

# Pacific Maximo User Group Webinar Meeting



## DEMYSTIFYING JOB PLANS



Understanding and Improving Job Plans to Reduce Maintenance Costs



# Presenters



**TILIANNE TANNER**



**BRYAN CROWLEY**

# PRESENTER – TILIANNE TANNER

- Railroad Information Systems Specialist with Sonoma-Marín Area Rail Transit (SMART).
  - » 21 years of experience working with Maximo for Sonoma Water
    - Started in Maximo v3 moved through the v4s and jumped to v7s
    - Sonoma Water's Maximo system administrator
  - » SMART's Maximo system administrator – on 7.6
  - » NorCal Maximo User Group member since first meeting in 2007
  - » Maximo User Group presenter multiple times.
  - » MaximoWorld 2019 Presenter
  - » Bachelors in Public Administration, University of San Francisco.
  - » Toastmasters CC, ALB



# PRESENTER – BRYAN CROWLEY

- Information Systems Manager with Sonoma-Marín Area Rail Transit (SMART).
  - » 14 years of experience working in all aspects of rail transportation from regulatory compliance, system design and planning, maintenance, and operations - all with a focus on Information Technology
  - » Maximo User Group Member for 5 years
  - » MaximoWorld 2018 Presenter
  - » BS in Computer Science from Shippensburg University.
  - » MAXIMO Business Process Expert
  - » Led SMART's Maximo procurement and implementation process







## TILIANNE TANNER

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- » (717) 830-6160



# About



# SONOMA-MARIN AREA RAIL TRANSIT (SMART)

- 46-miles of new track from Larkspur Station to Sonoma County Airport Station
  - » Future Windsor and North Petaluma Stations planned.
- 12 level boarding stations
- 9 two-car train sets



- Headquarters in Petaluma
- Rail Operations Center in Santa Rosa
  - » Shop and Dispatch
- Clipper card and phone app fare payment system





# SMART's MAXIMO TRANSPORTATION

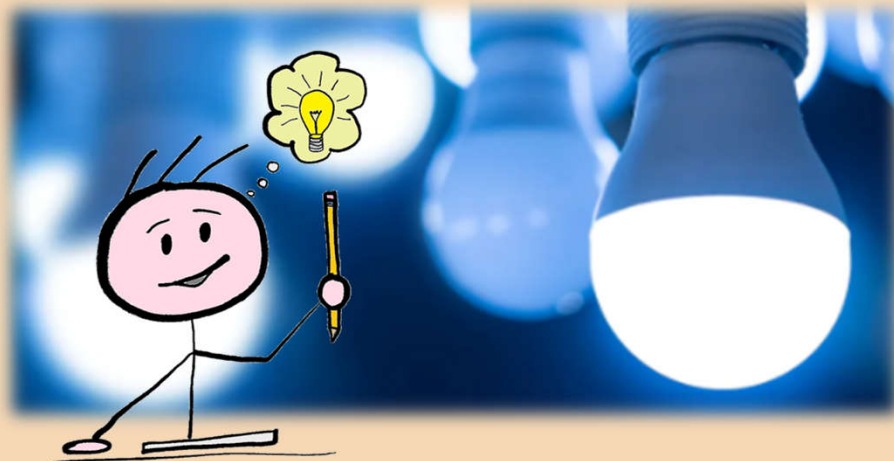
- Work Orders
  - » Preventative Maintenance (scheduled with Job Plans)
  - » Corrective Maintenance (unscheduled)
- IT Service Requests via Email Listener
- Assets and Locations
- Operator Log (from HSE)
- Purchasing
- Inventory
- Invoicing
- Meters
- Classifications / Specification Templates
- Future Plans
  - » Condition Monitoring
  - » MAXIMO Mobile







