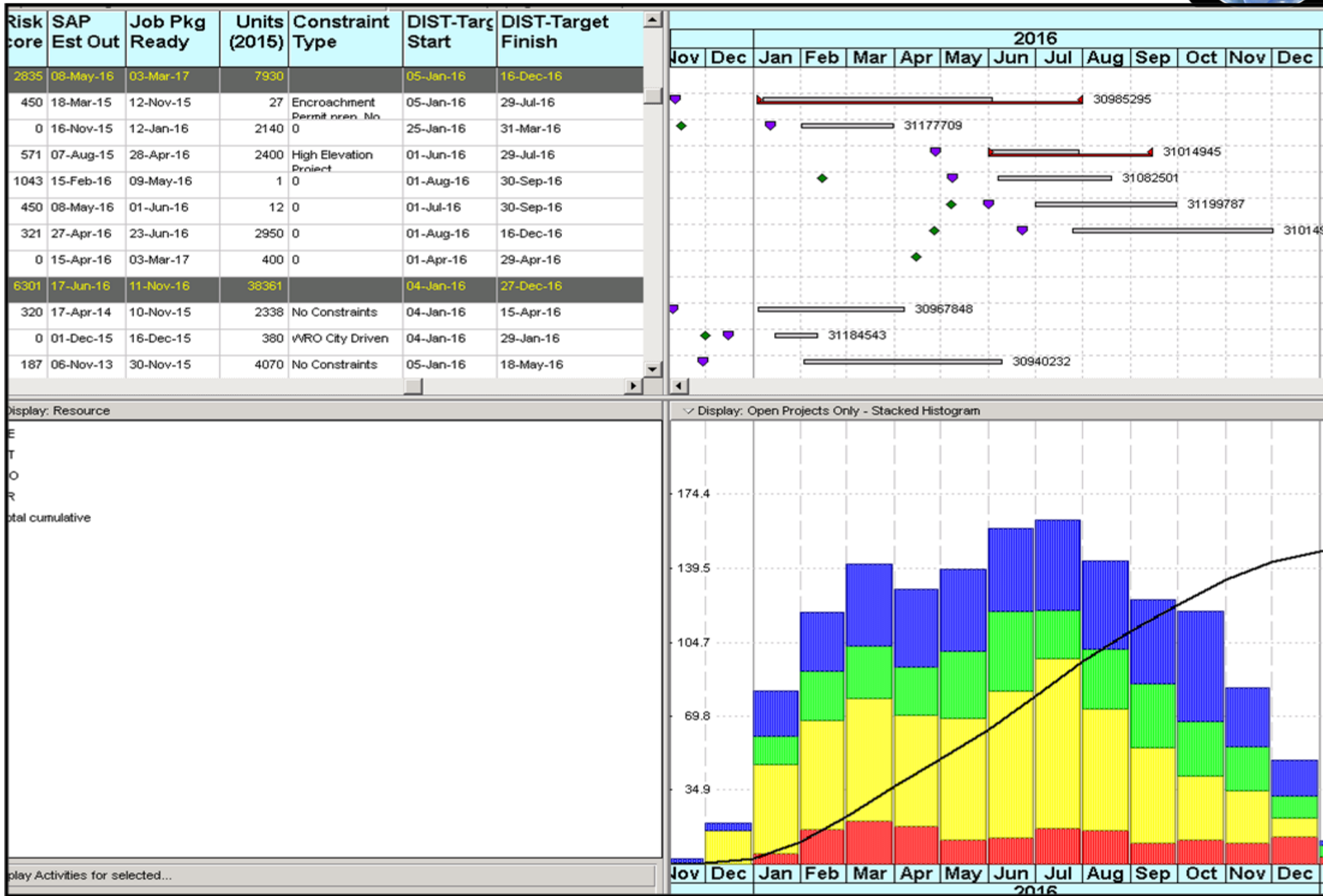


Excellent way to simplify the output of program