



GREEN LINE EXTENSION PROJECT



massDOT
Massachusetts Department of Transportation



Agenda

Welcome & Introduction

- John Dalton - MBTA
- Terry McCarthy - MBTA

Safety

- Dianna Souza - MBTA
- Michael Weatherred, GLXC

Construction Update

- John West, GLXC

Schedule Management

- William Scully, GLX – MBTA



Outreach

- Art Beat at Davis Square (July 13)



Outreach

Weekend Demo at Broadway Bridge (Aug. 2 - 4)

- *Sent out email blast to 7,100 plus stakeholders in database*
- *Targeted email to HOAs and property managers*
- *Went door to door to 100 homes and businesses*



Outreach

Tour of Magoun Station (Sat. Aug. 3)

- *Meeting to discuss upcoming construction, answer station and Community Path questions hosted by Ryan Dunn.*





GLX-C Safety

Michael Weatherred



Heat stress awareness and staying well hydrated continues to be a priority as we experienced the hottest July on record.



WATER. REST. SHADE.

The work can't get done without them.

Drink water often

Rest in the shade

Report heat symptoms early

Know what to do in an emergency

Safety

GLX-C safety lagging indicator performance bests the national performance by almost 400%

	JULY 2019			2019 YEAR TO DATE			PROJECT TO DATE		
Entity	Hours*	Total Recordable Incident Rate (TCIR)	Days Away Restricted or Transferred Cases (DART)	Hours*	Total Recordable Incident Rate (TCIR)	Days Away Restricted or Transferred Cases (DART)	Hours*	Total Recordable Incident Rate (TCIR)	Days Away Restricted or Transferred Cases (DART)
Goals	--	--	--	--	0.40	0.15	--	0.40	0.15
GLXC Craft	21,343	0.00	0.00	126,088	3.17	3.17	199,392	3.01	2.01
GLXC Staff	25,981	0.00	0.00	119,596	0.00	0.00	243,078	0.00	0.00
Subs	21,341	9.37	9.37	94,176	4.25	4.25	140,967	2.84	2.84
STV	30,136	0.00	0.00	236,132	0.00	0.00	594,803	0.00	0.00
Total	98,801	2.02	2.02	575,992	1.39	1.39	1,178,240	0.85	0.68
*Hours are preliminary numbers and are subject to revision monthly									



GLX-C Construction Update

John West



Construction Update

Broadway Bridge

- *Support of Excavation (SOE) is complete. Wood lagging in place.*
- *Excavation for new abutments nearly complete.*
- *Old east abutment demolished Aug. 2 – 4 weekend.*



Construction Update

Broadway Bridge

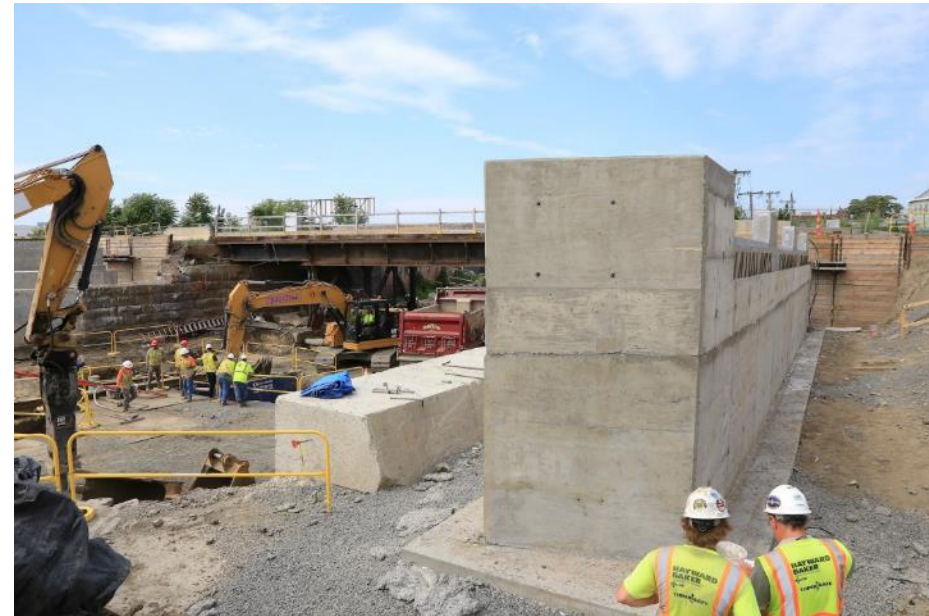
- *East abutment demo Aug. 2 – 4 weekend.*



Construction Update

Washington St. Bridge

- *Steel placement planned for Aug. 24*
- *Drainage work is complete*



Construction Update

Medford St. Bridge

- *GLX work on west abutment to start Aug. 7. Construction will include adding an additional abutment behind the existing west abutment to accommodate one set of Green Line tracks*
- *Bridge to reopen in Spring 2020*



Construction Update

School St. Bridge Closure

- *School St. Bridge to close early 2020*
- *Construction will include adding an additional abutment behind the existing west abutment to accommodate one set of Green Line tracks*



Construction Update

Preparing for Track Shift

- Completed thermo-welding 80' long sections of light rail (1,700 tons that will be placed on alignment next spring.
- Will be placing additional 175 tons of commuter grade rail line this fall along the east side of the corridor.



Construction Update

Vehicle Maintenance Facility

- *Pile driving is underway*
- *270 piles will be driven this month*



Construction Update

Work near Union Square Station

- Wall behind Target removed
- MSE wall (UN-2) construction to begin



Construction Update

Lechmere Area

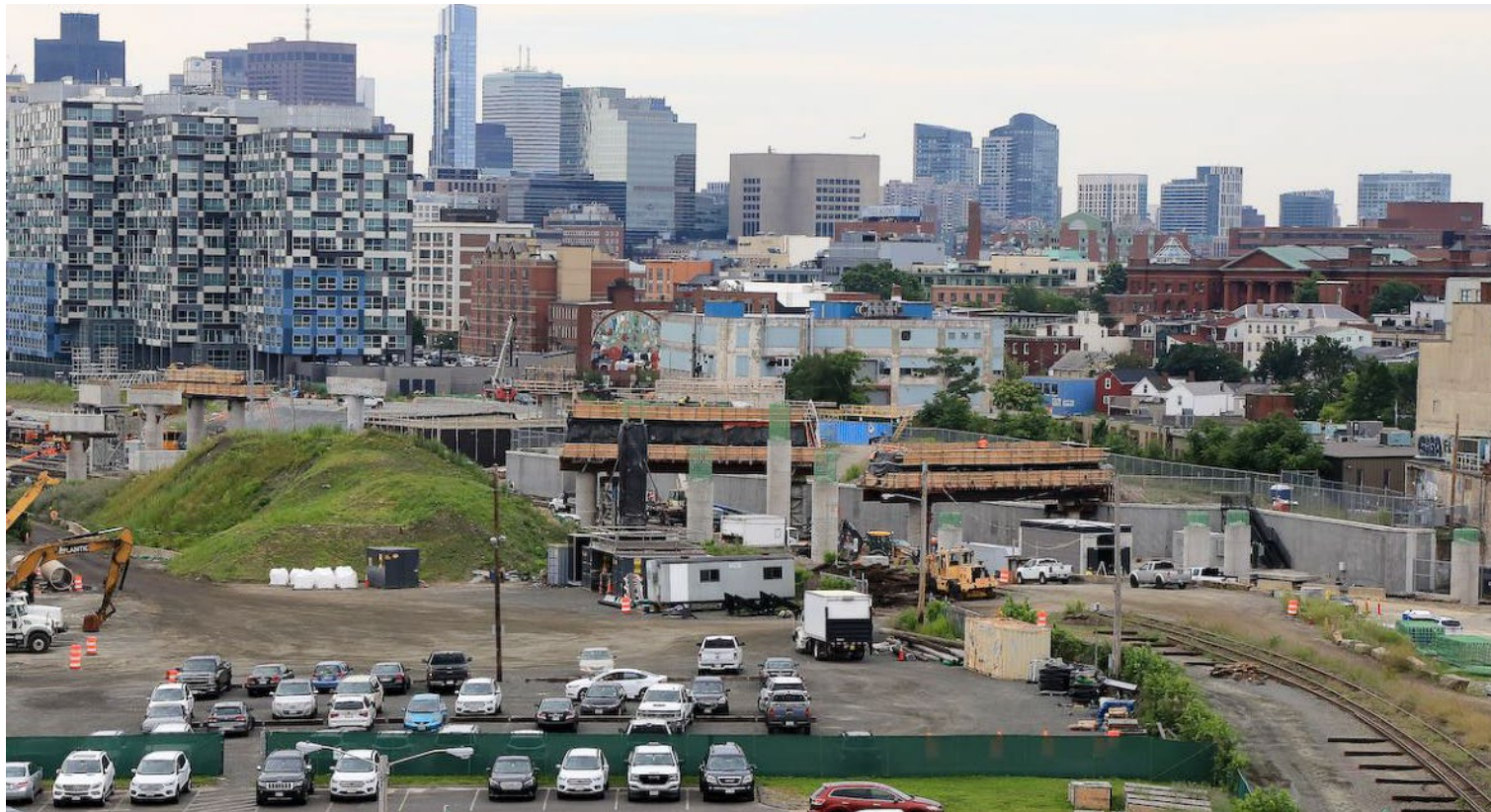
- Both drilling crews now working between BET area and Water St.
- Brisk activity including pouring concrete columns and pier caps for viaduct



Construction Update

Boston Engine Terminal (BET) Area

- *Viaduct work continues with frequent night and weekend work*



Construction Update

Brickbottom Area

- Work along this part of the Fitchburg line includes viaduct construction, utility relocations and wall construction (N-3A/N-3B)



Construction Update

Noise & Retaining Walls

Between McGrath Hwy – Walnut St.