Presentation



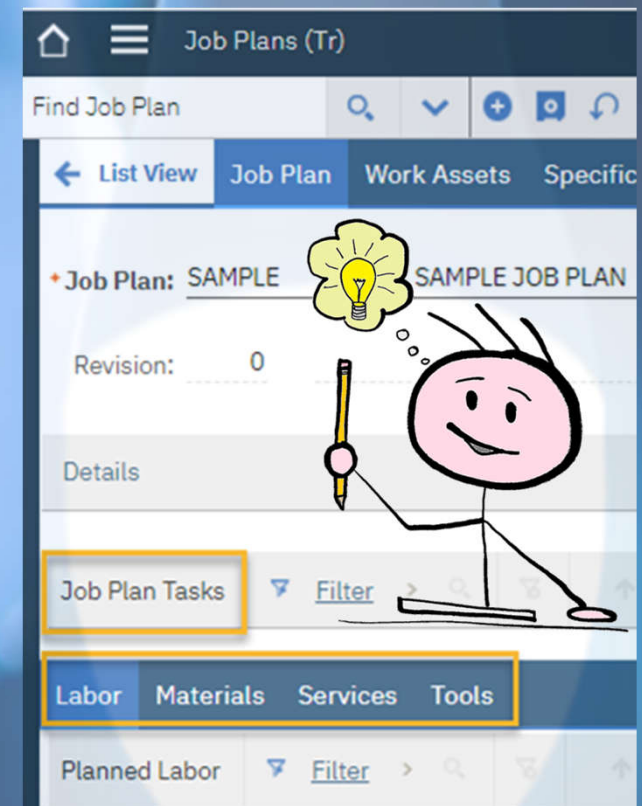
# 1: Demystifying Job Plans

# A JOB PLAN IS A TEMPLATE FOR WORK

## A JOB PLAN DEFINES...

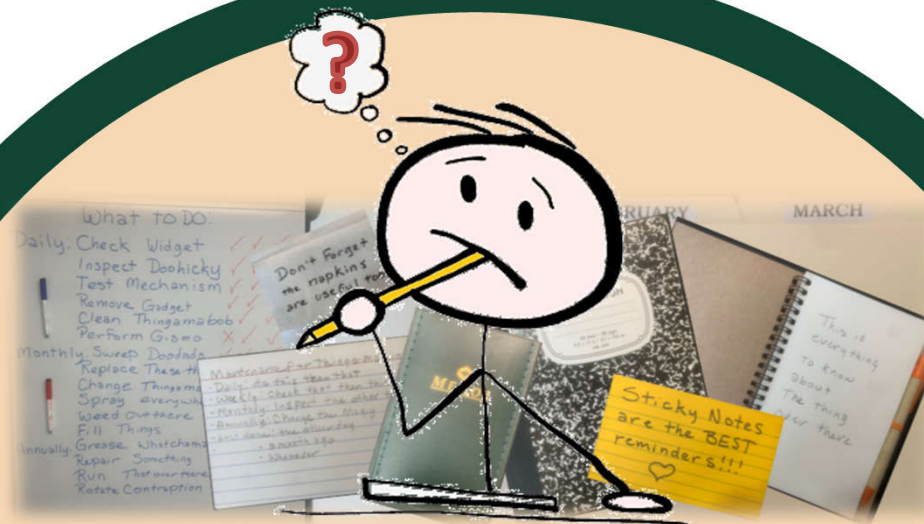
Everything to facilitate the work.

- Tasks to be completed
- Estimated duration
- Estimated labor with craft type
- Planned materials and tools
- Planned services or who to call
- Cautions, warnings, or hazards





## 2: Job Plan Hiding Places



# JOB PLAN HIDING PLACES

- Peoples' memories
- Note pads
- 3x5 cards
- Sticky notes
- Grease boards
- White boards
- Excel spread sheets
- Word Documents
- O&M Manuals
- Computerized Maintenance Management Systems (CMMSs)