information

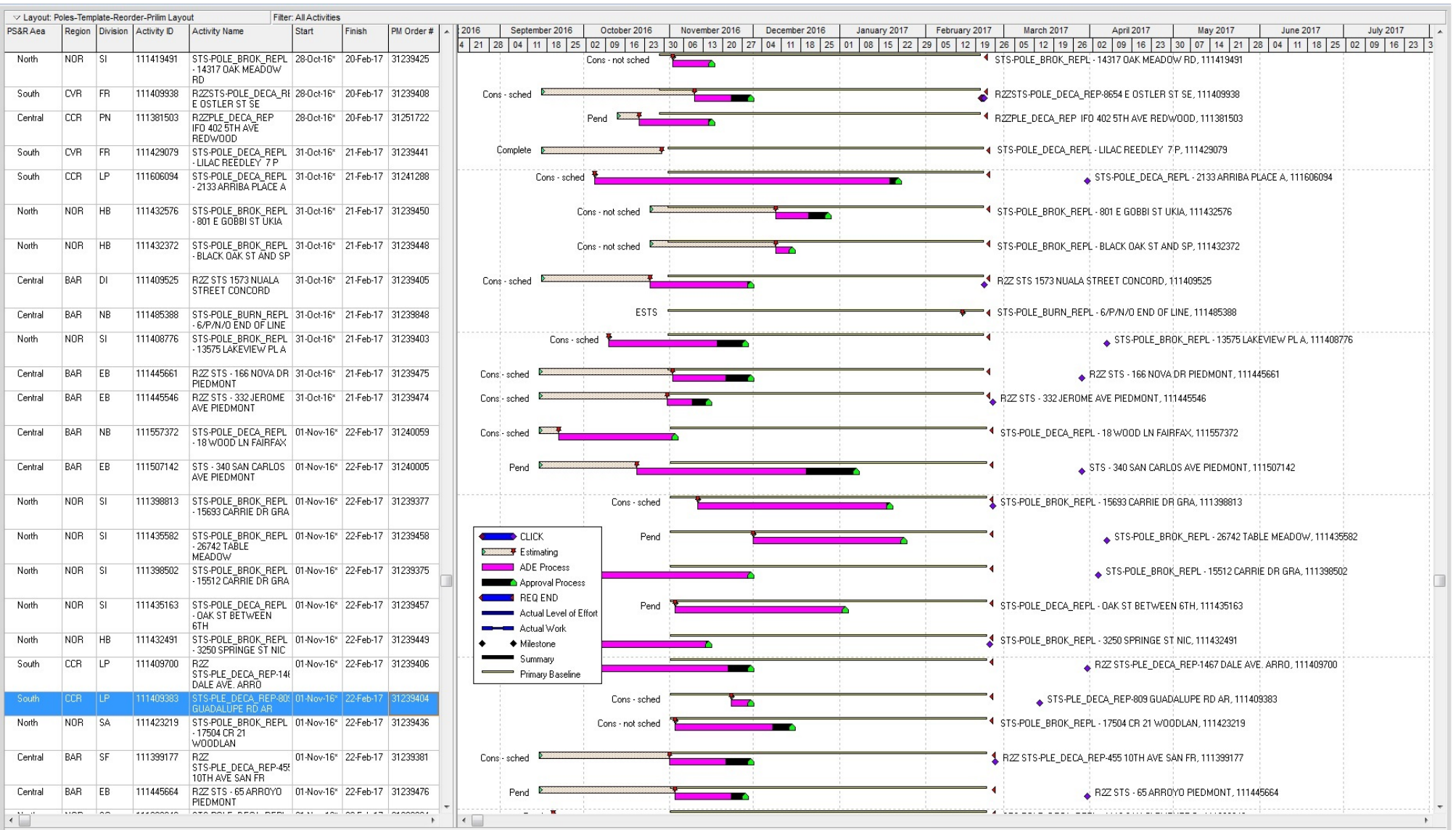




# Success Examples!