- Noise Wall (N-6) ready for panel installation



Construction Update

Noise & Retaining Walls

Between Schools St. – Sycamore

- Noise Wall (N-7A & B) work starting
- Built up embankment to support drill rig for wall foundations



Project Status

Noise & Retaining Walls

Between Lowell – Cedar St.

- Drainage installation and post installation for Noise Wall (N-10, ME-2, ME-2A & N-11) continues



Construction Update

Noise & Retaining Walls

Between Cedar St. - Broadway

- ME-2.1/ Noise Wall N-12 – ready for panel placement



Construction Update

Noise & Retaining Walls Between Broadway – Harvard St.

- ME-2.4/Noise Wall N-14A & N-14B



Construction Update

Noise & Retaining Walls

Between College Ave. – Winthrop St.

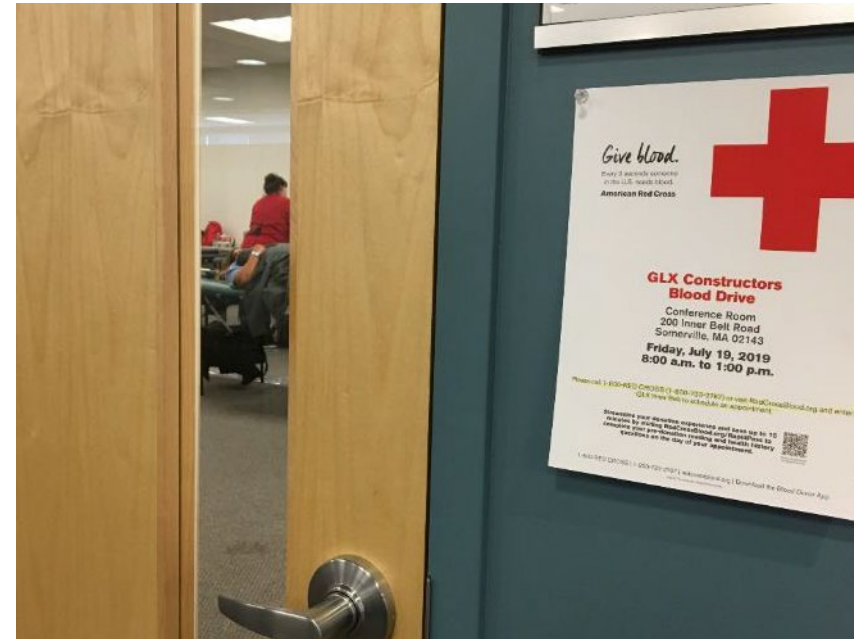
- Posts placement complete for Noise Wall N-15 (along Burget & Charnwood)
- Post placement continues for ME-3A & ME-3B



Outreach

Community Connection Team – Red Cross Blood Drive

- Friday, July 12 & 19 at 35 Charlestown & Inner Belt Office
- 30 employees donated



Team Building

Soccer (July 25) at Gold Star Mothers Park



GLX-C: 6

GLX: 4 (OT)



Schedule Management

William Scully



Training Goals

- **Schedule Basic**
- **Understanding of how to read a schedule**
- **Difference between Early Dates and Late Dates**
- **What is Float**
- **How is Free Float different from Total Float**
- **Milestones and how they affect Critical Paths**
- **Our project milestones and the Critical Path**