**ASK MANY QUESTIONS TO FIND HIDDEN JOB PLANS**



# JOB PLAN SECRET ISSUES & HIGH COSTS

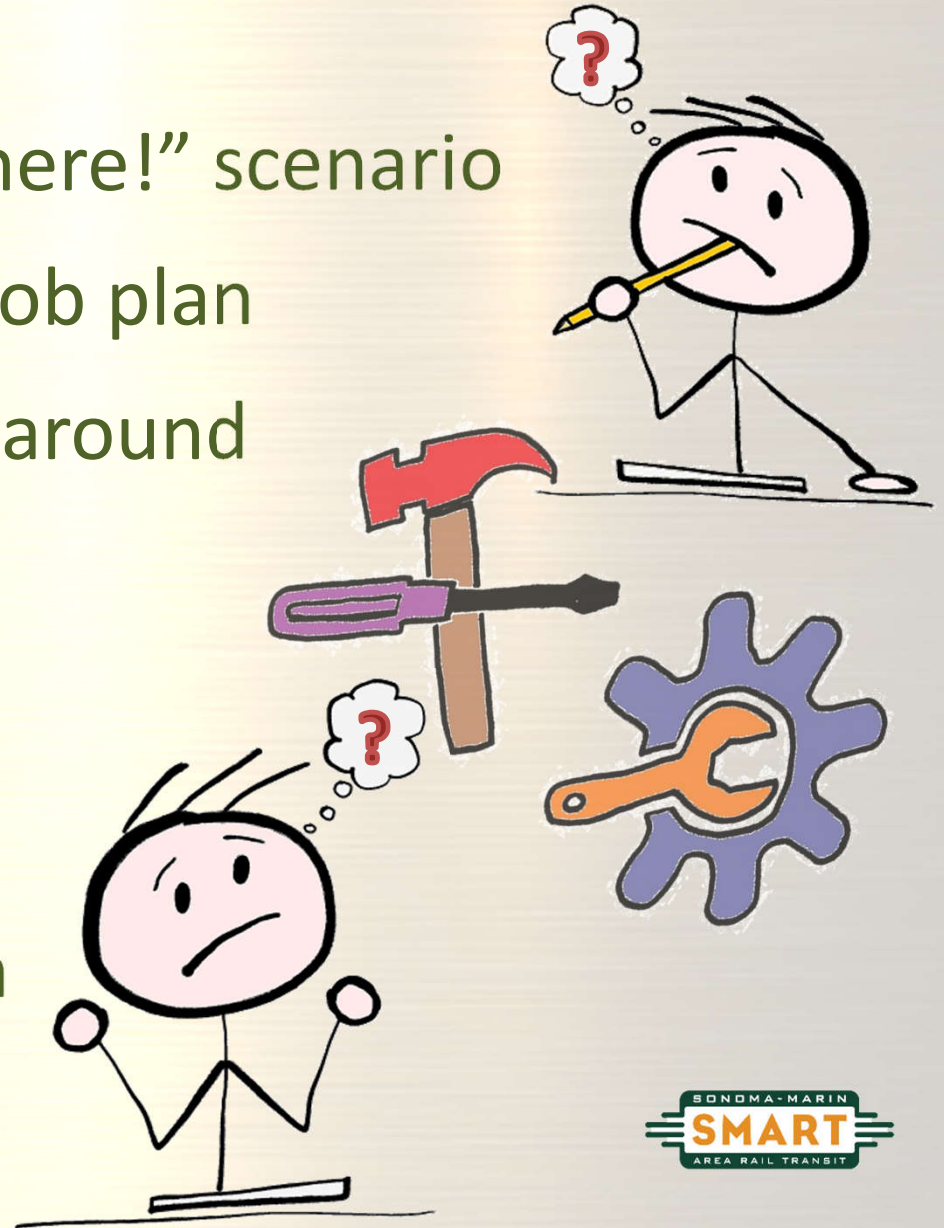
- People retire
- Paper can get lost
- No accountability
- Easy to not see
- Can be erased without backup
- Hard to read handwriting
- Not filed in a common place
- Report ability non-existent
- Resistance to changing to technology



# QUICK CONFESSIONS:

The “Let’s just get it in there!” scenario

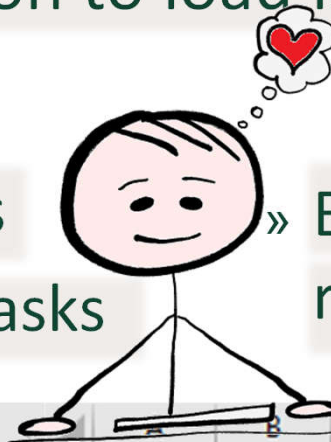
- 150 plus tasks on one job plan
- Order of tasks jumped around
- Multiple crafts
- Multiple assets
- Multiple responsible
- Unnecessary confusion
- Common mistake





# CENTRALIZING AND CLEANUP OF JOB PLANS

- Glean Job Plan information to load into MAXIMO
- Start with Excel –
  - » Break out types of assets
  - » Break out frequency of tasks
  - » Break out meters, routes, LOTO, etc.