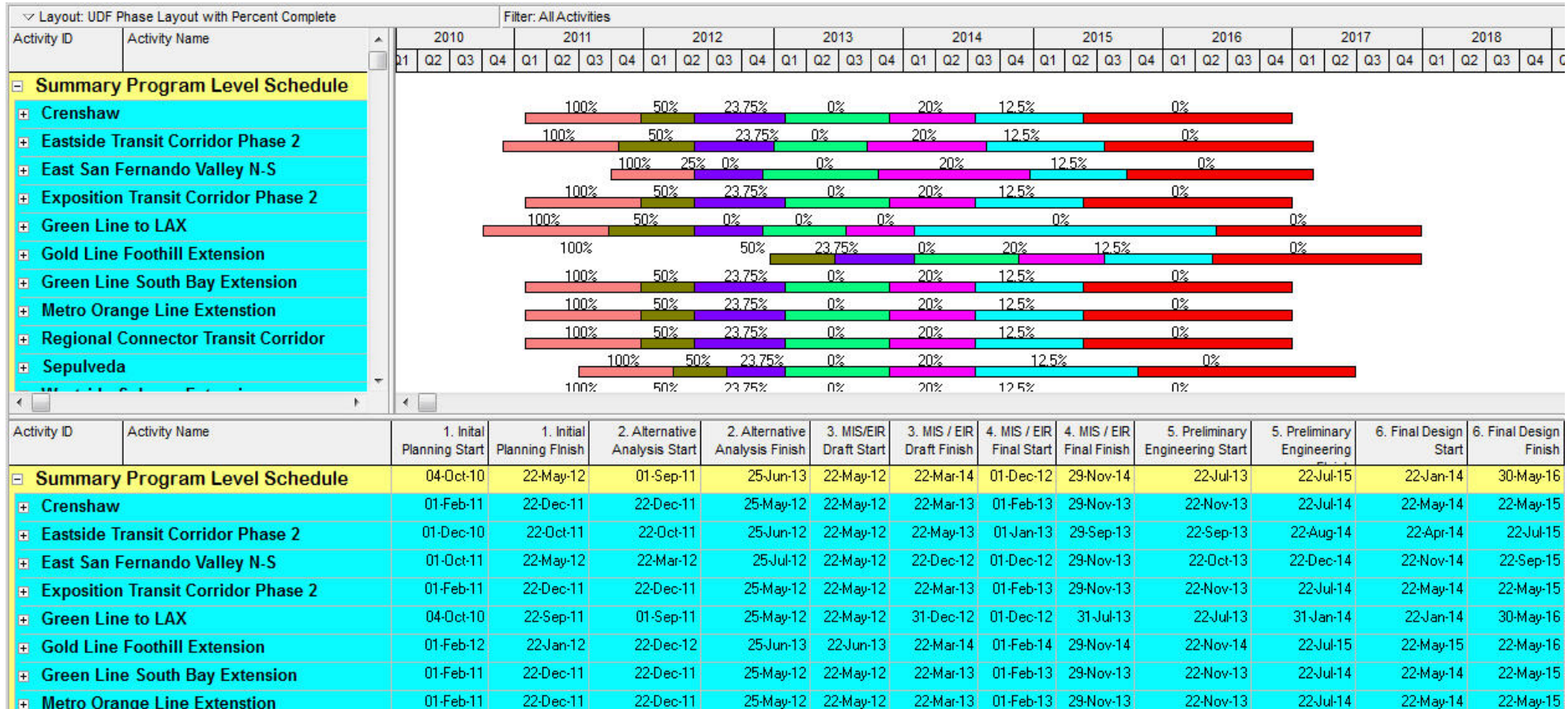
# Using Custom UDF Bars – Consolidated Schedule