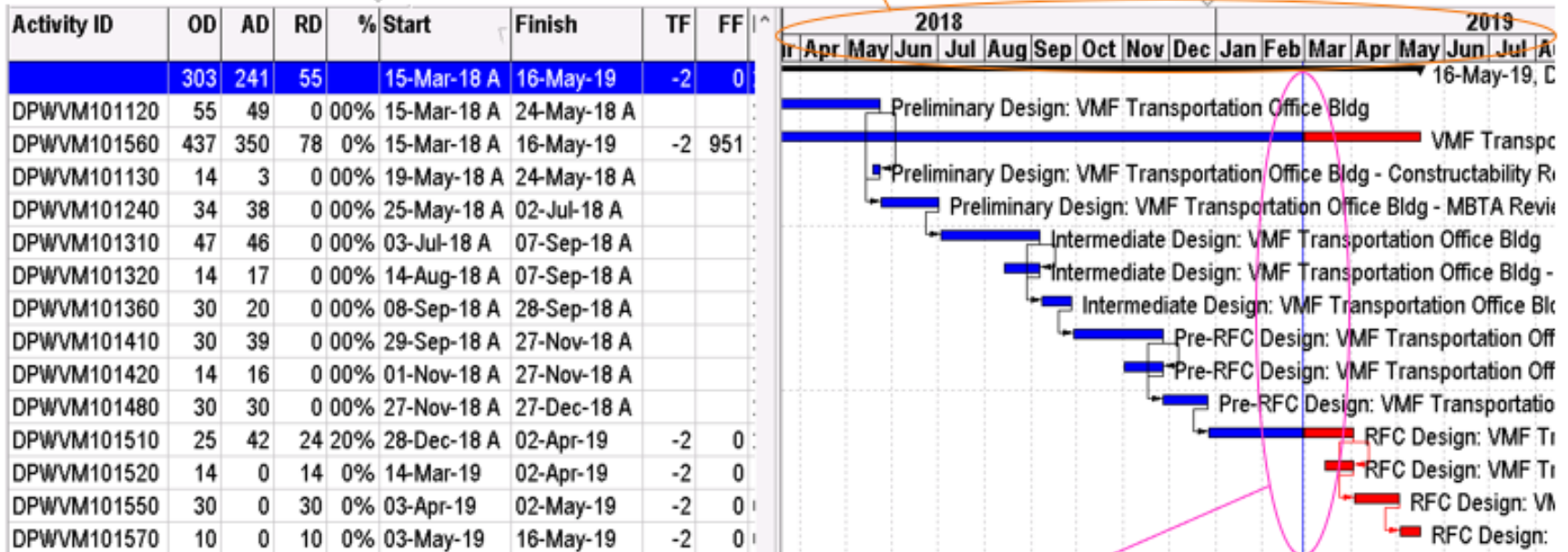


Schedule Basics

Activity Table

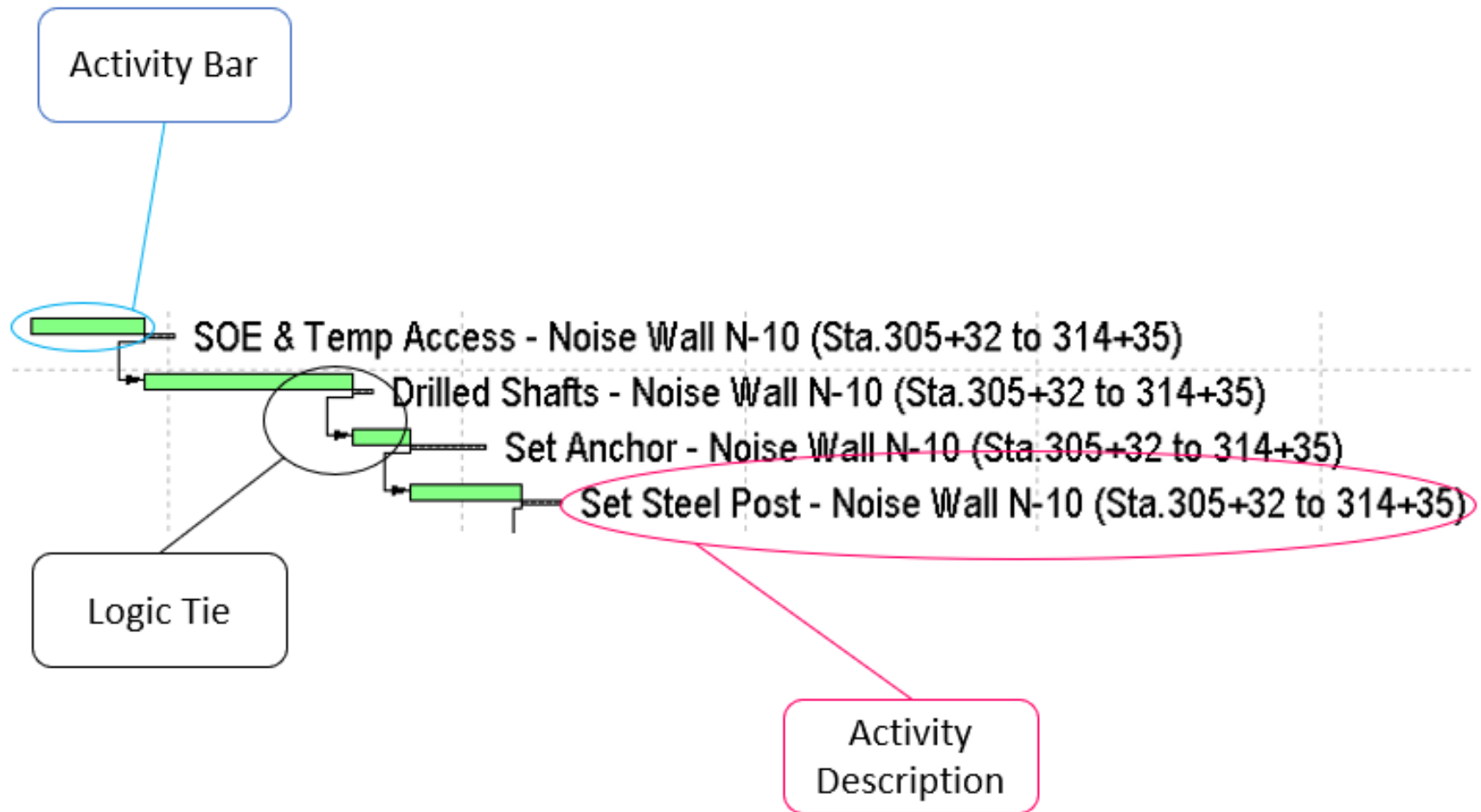
Timeline

Bar Chart



Data Date

Schedule Basics



Schedule Basics

- **Activity Constraints (apply for float determination)**
 - As Late As Possible
 - Finish On
 - Finish On or After
 - Finish On or Before (commonly used)
 - Mandatory Finish



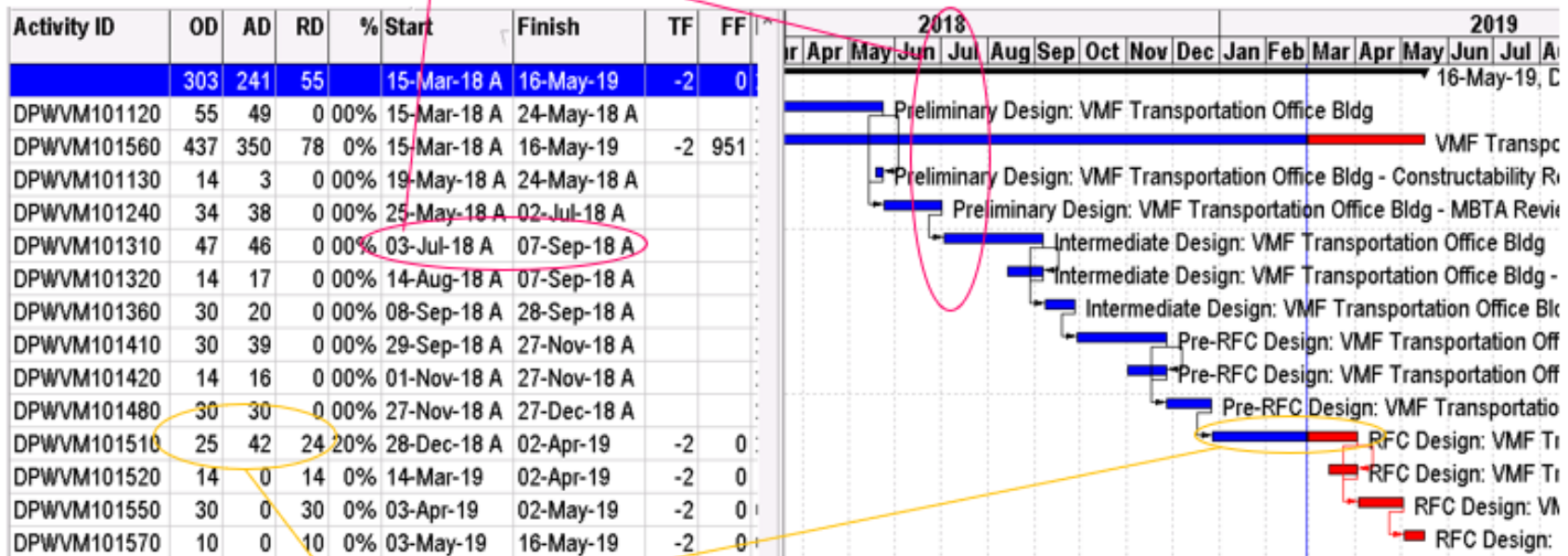
Schedule Basics

- **Activity Constraints (apply for float determination)**
- **As Late As Possible**
- **Finish On**
- **Finish On or After**
- **Finish On or Before (commonly used)**
- **Mandatory Finish**