	A	B	C	D	E		C	D	E	F	G	H
1	PM1	JP1	Daily	Clean	Laborer	1	Route1	Asset1	Route2	Asset7	Route3	Asset13
2	PM2	JP2	1 Month	Check	Tech	2		Asset2		Asset8		Asset14
3	PM2	JP3	1 Year	Change	Tech	3		Asset3		Asset9		Asset15
4	PM3	JP4	5 Years	Rebuild	Tech	4		Asset4		Asset10		Asset16
5						5		Asset5		Asset11		Asset17
6						6		Asset6		Asset12		Asset18

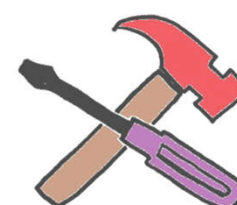
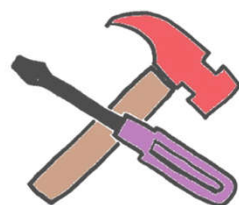
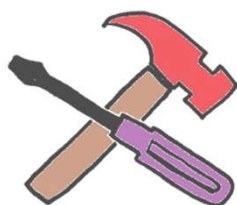
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Assets	Meter	Type	Unit		Assets	Meter	Type	Unit		Assets	Meter	Type	Unit
2	Asset1	Meter1	Continuous	Miles		Asset4	Meter2	Gauge	Celsius		Asset7	Meter3	Characteristic	(Domain)
3	Asset2	Meter1	Continuous	Miles		Asset5	Meter2	Gauge	Celsius		Asset8	Meter3	Characteristic	(Domain)
4	Asset3	Meter1	Continuous	Miles		Asset6	Meter2	Gauge	Celsius		Asset9	Meter3	Characteristic	(Domain)