# Summary Schedule Results



Bring Project Details to a single row





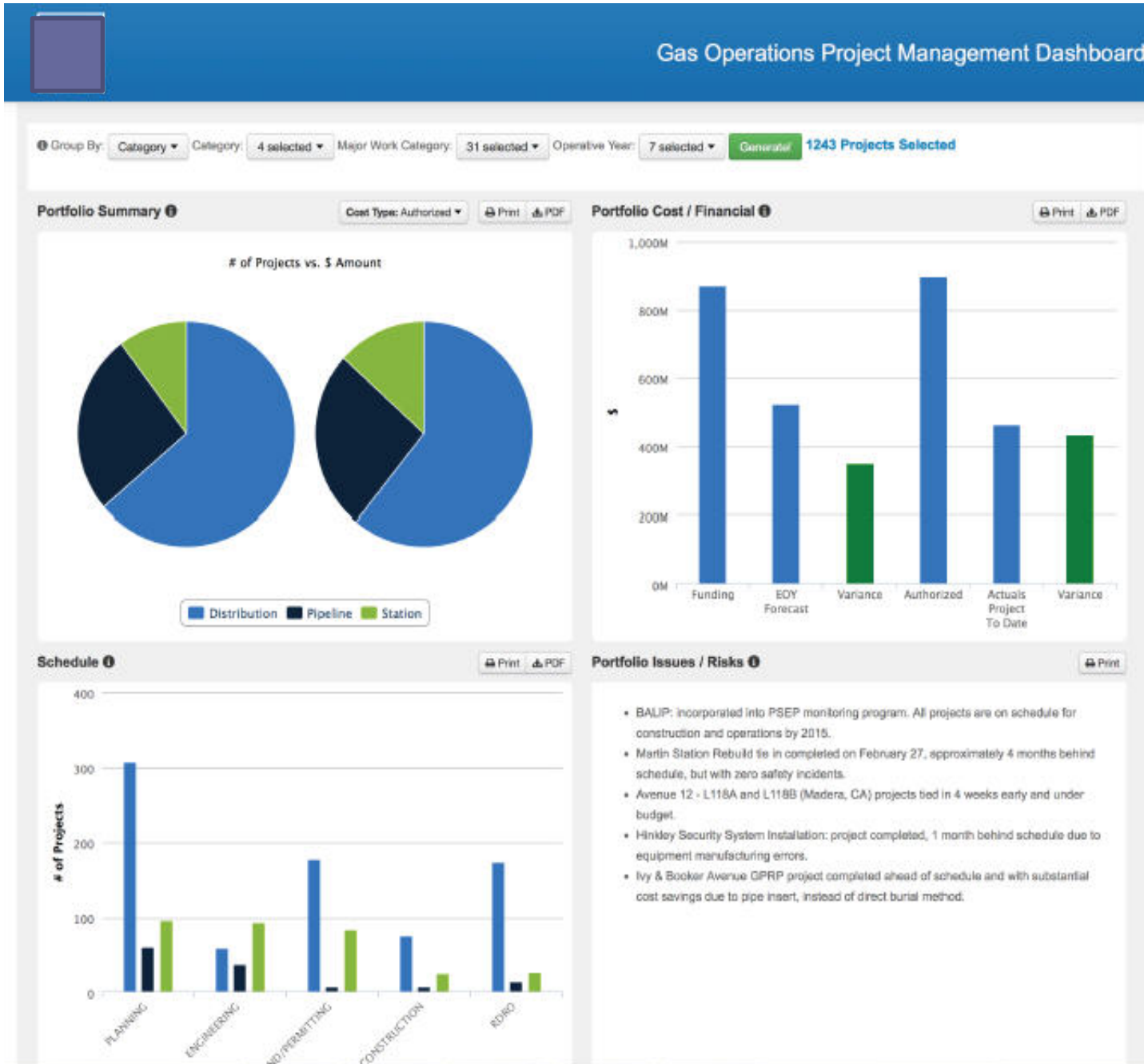
# Success Examples!