Understanding How to Read a Schedule

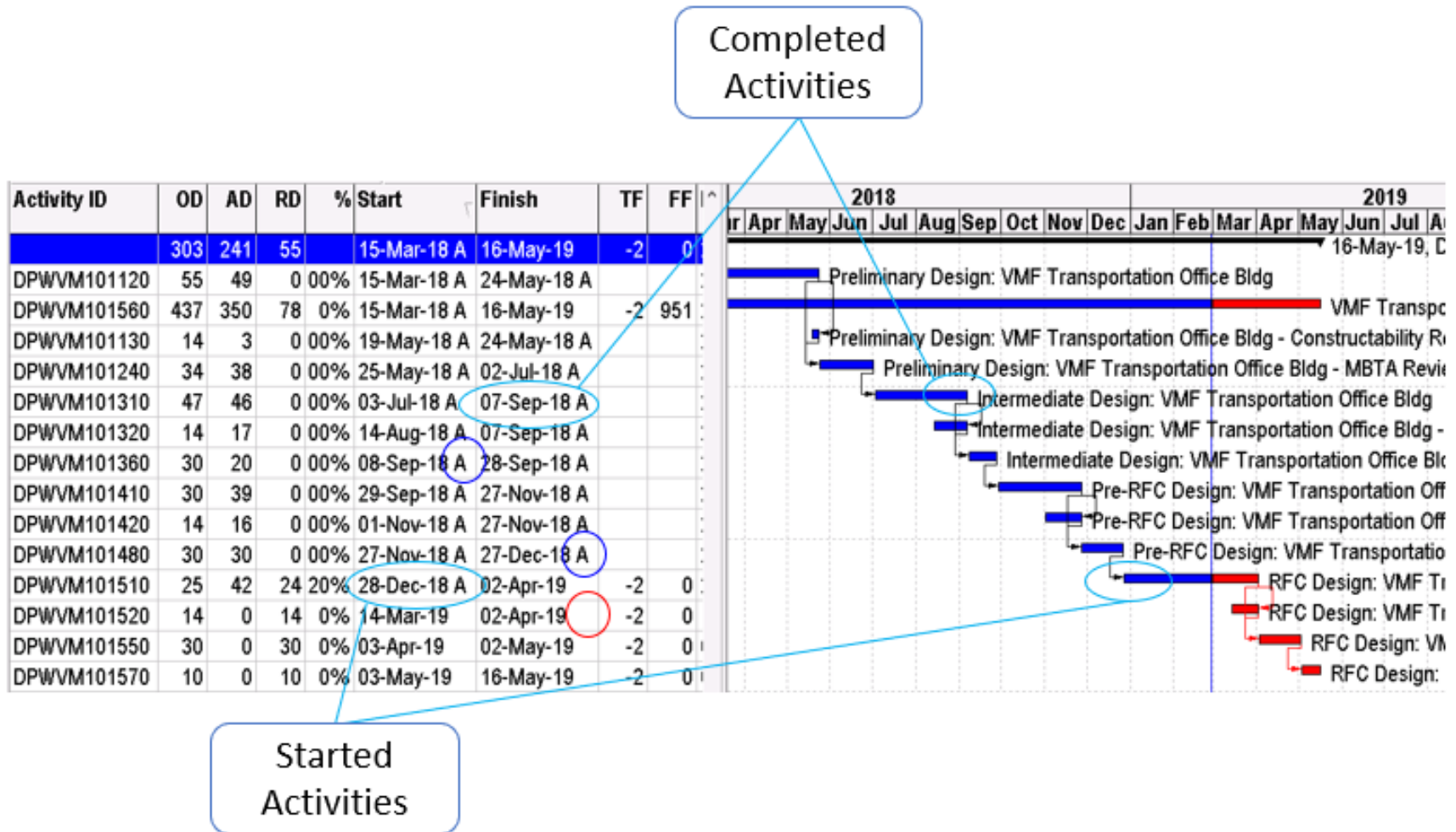
Date Info



Duration
Info



Understanding How to Read a Schedule



Understanding How to Read a Schedule

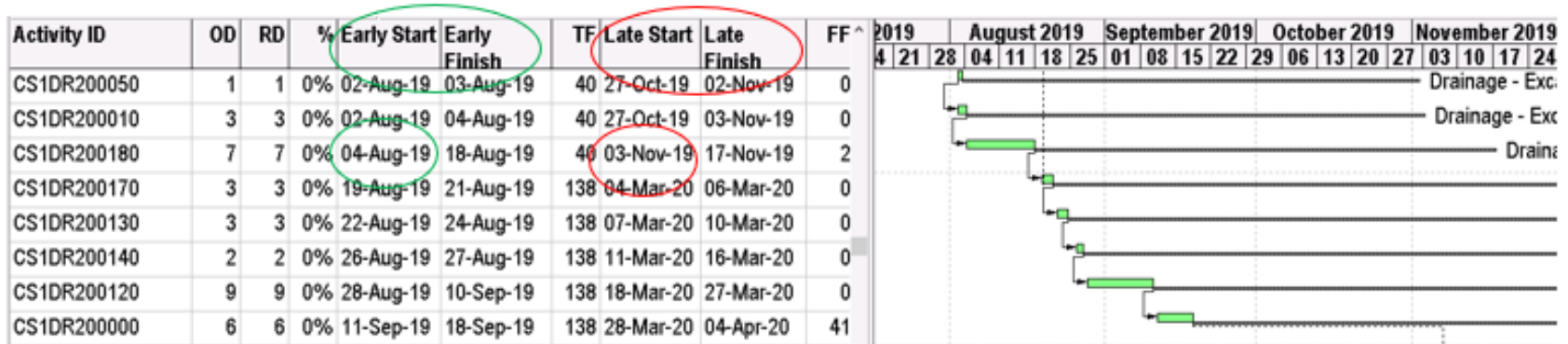
TF is Total
Float

Activity ID	OD	RD	%	Start	Finish	TF	FF	F	March 2019				April 2019				May 2019				June 2019			
									3	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16
CS6VD100080	3	1	50%	11-Feb-19 A	02-Mar-19	5	1																	
CS6VD100100	3	3	0%	04-Mar-19	07-Mar-19	7	24																	
CS6VD100160	4	4	0%	12-Apr-19	22-Apr-19	-17	0																	
CS6VD100220	3	3	0%	22-Apr-19	26-Apr-19	-17	0																	
CS6VD100230	1	1	0%	26-Apr-19	29-Apr-19	-17	0																	
CS6VD100250	2	2	0%	29-Apr-19	01-May-19	-28	1																	
CS6VD100430	4	4	0%	22-May-19	29-May-19	-3	0																	
CS6VD100490	5	5	0%	29-May-19	06-Jun-19	-3	0																	
CS6VD100530	1	1	0%	06-Jun-19	07-Jun-19	-3	0																	
CS6VD100730	14	14	0%	07-Jun-19	20-Jun-19	-3	1																	

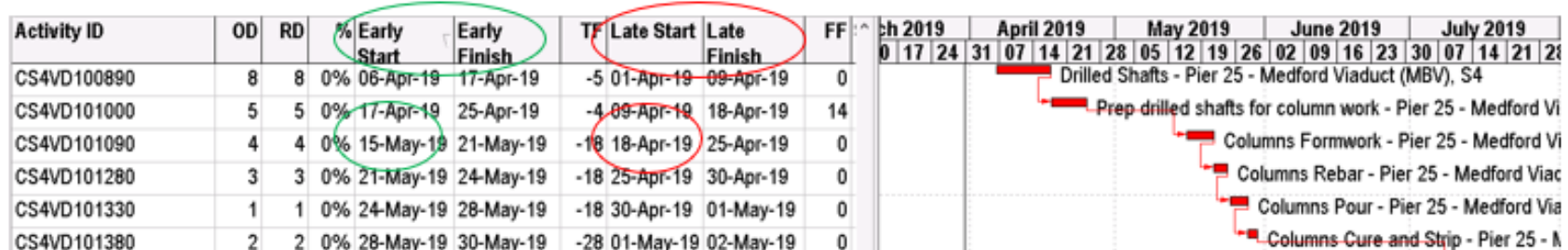
FF is Free
Float

Difference between Early Dates and Late Dates

- Early Dates = WHEN YOU **CAN** START or FINISH



- Late Dates = WHEN YOU **MUST** START or FINISH



What is Float?

- Is the number of days (Business or Calendar) between when you **CAN** START or FINISH and When You **MUST** START or FINISH
- When Float is **Positive** = Ahead of Schedule

Activity ID	OD	RD	%	Early Start	Early Finish	TF	Late Start	Late Finish	FF ^
CS1DR200050	1	1	0%	02-Aug-19	03-Aug-19	40	27-Oct-19	02-Nov-19	0
CS1DR200010	3	3	0%	02-Aug-19	04-Aug-19	40	27-Oct-19	03-Nov-19	0

Early Start is before Late Start

AHEAD OF SCHEDULE

What is Float?

- Is the number of days (Business or Calendar) between when you **CAN** START or FINISH and When You **MUST** START or FINISH
- When Float is **Negative** = Behind Schedule

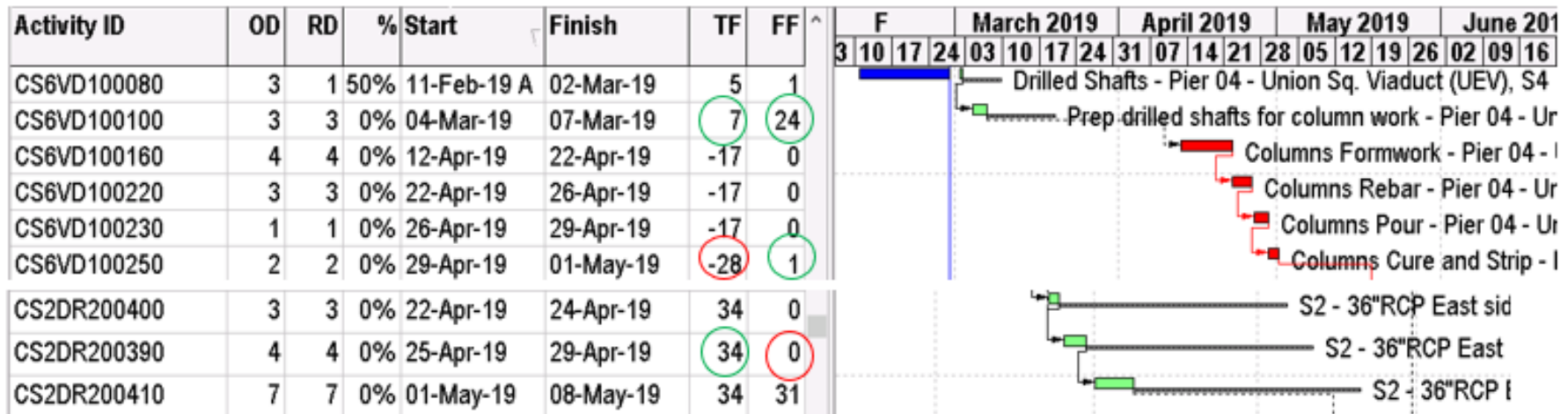
Activity ID	OD	RD	%	Early Start	Early Finish	TF	Late Start	Late Finish	FF	^
CS4VD100890	8	8	0%	06-Apr-19	17-Apr-19	-5	01-Apr-19	09-Apr-19	0	
CS4VD101000	5	5	0%	17-Apr-19	25-Apr-19	-4	09-Apr-19	18-Apr-19	14	
CS4VD101090	4	4	0%	15-May-19	21-May-19	-18	18-Apr-19	25-Apr-19	0	