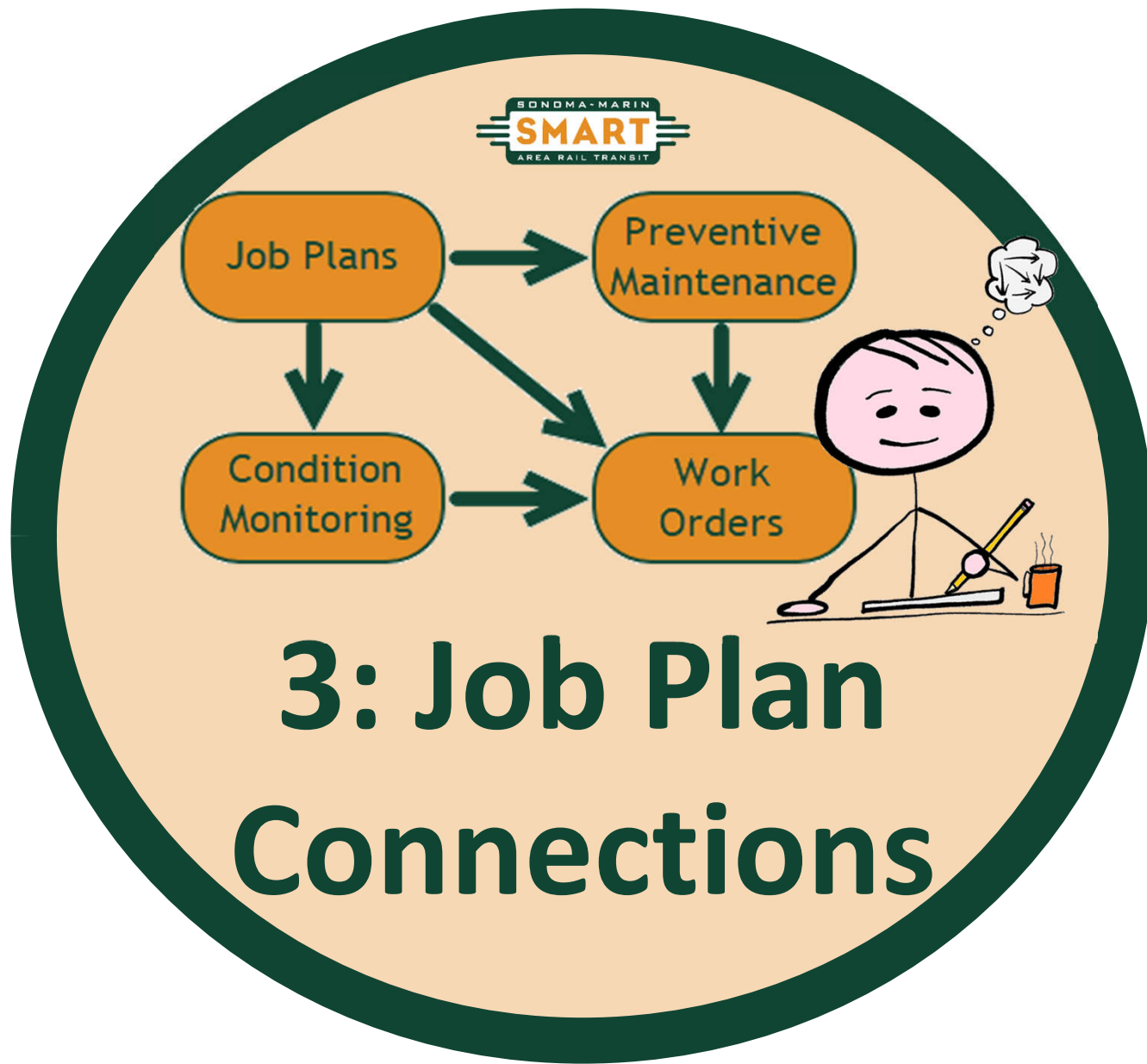


# CORRECTIVE MAINTENANCE JOB PLANS



- Typical tasks for common repairs
- Basic reminders for information wanted:
  - » Corrective maintenance needed
  - » Corrective maintenance completed
  - » Parts, tools, safety, accessibility, etc.
  - » Contact if on or through private property
  - » Procedures needed to be followed





# JOB PLAN CONNECTIONS

Job Plans (Tr) DEV Environment

Find Job Plan

List View Job Plan Work Assets Specifications

Job Plan: SAMPLE SAMPLE JOB PLAN

Revision: 0

Details Responsibility

Job Plan Tasks Filter 0 - 0 of 0

Labor Materials Services Tools

Planned Labor Filter 0 - 0 of 0

Preventive Maintenance (Tr) DEV Environment

Find PM

List View PM Frequency Seasonal Dates Job Plan Sequence PM Hierarchy Forecast Forecast Cost PM History

PM: EXAMPLE Example PM Site: SMART

Master PM: Override Updates from Master PM? Forecast Dates Locked?

Details

Linear Segment Details

Work Order Information Responsibility

Job Plan: EXAMPLE Description: Example Job Plan Work Group:

Work Type: PM Last Start Date: Supervisor:

Condition Monitoring DEV Environment

Find Point

List View Condition Monitoring

Point: 1008 Example Point

Location:

Asset: A15460 Test Asset 1

Meter: TEST Test Meter

Upper Limits Lower Limits

Upper Warning Limit: 90.000 Lower Warning Limit:

Upper Action Limit: 100.000 Lower Action Limit:

Upper Limit PM: Lower Limit PM:

Upper Limit Job Plan: UPPERLIMIT Upper Limit JP Example Lower Limit Job Plan: LC

Upper Limit Priority: 2 Lower Limit Priority:

Work Order Tracking (Tr) DEV Environment

Find Work Order

List View Work Order Plans Actuals Activities Measurements Axle Configuration Service Address Log Data Sheet

Work Order: 466254 Example Work Order

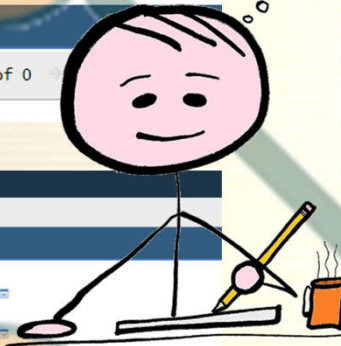
PM Frequency:

