

SFO Runway 10R/28L Overlay and Reconstruction of Taxiway S and Construction of F2

Traffic Management

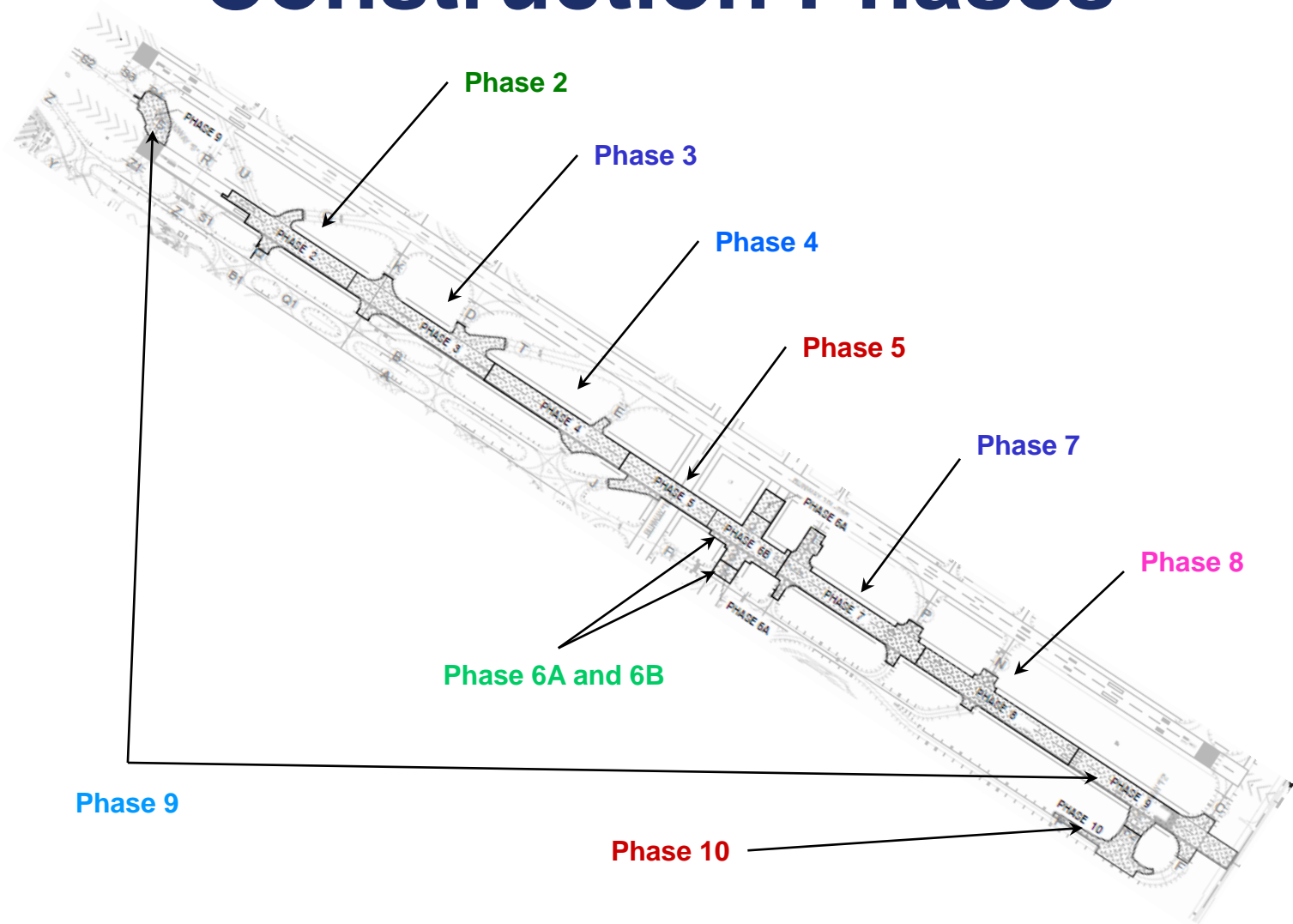
Presented by: Tom Pactol, NCT TMO



**Federal Aviation
Administration**



Construction Phases



PROJECT PHASING SCHEDULE

PHASE #	DESCRIPTION OF WORK	DURATION	R/W CLOSURE	T/W CLOSURE	START DATE	END DATE
PHASE 0	CONTRACTOR MOBILIZATION, SCHEDULE, SUBMITTALS, CONSTRUCTION PREP	MTP TO DAY 40	R/W 10R-28L AS NEEDED	2 T/W AT A TIME AS NEEDED	2/21/2017	4/1/2017
PHASE 1	REMOVAL OF EXISTING LIGHTING, BASE CAN AND CONDUIT INSTALLATION AND SOIL STABILIZATION INJECTION	MTP TO DAY 40; WEEK NIGHTS ONLY; FROM 2300 TO 0700				
PHASE 2	RUNWAY OVERLAY AT T/W Q	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #1 R/W 10R-28L	T/W Q	3/31/2017	4/3/2017
PHASE 3	RUNWAY OVERLAY AT T/W K, D AND T	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #2 R/W 10R-28L	T/W K, D AND T	4/7/2017	4/10/2017
NO WORK DURING EASTER WEEKEND 4/14-4/17/17						
PHASE 4	RUNWAY OVERLAY AT T/W E	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #3 R/W 10R-28L	T/W E	4/21/2017	4/24/2017
PHASE 5	RUNWAY OVERLAY AT R/W 1L AND 28L AND T/W J	(1) WEEKEND; FRIDAY 2359 TO SUNDAY 1200	WEEKEND CLOSURE #4 R/W 10R-28L AND R/W 1L-19R	T/W J	4/28/2017	4/30/2017
PHASE 6A (1 OF 2)	RUNWAY OVERLAY ON R/W 1R	1 NIGHT WEEK NIGHTS ONLY; FROM 2300 TO 0700	NIGHT CLOSURES R/W 10L-28R AS NEEDED	T/W F AND T/W F1 AS NEEDED	5/1/2017	5/2/2017