Early Start is after Late Start

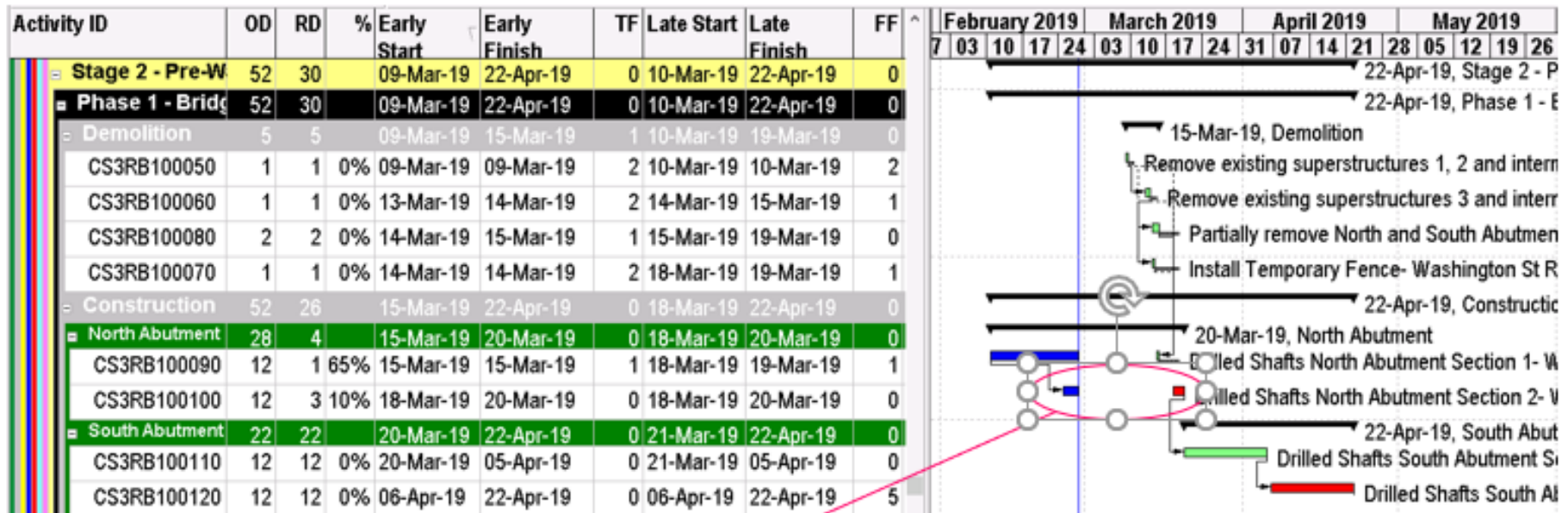
BEHIND SCHEDULE

How is Free Float different from Total Float

- Free Float (FF) is the amount that particular activity can slide without delaying the successor activity
- Total Float (TF) is the amount that sequence of Activities can slide without delaying the critical path



Exercise – What do you see?



Gap between Activity in Progress
and completion of activity

Milestones and How they Affect the Critical Path

Milestone	Current Contractual Date
Notice to Proceed	20-Dec-17
Milestone 5 – VMF Functionally Complete & Ready for MBTA Operational Testing	09-Oct-20
Milestone 4C – Revenue Service for the Union Branch (One)	28-Apr-21
Milestone 3C – Revenue Service for Medford Branch (Two)	10-Jul-21
Milestone 2 – Contract Substantial Completion	21-Aug-21
Milestone 1 – Final Acceptance	20-Oct-21

- Milestones are waypoints
 - Contractual
 - Physical
 - Technical
 - Commercial
 - Stakeholder
- Provide a fixed point for assess the health of the Schedule



Milestones and How they Affect the Critical Path

Milestone	Current Contractual Date	Forecast
Notice to Proceed	20-Dec-17	20-Dec-17 (A)
Milestone 5 – VMF Functionally Complete & Ready for MBTA Operational Testing	09-Oct-20	28-Oct-20
Milestone 4C – Revenue Service for the Union Branch (One)	28-Apr-21	28-Apr-21
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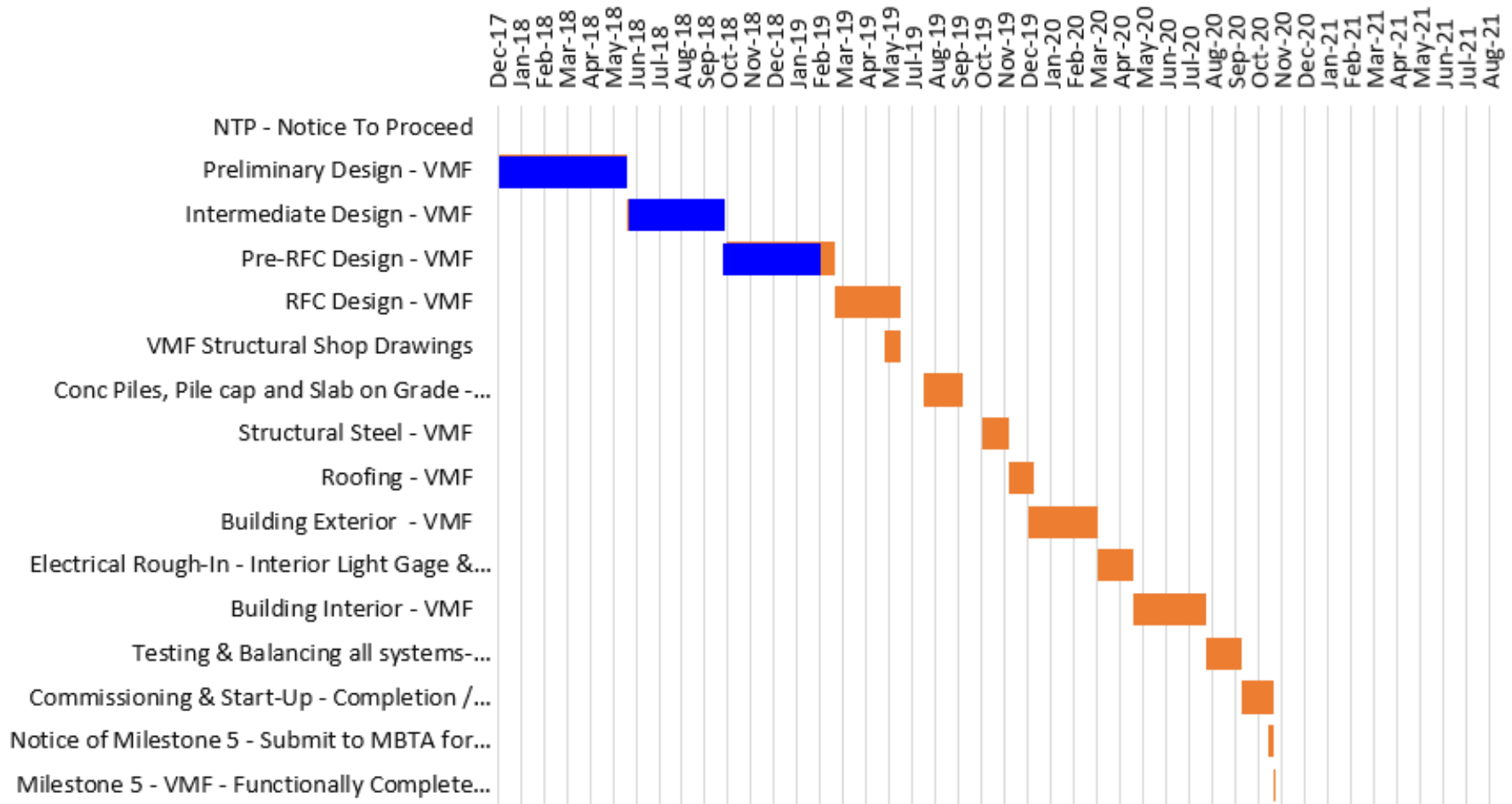


Milestones and How they Affect the Critical Path

Milestone	Current Contractual		
	Date	Forecast	TF
Notice to Proceed	20-Dec-17	20-Dec-17 (A)	0
Milestone 5 – VMF Functionally Complete & Ready for MBTA Operational Testing	09-Oct-20	28-Oct-20	-18
Milestone 4C – Revenue Service for the Union Branch (One)	28-Apr-21	28-Apr-21	0
Milestone 3C – Revenue Service for Medford Branch (Two)	10-Jul-21	18-Jul-21	-8
Milestone 2 – Contract Substantial Completion	21-Aug-21	29-Aug-21	-8
Milestone 1 – Final Acceptance	20-Oct-21	28-Oct-21	-8