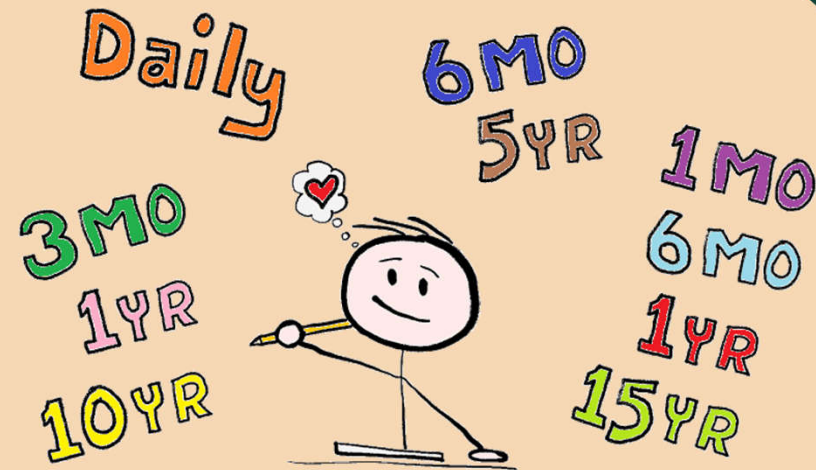
Job Plan: EXAMPLE Example Job Plan

Details

Font Size Format

Asset: TEST Test Asset





## 4: Job Plan Sequences



# WHY SEQUENCE OR “NEST” JOB PLANS?



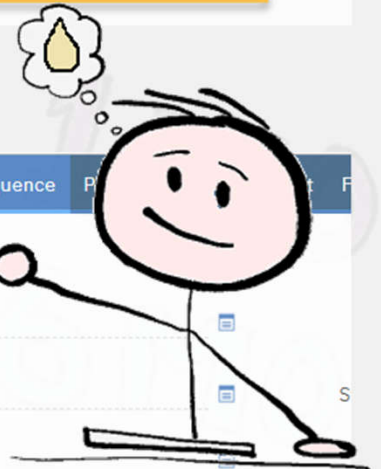
- Reduce number of work orders
- Reduce duplicate efforts on maintenance
- Replace a task from a more frequent job plan

- » 1 month: Check and top off oil
- » 1 month: Check and top off oil
- » 1 month: Check and top off oil
- » **4 months: Change oil**
- » 1 month: Check and top off oil
- » 1 month: Check and top off oil
- » 1 month: Check and top off oil
- » **1 Year: Change oil, replace oil filter**

Time Based Frequency   Meter Based

Frequency: 1

Frequency Units: MONTHS



← List View   PM   Frequency   Seasonal Dates   Job Plan Sequence   P   t   F

Location: \_\_\_\_\_ >

Asset: ASSET1 > EXAMPLE ASSET #1

Job Plan: 1MONTH > ONCE EVERY MONTH

Job Plan Sequence   Filter > 1 - 3 of 3

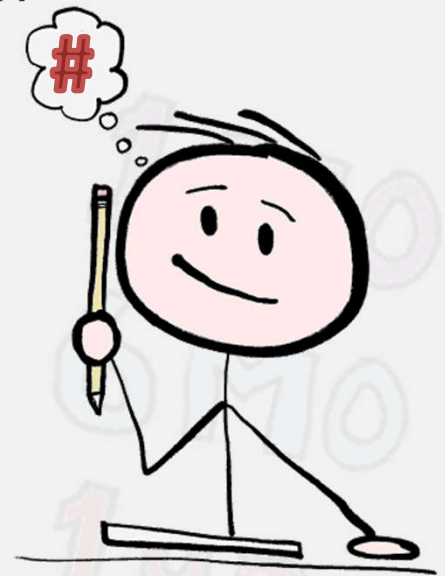
Job Plan	Description	Sequence
> 1MONTH >	ONCE EVERY MONTH	1
> 4MONTHS >	ONCE EVERY FOUR MONTHS	4
> 1YEAR >	ONCE EVERY YEAR	12

New Row



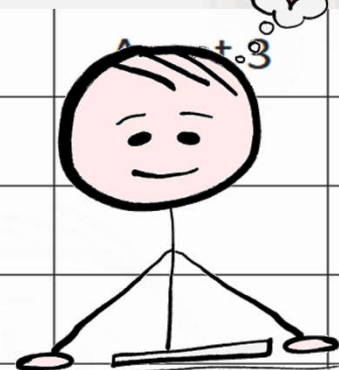
# SEQUENCING TIPS FOR JOB PLAN TASKS

- Sequence similar assets and types of tasks
- Duplicate most common frequency Job Plan
  - » Add new tasks to create next in sequence
- Example:
  - » Create 1 week Job Plan with tasks
  - » Duplicate for 1 month, add one-month tasks
  - » Duplicate for 6 months, add six-month tasks
  - » Duplicate for 1 year, add one-year tasks



# PREPARING FOR THE PM SEQUENCING

- Lowest frequency is used in PM Frequency field.
- Other frequencies must be multiples of the lower frequencies.

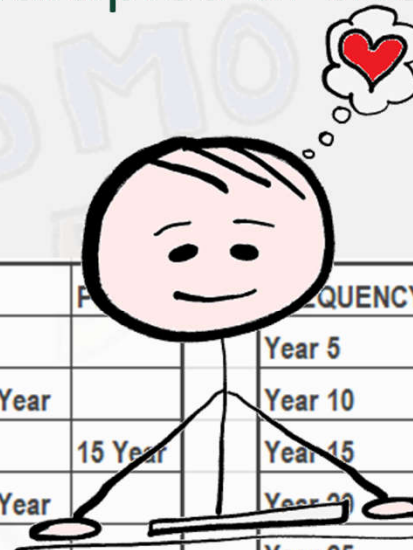


	Asset 1	Asset 2	Asset 3	Asset 4	Asset 5
Daily	1				
Weekly		2		4	1
Monthly	3, 6				1, 6
Years	5	1	5, 8	1	1
Sequencing the Job Plan on the PM	Two PMs: Daily: 1 3 Month: 1, 2, 20	One PM: 2 Weeks: 1, 26	Two PMs: 5 Year: 1 8 Year: 1	One PM: 4 Weeks: 1, 13	Two PMs: 1 Weeks: <del>1, 4, 26, 52</del> 1, 4, 24, 48 Or separate Annual