PHASE 6A (2 OF 2)	RUNWAY OVERLAY ON R/W 1R	1 NIGHT WEEK NIGHTS ONLY; FROM 2300 TO 0700	NIGHT CLOSURES R/W 10L-28R AS NEEDED	T/W F AND T/W F1 AS NEEDED	5/2/2017	5/3/2017
PHASE 6B	RUNWAY OVERLAY AT R/W 1R AND 28L	(1) WEEKEND; FRIDAY 2359 TO SUNDAY 1200	WEEKEND CLOSURE #5 R/W 10R-28L AND R/W 1R-19L	T/W L	5/5/2017	5/8/2017
PHASE 7	RUNWAY OVERLAY AT T/W L AND P	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #6 R/W 10R-28L	T/W L AND T/W P	5/12/2017	5/15/2017
PHASE 8	RUNWAY OVERLAY AT T/W N	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #7 R/W 10R-28L	T/W N	5/19/2017	5/22/2017
NO WORK DURING MEMORIAL DAY WEEKEND 5/28-5/29/17						
PHASE 9 (1 OF 2)	TAXIWAY F2 (NORTHERN) AND UTILITIES AND TAXIWAY S	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #8 R/W 10R-28L	T/W F FROM T/W N TO T/W C AND T/W S CLOSED	6/2/2017	6/5/2017
PHASE 10	TAXIWAY F2 (SOUTHERN)	5 DAYS; MONDAY 0800 TO FRIDAY 1800	NONE	T/W F FROM T/W N TO T/W C	6/5/2017	6/9/2017
PHASE 9 (2 OF 2)	TAXIWAY F2 (NORTHERN) AND UTILITIES AND TAXIWAY S	(1) WEEKEND; FRIDAY 1800 TO MONDAY 1200	WEEKEND CLOSURE #9 R/W 10R-28L	T/W F FROM T/W N TO T/W C AND T/W S CLOSED	6/9/2017	6/12/2017
PHASE 11	GROOMING, AIRFIELD LIGHTING, RWSL INSTALLATION, TESTING	DAY 41 TO 140; WEEK NIGHTS ONLY; FROM 2300 TO 0700	R/W 10R-28L AS NEEDED	2 T/W AT A TIME AS NEEDED	4/2/2017	7/10/2017
SUBSTANTIAL COMPLETION - Day 140 (7/10/2017)						
PUNCHLIST	PUNCHLIST ITEMS	DAY 141 TO 200; WEEK NIGHTS ONLY; FROM 2300 TO 0700	AS NEEDED	AS NEEDED	7/10/2017	9/7/2017
FINAL COMPLETION - Day 200 (9/7/2017)						