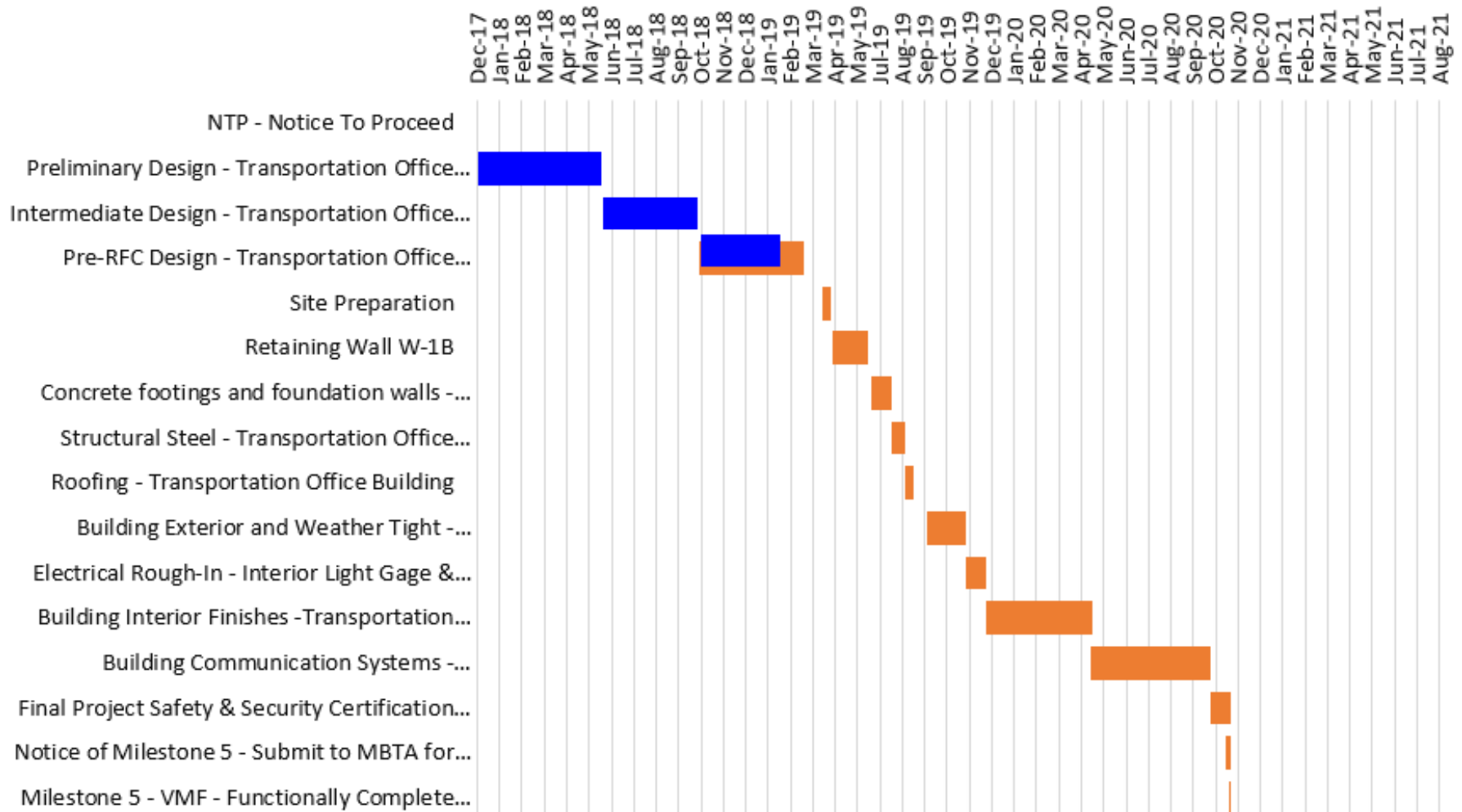
Critical Path

Milestone 5 – VMF Functionally Complete (-18 days)



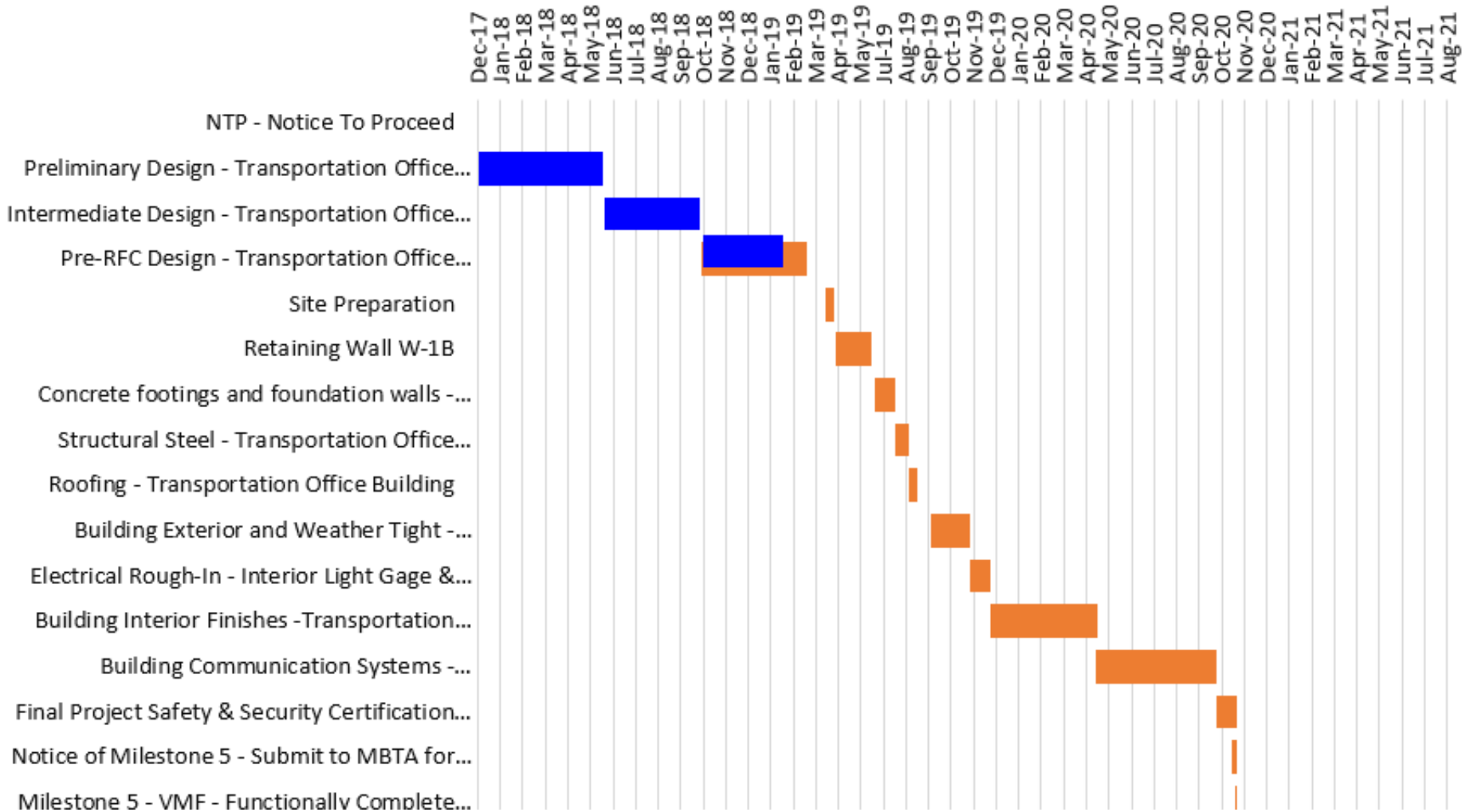
Near Critical Path

Milestone 5 – VMF Functionally Complete (-12 days)