# EXAMPLE OF THE PM SEQUENCING



- Other frequencies must be multiples of the lower common frequencies.
- 5 Year, 10 Year, 15 Year



FREQUENCY	PM1
Year 5	JP: 5 Year
Year 10	JP: 5 Year, 10 Year
Year 15	JP: 5 Year, 10 Year, 15 Year
Year 20	JP: 5 Year, 10 Year
Year 25	JP: 5 Year
Year 30	JP: 5 Year, 10 Year, 15 Year
Year 35	JP: 5 Year
Year 40	JP: 5 Year, 10 Year
Year 45	JP: 5 Year, 10 Year, 15 Year
Year 50	JP: 5 Year, 10 Year
Year 55	JP: 5 Year
Year 60	JP: 5 Year, 10 Year, 15 Year

FREQUENCY	PM1	PM2
Year 5	JP: 5 Year	
Year 10	JP: 5 Year, 10 Year	
Year 15	JP: 5 Year, 15 Year	
Year 20	JP: 5 Year, 10 Year	
Year 25	JP: 5 Year	
Year 30	JP: 5 Year, 10 Year, 15 Year	
Year 35	JP: 5 Year	
Year 40	JP: 5 Year, 10 Year	
Year 45	JP: 5 Year, 15 Year	
Year 50	JP: 5 Year, 10 Year	
Year 55	JP: 5 Year	
Year 60	JP: 5 Year, 10 Year, 15 Year	

FREQUENCY	PM1	PM2
Year 5	JP: 5 Year	
Year 10	JP: 5 Year	10 Year
Year 15	JP: 5 Year, 15 Year	
Year 20	JP: 5 Year	10 Year
Year 25	JP: 5 Year	
Year 30	JP: 5 Year, 15 Year	10 Year
Year 35	JP: 5 Year	
Year 40	JP: 5 Year	10 Year
Year 45	JP: 5 Year, 15 Year	
Year 50	JP: 5 Year	10 Year
Year 55	JP: 5 Year	
Year 60	JP: 5 Year, 15 Year	10 Year



# 5: Optimizing Inventory



# INVENTORY CONNECTION ON A JOB PLAN

- Know items needed for work
- Prep ahead with convenient list
- Using reorder points