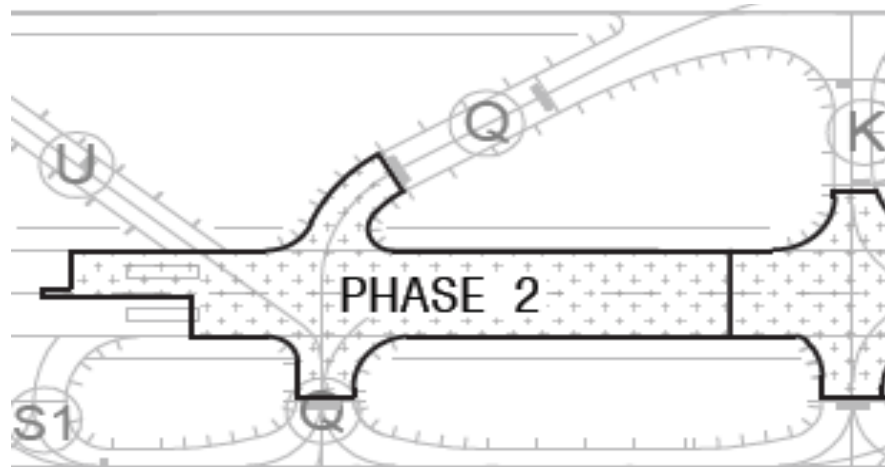


Phases 0 and 1 – 2/21/2017

- **Contractor mobilization, schedule submittals, and construction prep work**
- **Removal of existing lighting, base can and conduit installation and soil stabilization injection**
- **Runway closures during nights only 2300-0700L**
- **No RWY 10R/28L centerline lights from start date until completion of the project. This may raise departure minimums for some.**
- **Minimal impact (if any) to air traffic operations**



Phase 2 – 3/31/2017



- **Runway Overlay at TWY Q**
- **Runway 10R/28L closed for one weekend (Friday 1800L to Monday 1200L)**
- **Moderate to Significant Impact**



Phase 2 Concerns

- **Arriving 28R and Departing 1L/R:** Expanded spacing on final will be needed to accommodate the Hawaii, Transatlantic and Far East flights that require runway 28R for departure. For the most part, these periods are known and the reduced AAR for these periods should be coordinated in advance.
- **Arriving and Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes.
- **Arriving 19L/R and Departing 10L:** A higher AAR may be acceptable for coordinated periods of time but eventually the level of traffic will congest the airport since SFO will only be able to depart 1 aircraft at a time.

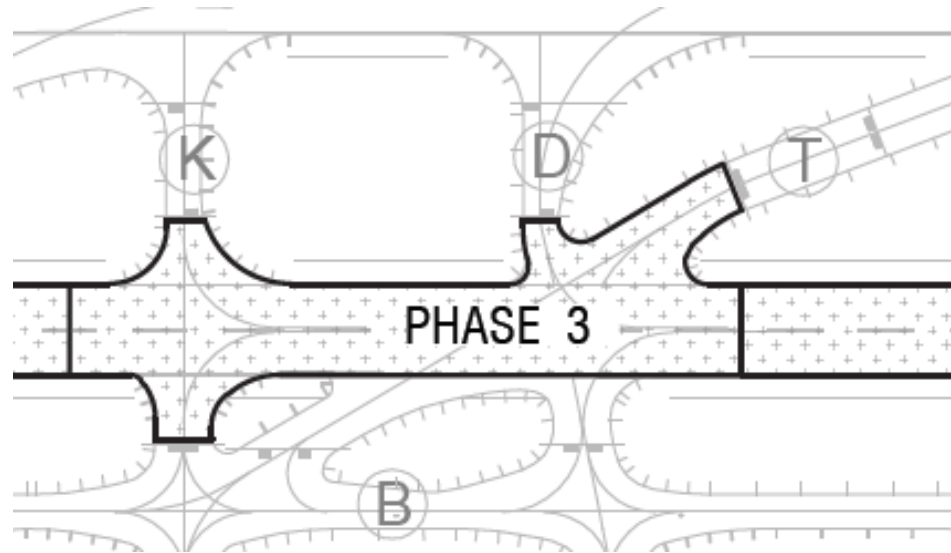


Phase 2 AAR/ADRs

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	30/40	22/22	28/28
MVMC/IMC	30/40	22/22	28/28



Phase 3 – 4/7/2017



- **Runway Overlay at Taxiway K, D and T**
- **Runway 10R/28L closed for one weekend (Friday 1800L to Monday 1200L)**
- **Moderate to Significant Impact**



Phase 3 Concerns

- **Arriving 28R, Departing 01L/R:** Longer runway occupancy times for aircraft that miss Taxiway E and need to taxi further down to Taxiway Q to exit the runway will need to be monitored for a possible decrease in AAR. Expanded spacing on final may be needed to accommodate the Hawaii, Transatlantic, Far East and flights requiring 28 for departure. For the most part, these periods of time are known and the reduced rate should be coordinated in advance.
- **Arriving 28R, Departing 28R:** Increased spacing will be needed to accommodate the spacing needed for the larger airframes and to get arriving aircraft off the runway who miss taxiway E. Options are available to turn aircraft to the right off the runway but the restrictions using taxiway Z during 28 Departure operations will make this a very complex operation.
- **Arriving 19L, Departing 10L:** Increased departure and arrival delays due to runway configuration and weather.