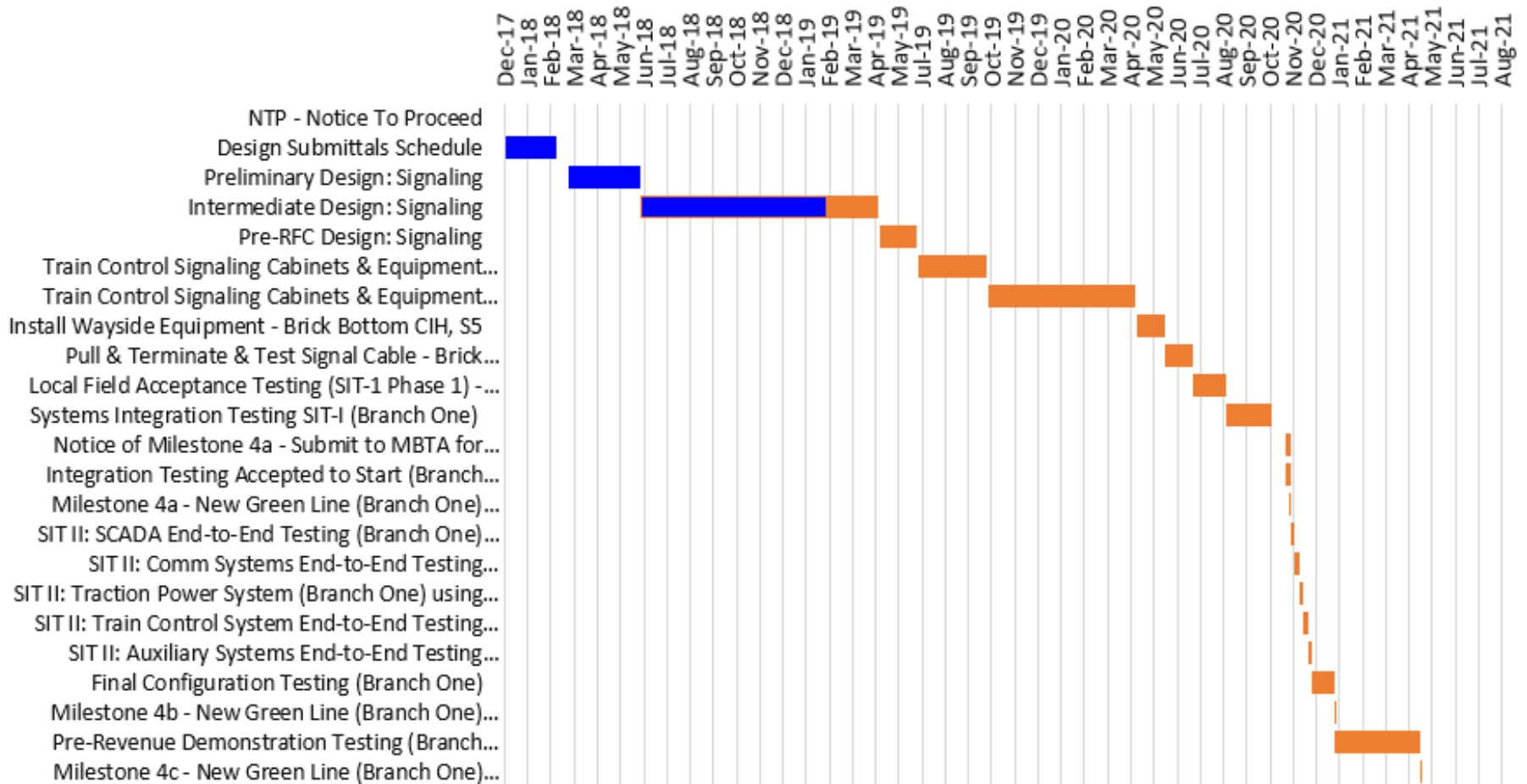
Near Critical Path

Milestone 5 – VMF Functionally Complete (-12 days)



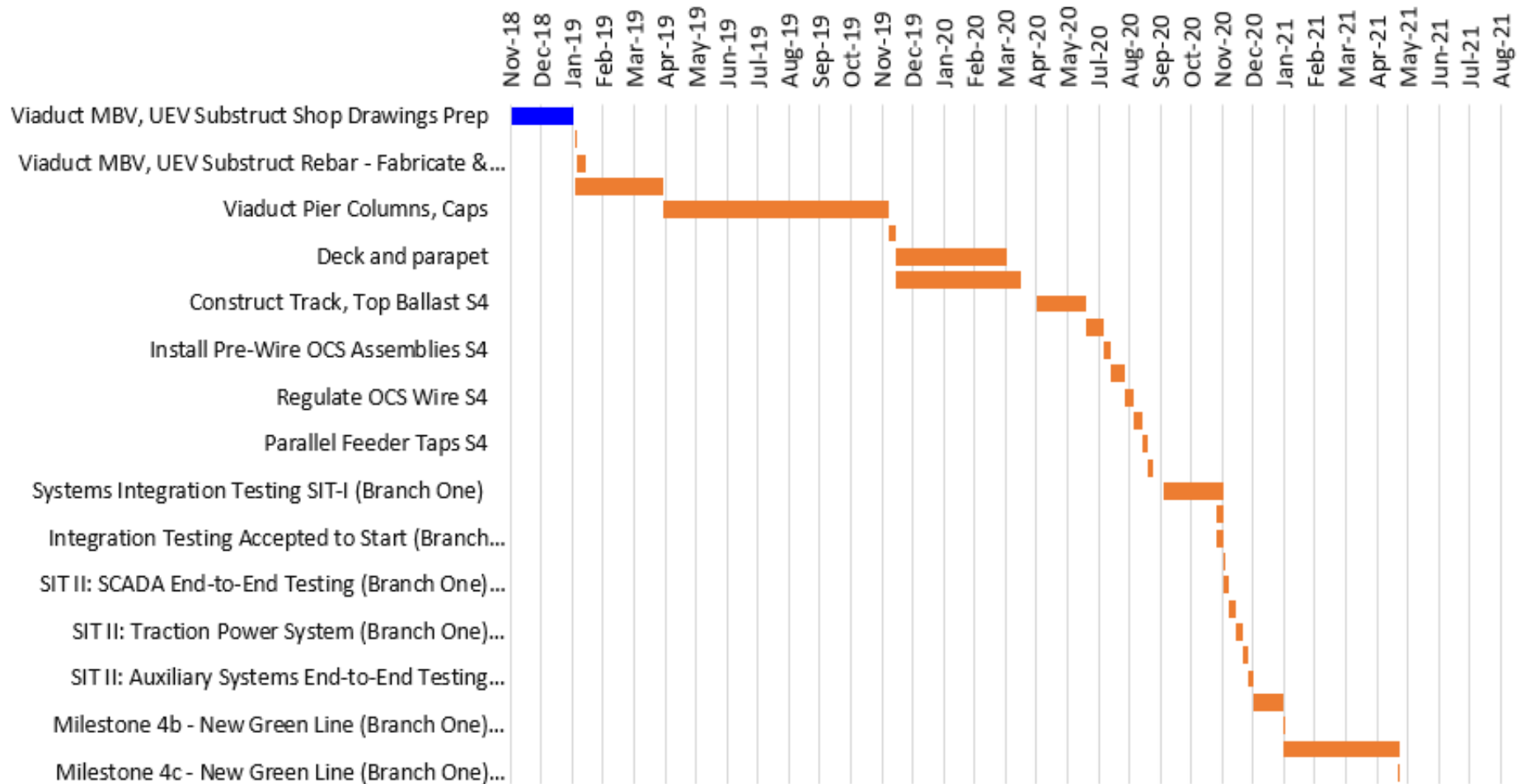
Critical Path

Milestone 4 – Branch One Complete (0 days)



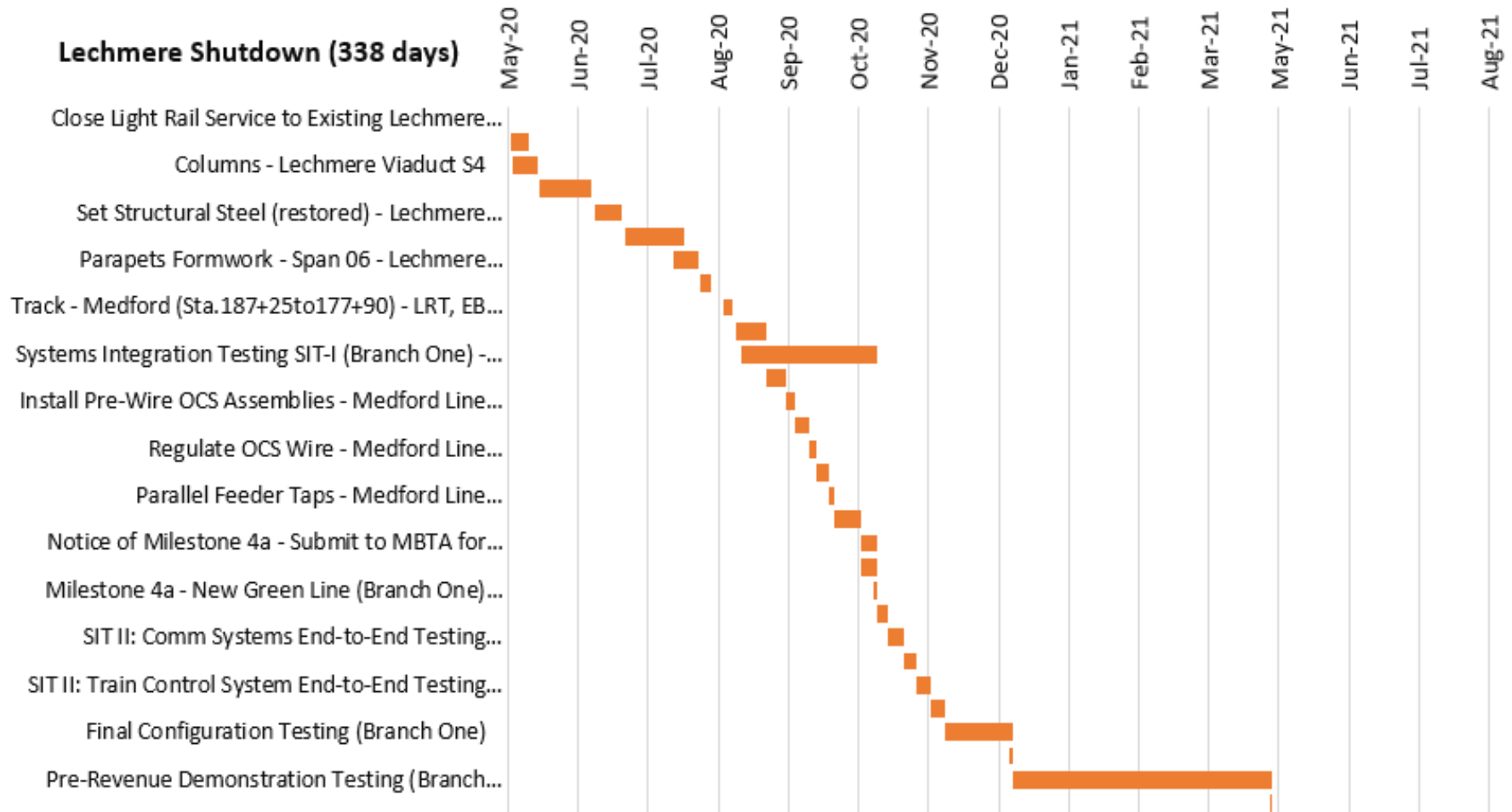
Near Critical Path

Milestone 4 – Branch One Complete (+7 days)