← List View Job Plan Work Assets Specifications

Job Plan: 1154 Example Job Plan

Revision: 1 adding materials

Details

Job Plan Tasks Filter 0 - 0 of 0

Labor Materials Services Tools

Planned Materials Filter 1 - 1 of 1

Task	Item	Description
	14225	Example Item

Select Spare Parts New Row



← List View Work Order Plans Actuals Activities Measurements Axle Configuration

Work Order: 466299 Example Work Order

Asset: 1234 Example Asset

of Work Order 466299 Filter 0 - 0 of 0

Tasks for Work Order 466299 Filter 0 - 0 of 0

Labor Materials Services Tools Assignments Repair Orders

Materials Filter 1 - 1 of 1

Task	Item	Description
	14225	Example Item

Select Asset Spare Parts New Row





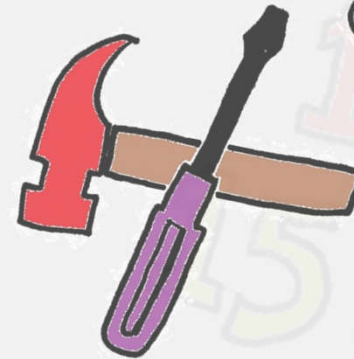
## 6: Concluding Thoughts



# JOB PLAN DEVELOPMENT

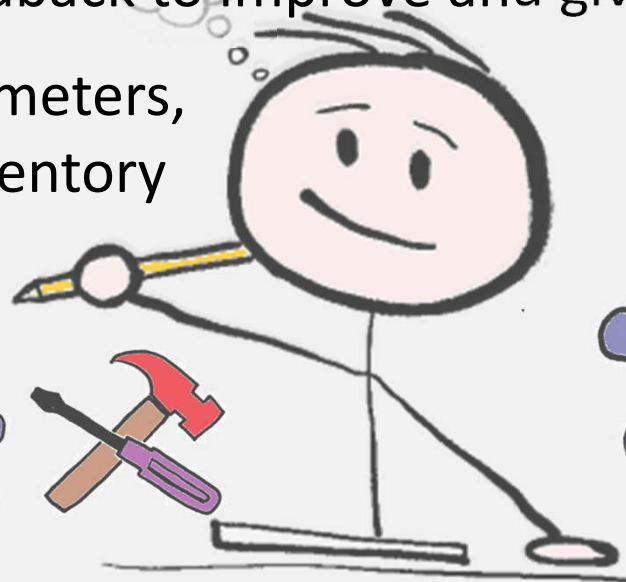
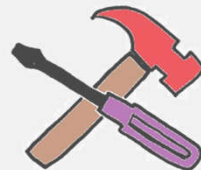
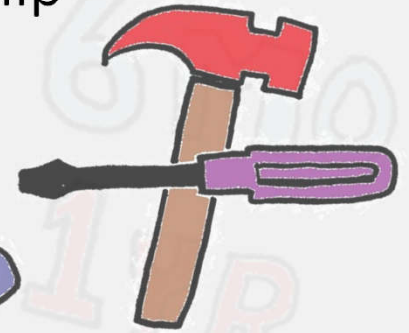
Use – Evaluate – Improve

- Always put drafted job plans in the hands of the field crew to get feedback.
  - » Gives them buy-in and ownership
  - » The crews do the work. It should make sense to them.
- Repeat process as often as needed.
  - » especially first wrench time use.



# RECAP ON DEMYSTIFYING JOB PLANS

- Job Plans are templates for work
- Centralize Job Plans from all kinds of places
- Breakout into asset type, frequency, crews
- Sequence Job Plans to reduce costs and confusion
- Get crews' feedback to improve and give ownership
- Optimize with meters, routes, and inventory







## Pacific Maximo User Group Webinar Meeting



**SONOMA-MARIN AREA RAIL TRANSIT**

**SMART**

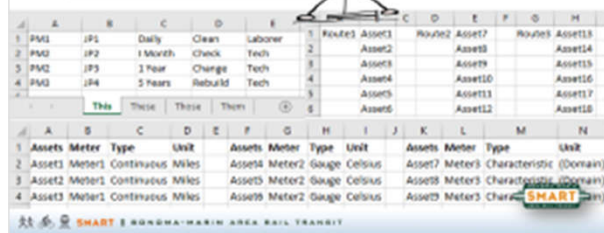
**DEMYSTIFYING JOB PLANS**

Understanding and Improving Job Plans to Reduce Maintenance Costs

September 16, 2021

## CENTRALIZING AND CLEANUP OF JOB PLANS

- Clean Job Plan information to load into MAXIMO
- Start with Excel –
  - » Break out types of assets
  - » Break out frequency of tasks
  - » Break out meters, routes, LOTO, etc.



A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PVG	JP1	Daily	Clean	Labower								
2	PVG	JP2	1 Month	Check	Tech								
3	PVG	JP3	1 Year	Change	Tech								
4	PVG	JP4	5 Years	Rebuild	Tech								

## TILIANNE TANNER

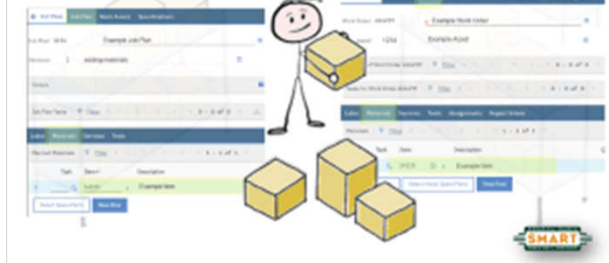
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## JOB PLAN CONNECTIONS



## INVENTORY CONNECTION ON A JOB PLAN

- Know items needed for work
- Prep ahead with convenient list
- Using reorder points



The screenshot shows the MAXIMO interface with a job plan entry. A stick figure is shown holding a box, symbolizing the connection between the job plan and the inventory system. The interface displays various fields for job plan details and inventory management.

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- Job Plans are templates for work
- Centralize Job Plans from all kinds of places
- Breakout into asset type, frequency, crews
- Sequence Job Plans to reduce costs and confusion
- Get crews' feedback to improve and give ownership
- Optimize with meters, routes, and inventory