Phase 3 AAR/ADR

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	27/46	22/22	28/28
MVMC/IMC	27/42	22/22	28/28

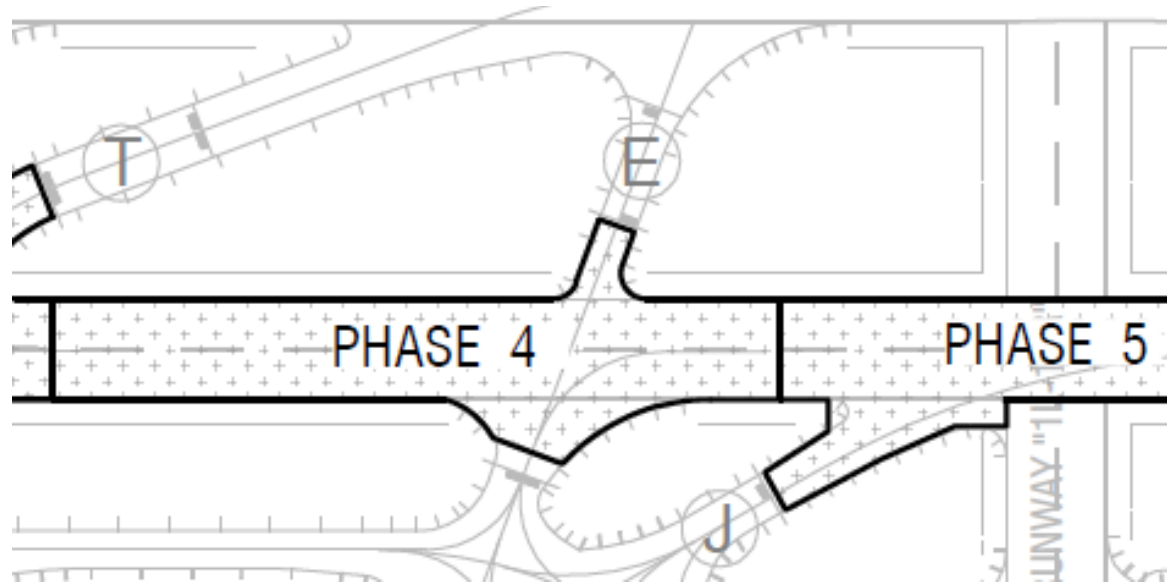


**NO WORK
DURING EASTER WEEKEND**

4/14/2017 – 4/17/2017



Phase 4 – 4/21/2017



- **Runway overlay at Taxiway E**
- **Runways 10R/28L closed for one weekend (Friday 1800L to Monday 1200L)**
- **Moderate to Significant Impact**



Phase 4 Concerns

- **Arriving 28R, Departing 1L/R:** Expanded spacing on final may be needed to accommodate the Hawaii, Transatlantic, Far East and flights requiring 28 for departure. For the most part, these periods of time are known and the reduced rate should be coordinated in advance.
- **Arriving 28R, Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes and to get arriving aircraft off the runway.
- **Arriving 19L/R, Departing 10L or Arriving 19L/R, Departing 19L/R:** A higher AAR may be acceptable for coordinated periods of time but eventually the level of traffic will congest the airport since SFO will only be able to depart 1 aircraft at a time.

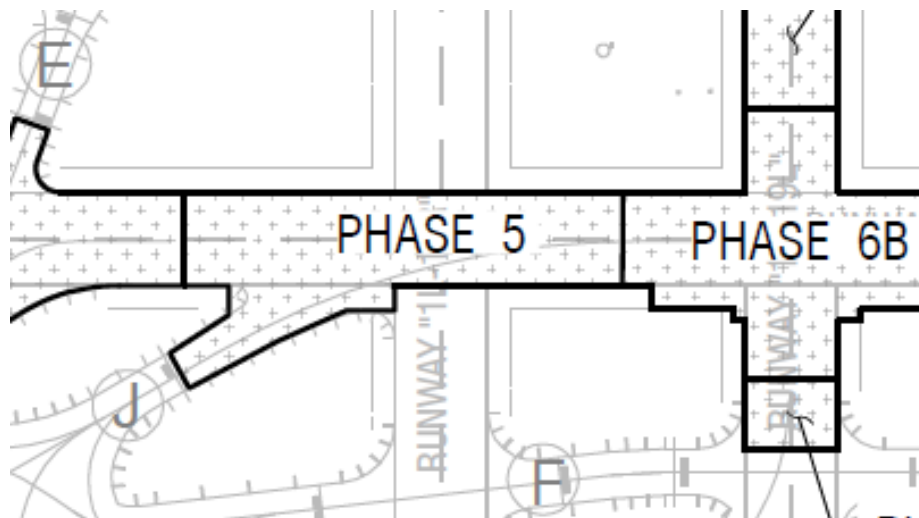


Phase 4 AAR/ADR

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	30/40	22/22	28/28
MVMC/IMC	30/40	22/22	28/28