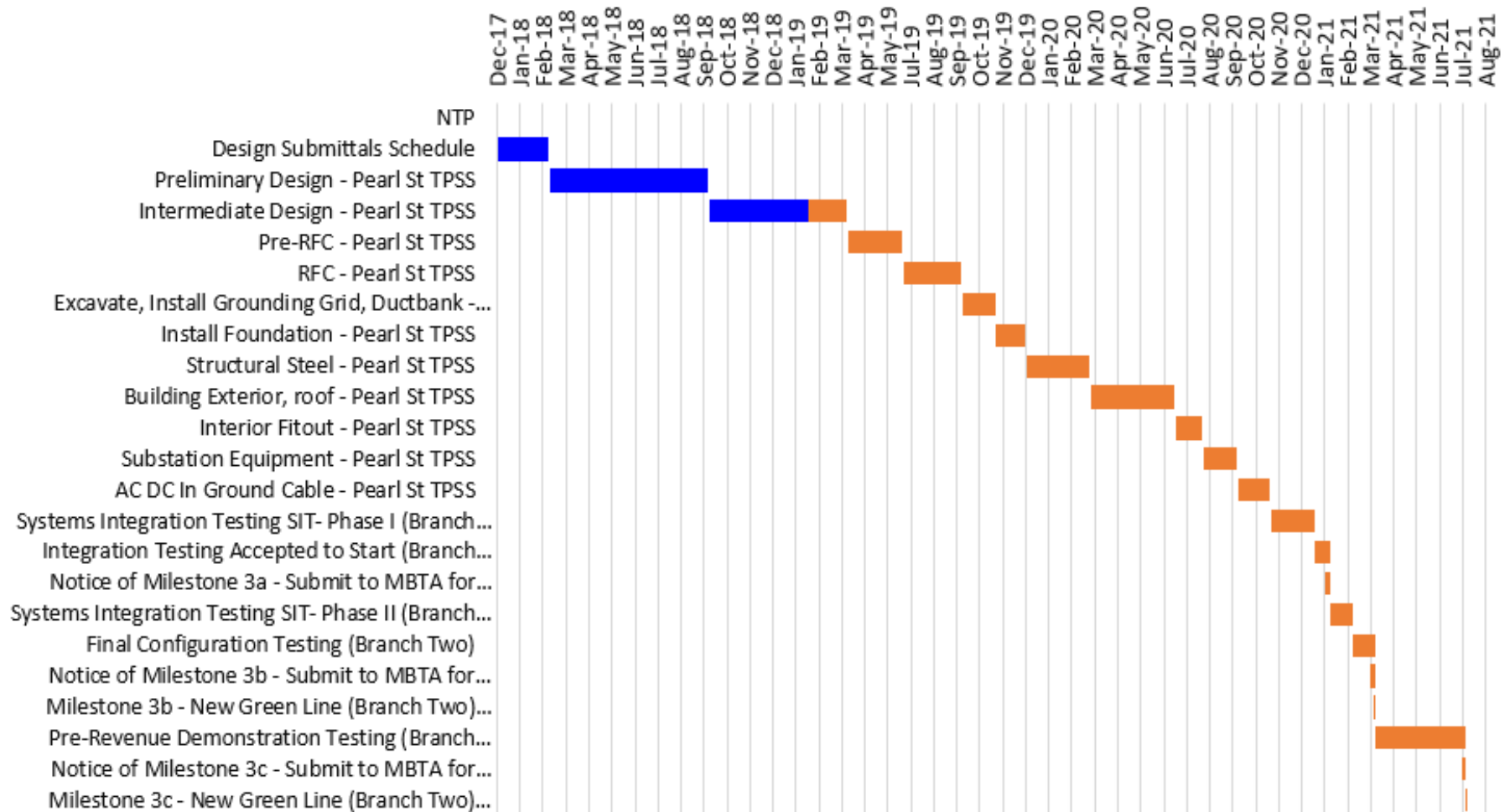
Critical Path

Milestone 4 – Spans 1 thru 7 Branch One



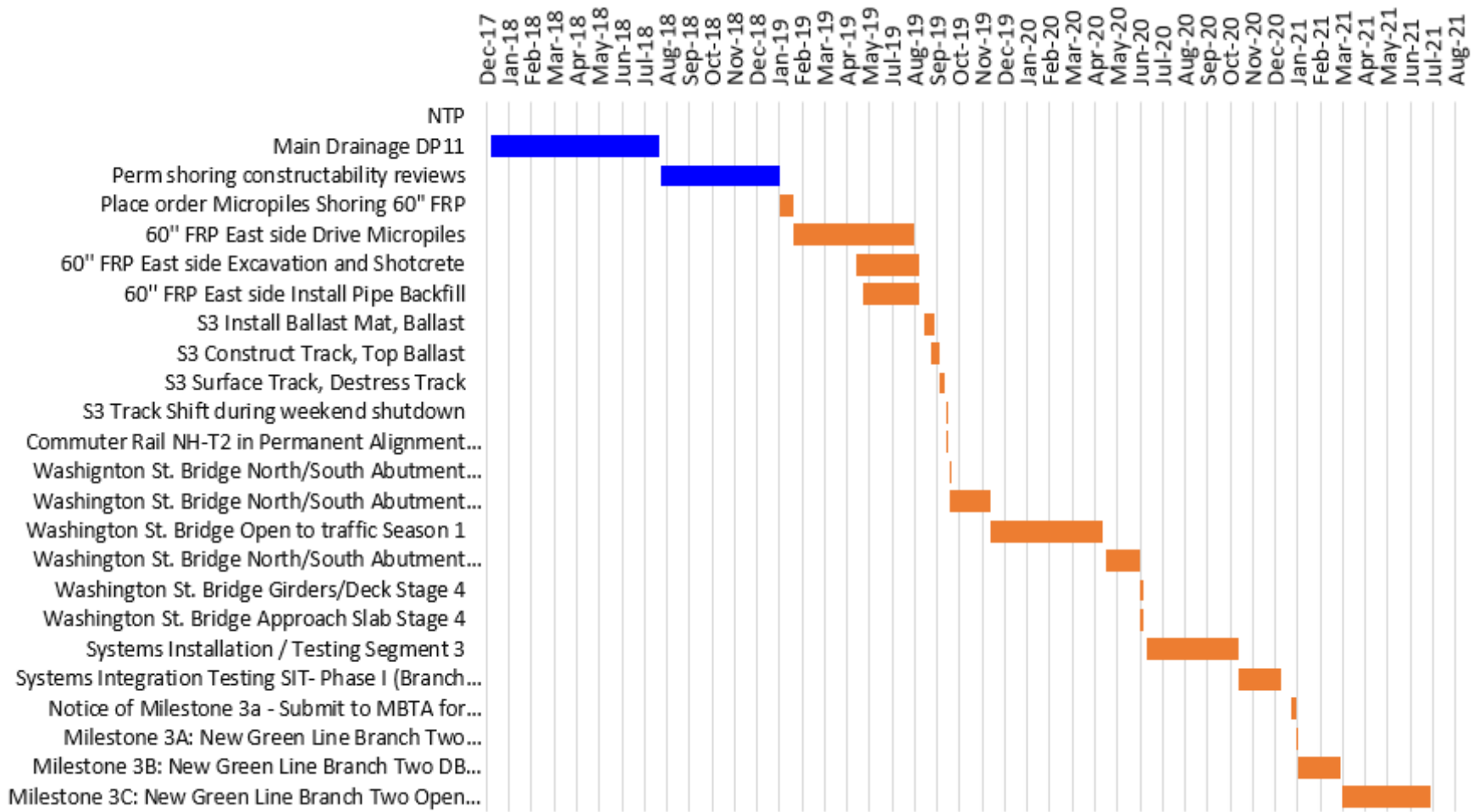
Critical Path

Milestone 3 – Branch Two Complete (-8 days)



Near Critical Path

Milestone 3 – Branch Two Complete (-3 days)



Discussion