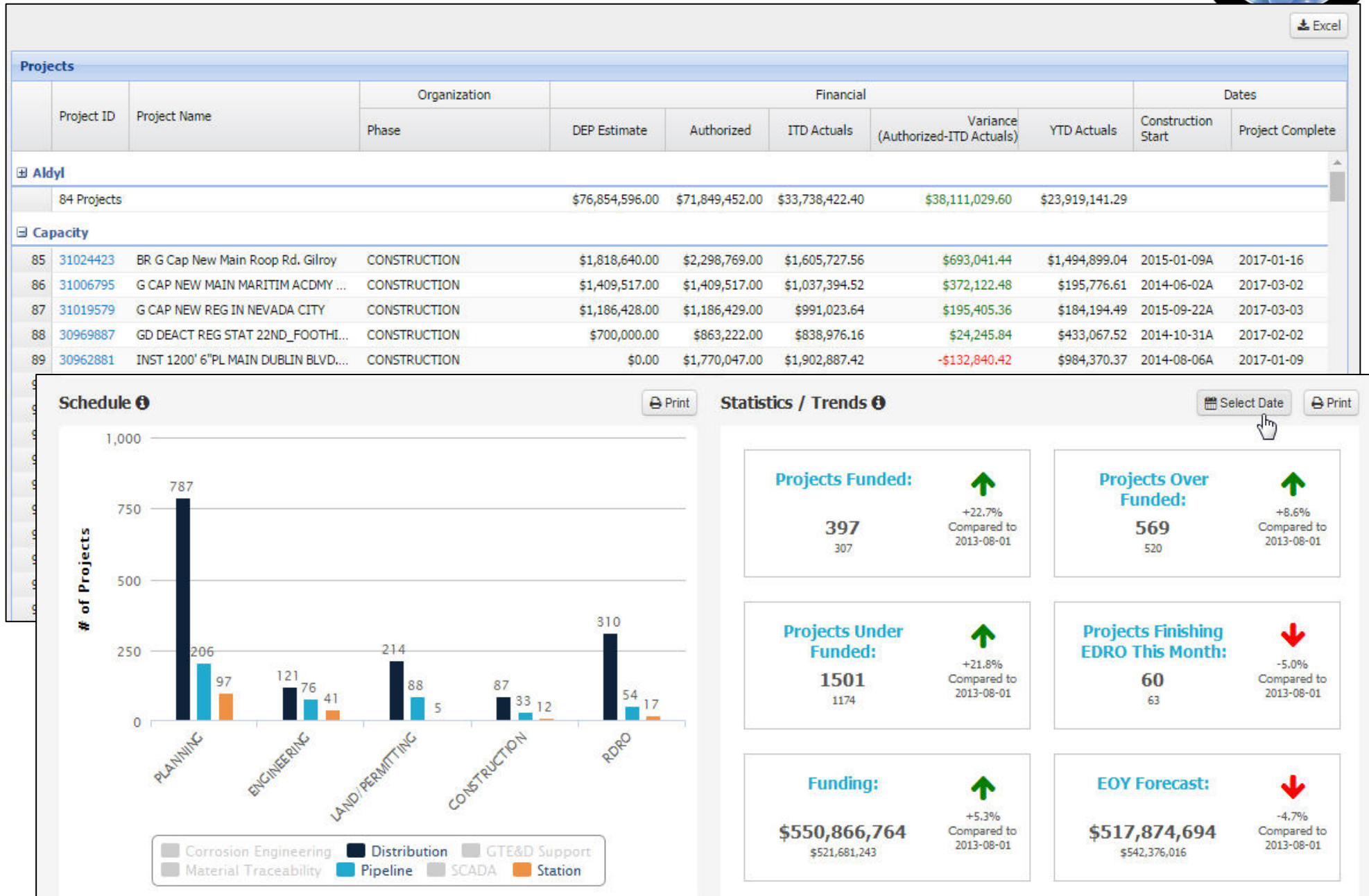
	DIST-M	Dist PM Name / Owner	Est Out	Job Pkg Ready	Start	Finish	ST-Units	2016														
								Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
			30-Sep-16	26-Sep-16	07-Jan-16	06-Mar-17	74804															
			10-Jun-16	01-Sep-16	11-Jan-16	06-Mar-17	52881															
			14-Apr-14	04-Jan-16	11-Jan-16	28-Apr-16	7030															
OAK	14D	Joe Rivas	14-Apr-14	01-Dec-15	11-Jan-16*	22-Mar-16	1730															
	14D	Joe Rivas	27-Aug-13	04-Jan-16	18-Jan-16*	28-Apr-16	5300															
			09-Oct-14	22-Jan-16	09-Feb-16	01-Apr-16	3067															
AKLND	14A	Tania Sanchez	09-Oct-14	21-Jan-16	09-Feb-16*	01-Apr-16	1555															
OAK	14D	Joe Rivas	15-Jul-13	22-Jan-16	15-Feb-16*	16-Mar-16	1512															
			29-Feb-16	22-Apr-16	02-May-16	06-Mar-17	20439															
AND	14D	Joe Rivas	04-Jun-14	08-Apr-16	02-May-16*	14-Sep-16	5314															
B278	14D	Joe Rivas	12-Feb-16	08-Apr-16	02-May-16*	05-Dec-16	5200															
OND	14A	Tania Sanchez	23-Jan-15	04-Apr-16	03-May-16*	30-Aug-16	2825															
	14D	Joe Rivas	29-Feb-16	22-Apr-16	16-May-16*	06-Mar-17	7100															
			11-Mar-16	19-May-16	20-Jun-16	19-Jul-16	1050															
ITE	14A	Joe Rivas	11-Mar-16	19-May-16	20-Jun-16*	19-Jul-16	1050															
			07-Apr-16	16-Jun-16	05-Jul-16	15-Nov-16	6800															
AND	14D	Joe Rivas	18-Mar-16	10-Jun-16	05-Jul-16*	16-Sep-16	1800															
MARY	14A	Joe Rivas	07-Apr-16	16-Jun-16	11-Jul-16*	15-Nov-16	5000															
			29-Apr-16	29-Jul-16	22-Aug-16	12-Dec-16	2700															
335025	14D	Joe Rivas	29-Apr-16	29-Jul-16	22-Aug-16*	12-Dec-16	2700															
			10-Jun-16	01-Sep-16	12-Sep-16	30-Dec-16	11795															
	14A	Joe Rivas	06-May-16	09-Aug-16	12-Sep-16*	20-Sep-16	445															