Phase 5 – 4/28/2017



- **Runway Overlay at Runway 1L and 28L and Taxiway J**
- **Runways 10R/28L and 1L/19R Closed for One Weekend; Friday 2359L to Sunday 1200L**
- **Moderate to Significant Impact**



Phase 5 Concerns

- **Arriving 28R, Departing 1R:** Departing 1 flight in each arrival gap will push SFO into departure delays early and keep us in delays for longer periods of the day. Expanded spacing on final may be needed to accommodate the Hawaii, Transatlantic, Far East and flights requiring 28 for departure. For the most part, these periods of time are known and the reduced rate should be coordinated in advance.
- **Arriving 28R, Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes and to get arriving aircraft off the runway.
- **Arriving 19L, Departing 10L:** Departing 1 flight in each arrival gap will push SFO into departure delays early and keep SFO in delays for longer periods of the day.
- **Arriving and Departing 19L:** Weather will probably postpone construction or runway closure. SFO will be required to cross all departure aircraft across 19L, to get to the approach end of 19L for departure.

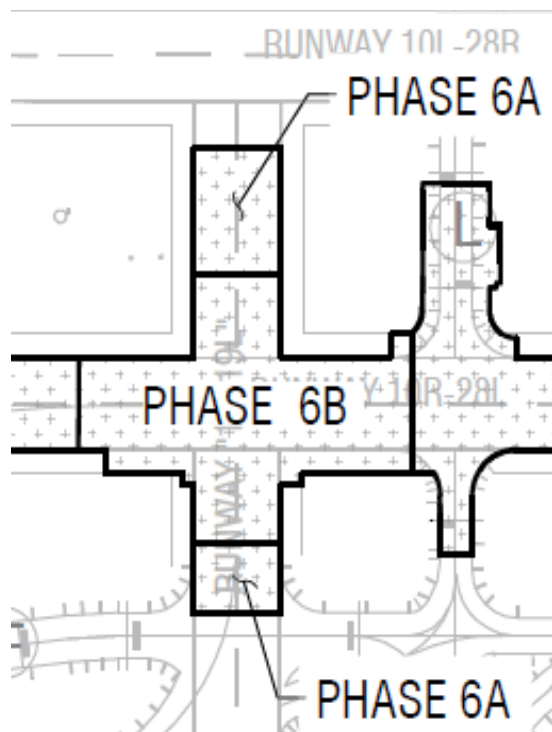


Phase 5 AAR/ADR

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/28R	Departing 28R	Departing 10L
VMC	30/30	22/22	28/28
MVMC/IMC	27/30	22/22	28/28



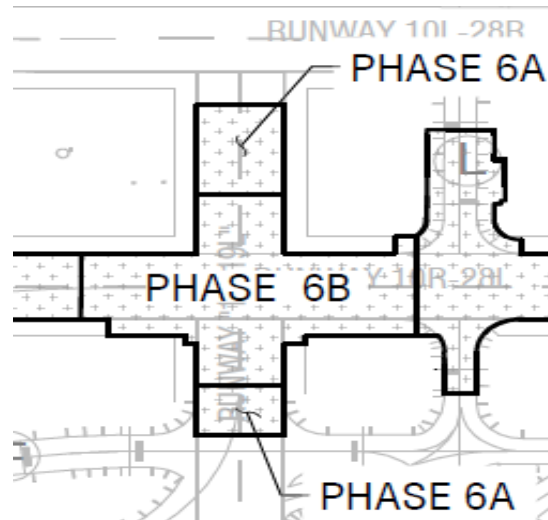
Phase 6A - 5/1/2017



- Runway Overlay on Runway 1R
- Runway **10L/28R** Closed as needed for 2 nights; Week Nights Only from 2300L to 0700L
- Minimal Impact to Air Traffic



Phase 6B – 5/5/2017



- **Runway Overlay on at Runway 1R and 28L**
- **Runways 10R/28L and 1R/19L Closed for One Weekend; Friday 2359L to Sunday 1200L**
- **Moderate to Significant Impact**