# Integrated Reporting Sample



# Reporting Dashboard Solutions



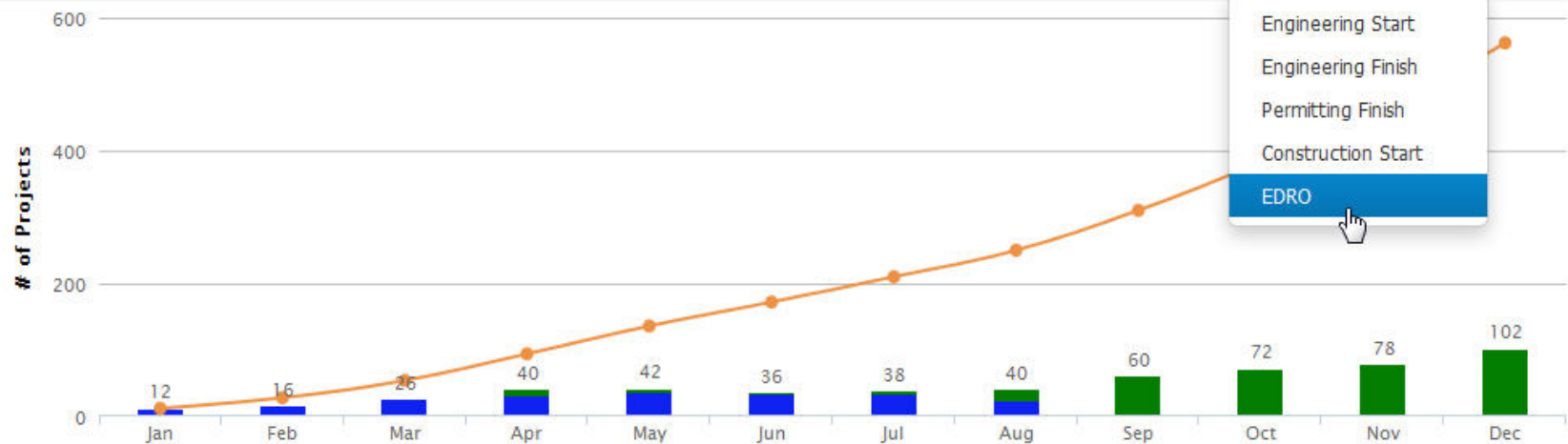
# Time Distributed Data



Activity Name	Budgeted Costs (in Millions)	2013			2014				2015				2016		
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>Total</b>		\$854	\$1,824	\$1,742	\$1,323	\$1,442	\$1,165	\$1,171	\$1,351	\$1,290	\$1,785	\$1,666	\$1,584	\$1,635	\$1,421
<b>Rail Rail Expansion Projects</b>		\$593	\$824	\$754	\$371	\$340	\$308	\$594	\$344	\$305	\$358	\$355	\$325	\$397	\$489
Rail Contingency Project		\$27	\$28	\$28	\$27	\$27	\$28	\$28	\$27	\$27	\$28	\$28	\$27	\$27	\$28
1A - Exposition Blvd Light Rail Transit: Culver to Santa Monica		\$337	\$439	\$266	\$82	\$71	\$56	\$28	\$8						
1C - Regional Connector Projects							\$28	\$28	\$27	\$28	\$63	\$49	\$11	\$27	\$27
1G - Green Line Extension: Redondo Beach Station to S. Bay Corridor															
1O - Eastside Light Rail Access - Gold Line		\$1	\$2	\$1											
1F - Gold Line Foothill Light Rail Transit Extension		\$40	\$20	\$17	\$25	\$75	\$36	\$36	\$34	\$29	\$34	\$31	\$28	\$28	\$28
1L - San Fernando Valley I-405 Corridor Connection															
1I - San Fernando Valley North-South Roadways (Canoga Corridor)															
1J - San Fernando Valley East North-South Roadways															
1B - Crenshaw Transit Corridor - Project Acceleration		\$38	\$79	\$68	\$31	\$21	\$33	\$88	\$42	\$43	\$43	\$57	\$64	\$57	\$52

2013 Milestone by Month

Year: 2013 Milestone: EDRO Print



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Planned Projects</b>	0	0	1	8	6	3	5	17	60	72	78	102
<b>Completed Projects</b>	12	16	25	32	36	33	33	23	0	0	0	0
<b>Cumulative # Projects</b>	12	28	54	94	136	172	210	250	310	382	460	562

Planned Projects Completed Projects Cumulative # Projects



# QUESTIONS/COMMENTS? (PLEASE USE MICROPHONE)



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