Phase 6B Concerns

- **Arriving 28R, Departing 1L:** Departing 1 flight in each arrival gap will push SFO into departure delays early and keep us in delays for longer periods of the day. Expanded spacing on final may be needed to accommodate the Hawaii, Transatlantic, Far East and flights requiring 28 for departure. For the most part, these periods of time are known and the reduced rate should be coordinated in advance.
- **Arriving 28R, Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes.
- **Arriving 19R, Departing 10L:** Runway 19R has no ILS but it does have a RNAV (GPS) approach. Departing 1 flight in each arrival gap will push SFO into departure delays early and keep SFO in delays for longer periods of the day.
- **Arriving and Departing 19R:** Weather will probably postpone construction or runway closure.

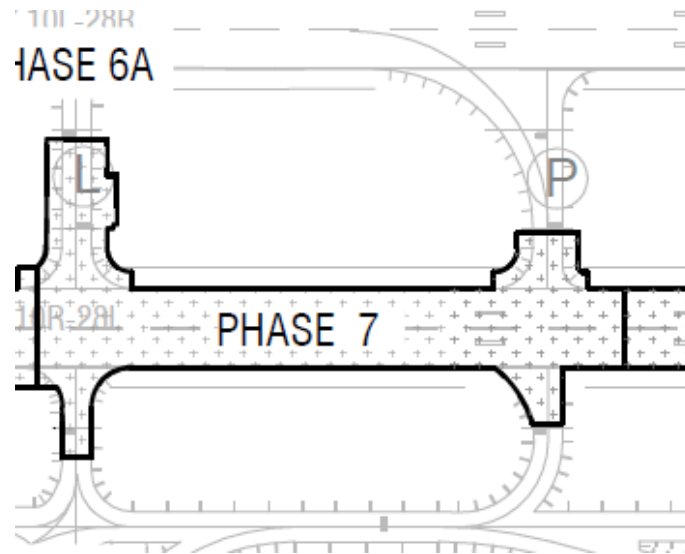


Phase 6B AAR/ADR

	Landing 28R	Landing 28R	Landing 19R
	Departing 1L/28R	Departing 28R	Departing 10L
VMC	27/30	22/22	25
MVMC/IMC	26/30	22/22	25



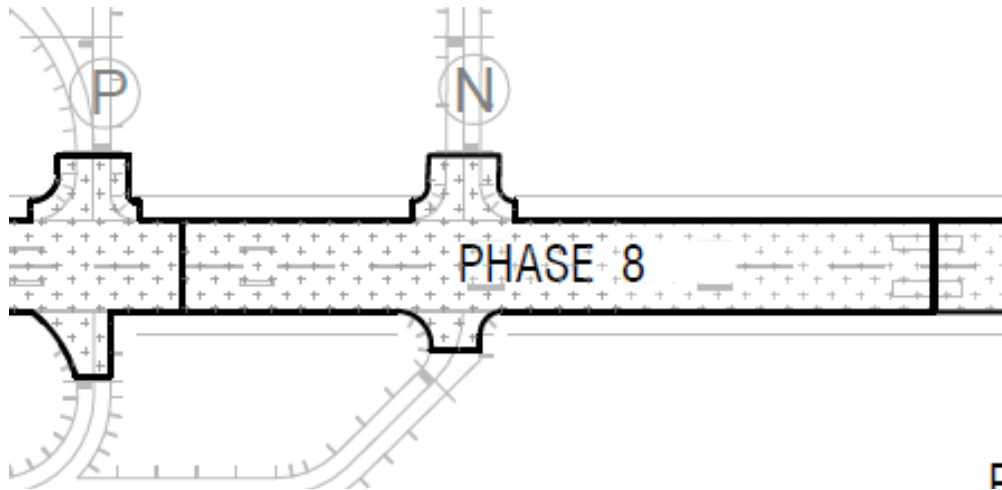
Phase 7 – 5/12/2017



- **Runway Overlay at Taxiway L and P**
- **Runway 10R/28L Closed for One Weekend; Friday 1800L to Monday 1200L**
- **Moderate to Significant Impact**



Phase 8 – 5/19/2017



- **Runway Overlay at Taxiway N**
- **Runway 10R/28L Closed for One Weekend;
Friday 1800L to Monday 1200L**
- **Moderate to Significant Impact**



Phases 7 and 8 Concerns

- **Arriving 28R and Departing 1L/R:** Expanded spacing on final will be needed to accommodate the Hawaii, Transatlantic and Far East flights that require runway 28R for departure. For the most part, these periods are known and the reduced AAR for these periods should be coordinated in advance.
- **Arriving and Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes.
- **Arriving 19L/R and Departing 10L:** A higher AAR may be acceptable for coordinated periods of time but eventually the level of traffic will congest the airport since SFO will only be able to depart 1 aircraft at a time.



Phases 7 and 8 AAR/ADRs

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	30/40	22/22	28/28
MVMC/IMC	30/40	22/22	28/28

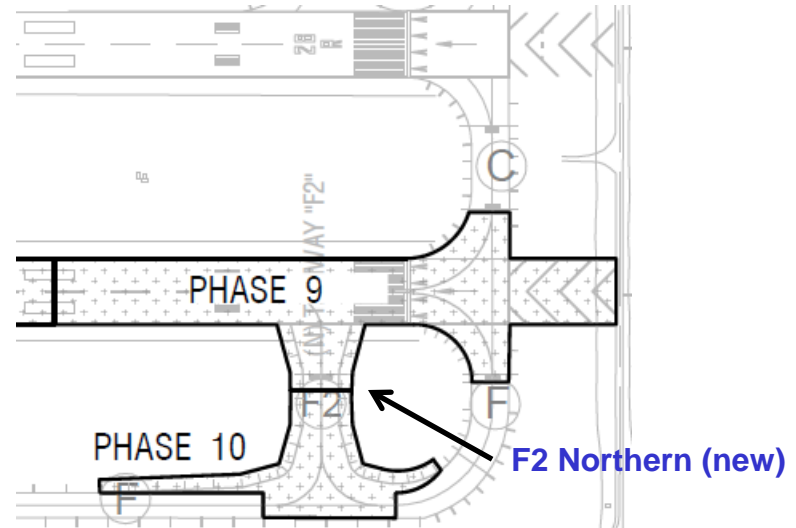
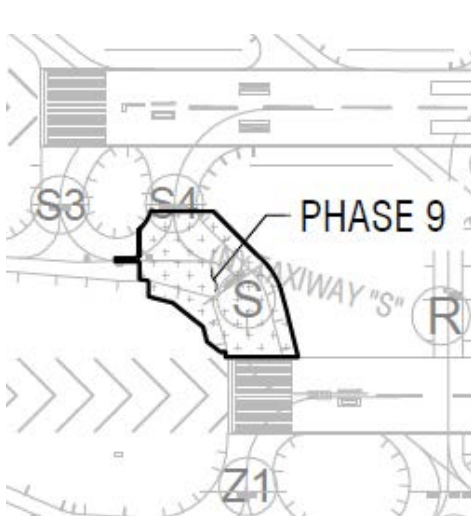


**NO WORK
DURING MEMORIAL DAY
WEEKEND**

5/26/2017 – 5/29/2017



Phase 9 – 6/2/2017 (1 of 2)



- **Taxiway F2 (Northern), Utilities, and Taxiway S**
- **Runway 10R/28L Closed for 1 of 2 Weekends; Friday 1800L to Monday 1200L**
- **Moderate to Significant Impact**



Phase 9 Concerns

- **Arriving 28R and Departing 1L/R:** Expanded spacing on final will be needed to accommodate the Hawaii, Transatlantic and Far East flights that require runway 28R for departure. For the most part, these periods are known and the reduced AAR for these periods should be coordinated in advance.
- **Arriving and Departing 28R:** Increased departure delays due to runway configuration and long taxi. Increased spacing will be needed to accommodate the larger airframes.
- **Arriving 19L/R and Departing 10L:** A higher AAR may be acceptable for coordinated periods of time but eventually the level of traffic will congest the airport since SFO will only be able to depart 1 aircraft at a time.

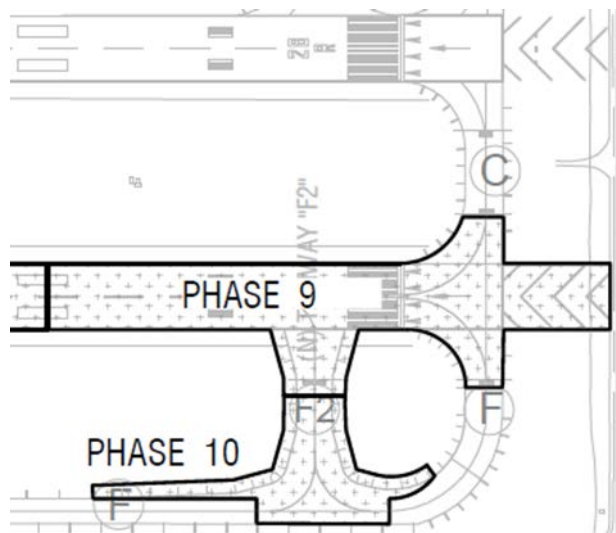


Phase 9 AAR/ADRs

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	30/40	22/22	28/28
MVMC/IMC	30/40	22/22	28/28



Phase 10 – 6/5/2017



- **Taxiway F2 (Southern)**
- **Taxiway F from Taxiway N to Taxiway C for 5 days; Monday 0800L to Friday 1600L**
- **Moderate Impact (possibly Significant)**



Phase 10 Concerns

- **Arriving 28R/L and Departing 1L/R:** Expanded spacing on final will be needed to accommodate runway crossings for Hawaii, Transatlantic and Far East flights that require runway 28R for departure. For the most part, these periods are known and the reduced AAR for these periods should be coordinated in advance.
- **Arriving and Departing 28R/L:** Expanded spacing on final will be needed to accommodate runway crossings for Hawaii, Transatlantic and Far East flights that require runway 28R for departure. For the most part, these periods are known and the reduced AAR for these periods should be coordinated in advance.



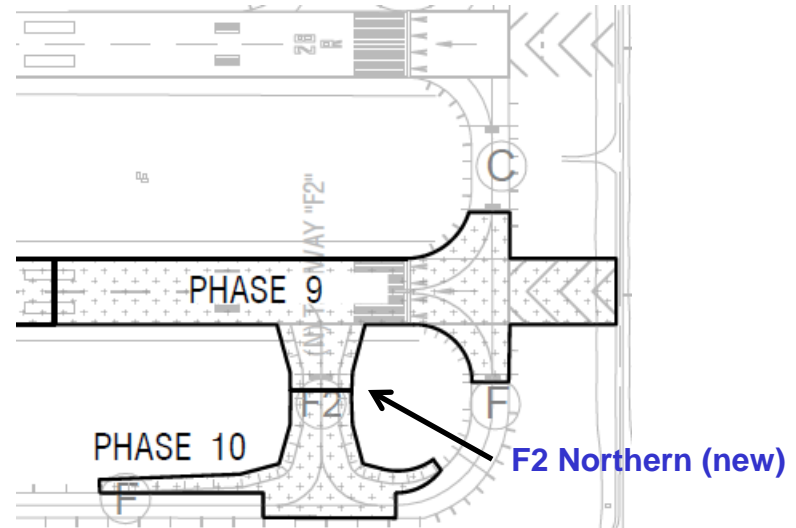
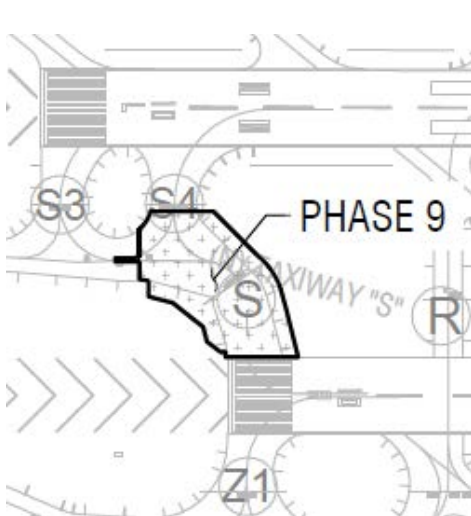
Phase 10 AAR/ADR

	Landing 28L/28R
	Departing 28L/28R
VMC	40/40
MVMC/IMC	34/40

***Other AAR/ADRs Remain as Currently Published**



Phase 9 – 6/9/2017 (2 of 2)



- **Taxiway F2 (Northern), Utilities, and Taxiway S**
- **Runway 10R/28L Closed for 1 of 2 Weekends; Friday 1800L to Monday 1200L**
- **Moderate to Significant Impact**



Phase 9 AAR/ADRs

	Landing 28R	Landing 28R	Landing 19L
	Departing 1R/1L	Departing 28R	Departing 10L
VMC	30/40	22/22	28/28
IMC	30/40	22/22	28/28





Key Dates

- **2/21/2017** - Phase 0 begins (Construction Prep with overnight Runway 10R/28L Closures as needed)
- **3/31/2017** - Phase 2 begins (First Weekend Runway Closure)
- **7/10/2017** - Substantial Completion
- **9/7/2017** - Final Completion



Phase 11 – 4/2/2017 – 7/10/2017

- **Ongoing work through project**
- **Grooving, Airfield Lighting, RWSL Installation and Testing**
- **Weeknights only from 2300L to 0700L**
- **Will close 2 Taxiways at a time and Runway 10R/28L as needed**

