

# Fillmore – Central Ave to 7<sup>th</sup> Street Lane Reduction Capacity Analysis December 3, 2021

## Existing 2021 Conditions:

- AM
  - All intersections operate at an acceptable overall LOS
  - EB/WB approaches at 7<sup>th</sup> St have some movements at LOS E
  - All other movements are LOS D or better
- MD
  - All intersections operate at an acceptable overall LOS
  - EB approach at 7<sup>th</sup> St has some movements at LOS E
  - All other movements are LOS D or better
- PM
  - All intersections operate at an acceptable overall LOS
  - EB/WB approaches at 7<sup>th</sup> St have some movements at LOS E
  - EB Left Turn Queue at 7<sup>th</sup> St may exceed available storage
  - All other movements are LOS D or better

## Proposed 2021 Conditions:

- AM
  - Signalized: Comparable to Existing
  - Unsignalized:
    - 1<sup>st</sup>/Fillmore – Overall improves to LOS A
    - 2<sup>nd</sup>/Fillmore – Comparable to Existing
- MD
  - Signalized: Comparable to Existing
  - Unsignalized:
    - 1<sup>st</sup>/Fillmore – Overall improves to LOS A
    - 2<sup>nd</sup>/Fillmore – Comparable to Existing
- PM
  - Signalized: Comparable to Existing
    - EB/WB approaches at 7<sup>th</sup> St have some movements at LOS E (matches existing condition)
    - EB Left Turn Queue at 7<sup>th</sup> St may exceed available storage (matches existing condition)
  - Unsignalized:
    - 1<sup>st</sup>/Fillmore – Comparable to Existing
    - 2<sup>nd</sup>/Fillmore – Slight decrease from Overall LOS A to LOS B; all individual movements LOS B or better

### Future 2026 Conditions (with Proposed Geometry):

- Assumes 2% growth rate per year for 5 years
  - Existing Year: 2021
  - Future Year: 2026
- Comparable to 2021 Results.
  - All locations operate at Overall LOS C or better for all three peaks.
  - EB/WB approaches at 7<sup>th</sup> St have some movements at LOS E during the PM Peak (matches existing condition).
  - EB Left Turn Queue at 7<sup>th</sup> St may exceed available storage during the PM Peak (matches existing condition).

### Results:

- There appears to be plenty of capacity available to make the proposed geometric changes without impacting operations at the existing signalized and unsignalized intersections.
  - There is very little change in LOS/Delay with the proposed geometry. All intersections and movements are expected to continue operating at a LOS D or better. Most are LOS A/B.
    - Exception is the EB/WB approaches at 7<sup>th</sup> Street, which already operate at LOS E under existing conditions due to control delay.
  - The proposed geometry is effectively the same as existing conditions for Central Ave and 7<sup>th</sup> Street intersections, which are the major intersections.
    - Note: The east leg of Central Ave assumes on-street parking will be removed in favor of the exclusive bike lane.

### Recommendations:

- Review the existing signal timings after implementing the proposed lane reduction. Field adjust timings as needed and note the following:
  - Tweaking the timings at 7<sup>th</sup> Street will not significantly reduce the existing side street delay, because the delay is primarily from control delay. The split phasing makes it difficult to allocate much more time to Fillmore and the side street splits already receive the majority of the cycle when added together.
  - Any signal timing changes should favor the existing NB/SB progression on Central Ave and 7<sup>th</sup> Street.

**CENTRAL AVE & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB			
	L/T	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>													
AM Peak	B	D	A				C	D				D	
	B	A						C			D		
	C												
MD Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
PM Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
<i>AM Queue</i>	25'	25'	30'				30'	115'				105'	
<i>MD Queue</i>	25'	50'	35'				35'	85'				130'	
<i>PM Queue</i>	25'	45'	65'				45'	75'				185'	
<i>EX Storage</i>	-	220'	-				-	-				-	
<i>PROPOSED 2021</i>													
AM Peak	B	D	A				C	D				D	
	B	A						C			D		
	C												
MD Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
PM Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
<i>AM Queue</i>	25'	25'	30'				30'	115'				105'	
<i>MD Queue</i>	25'	50'	35'				35'	85'				135'	
<i>PM Queue</i>	25'	45'	65'				45'	75'				185'	
<i>EX Storage</i>	-	220'	-				-	-				-	
<i>PROPOSED 2026 (FUTURE)</i>													
AM Peak	B	D	A				C	D				D	
	B	A						C			D		
	C												
MD Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
PM Peak	B	D	A				C	C				D	
	B	B						C			D		
	C												
<i>AM Queue</i>	25'	30'	30'				35'	120'				115'	
<i>MD Queue</i>	25'	55'	40'				40'	90'				145'	
<i>PM Queue</i>	25'	45'	75'				50'	85'				200'	
<i>EX Storage</i>	-	220'	-				-	-				-	

**3RD STREET & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>												
AM Peak	C		A	C	C		A	A	A			
	B			C			A			A		
	B											
MD Peak	C		A	C	B		A	A	A			
	B			C			A			A		
	B											
PM Peak	C		A	C	C		A	A	A			
	A			C			A			A		
	B											
AM Queue	25'		25'	65'	95'		30'	25'	30'			
MD Queue	25'		25'	50'	75'		35'	25'	30'			
PM Queue	25'		25'	45'	85'		45'	25'	30'			
EX Storage	140'		-	-	-		-	130'	-			
<i>PROPOSED 2021</i>												
AM Peak	C		A	C	C		A	A	A			
	B			C			A			A		
	B											
MD Peak	C		A	C	B		A	A	A			
	B			C			A			A		
	B											
PM Peak	C		A	C	C		A	A	A			
	A			C			A			A		
	B											
AM Queue	25'		25'	65'	95'		60'	25'	55'			
MD Queue	25'		25'	50'	75'		70'	25'	55'			
PM Queue	25'		25'	45'	85'		100'	25'	60'			
EX Storage	140'		-	-	-		-	130'	-			
<i>PROPOSED 2026 (FUTURE)</i>												
AM Peak	C		A	C	C		A	A	A			
	B			C			A			A		
	B											
MD Peak	C		A	C	C		A	A	A			
	B			C			A			A		
	B											
PM Peak	C		A	C	C		A	A	A			
	A			C			A			A		
	B											
AM Queue	25'		25'	70'	105'		65'	25'	60'			
MD Queue	25'		25'	55'	80'		75'	30'	60'			
PM Queue	30'		25'	45'	95'		110'	25'	65'			
EX Storage	140'		-	-	-		-	130'	-			

**5TH STREET & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>												
AM Peak		B					B	B				B
		B						B				B
		B										
MD Peak		B					B	A				A
		B						A				A
		B										
PM Peak		B					B	B				A
		B						B				A
		B										
AM Queue		30'					30'	45'				70'
MD Queue		40'					35'	45'				50'
PM Queue		65'					65'	90'				45'
EX Storage		-					135'	-				-
<i>PROPOSED 2021</i>												
AM Peak		B					B	B				B
		B						B				B
		B										
MD Peak		B					B	B				B
		B						B				B
		B										
PM Peak		B					B	B				B
		B						B				B
		B										
AM Queue		30'					30'	85'				150'
MD Queue		40'					35'	90'				110'
PM Queue		65'					65'	190'				95'
EX Storage		-					135'	-				-
<i>PROPOSED 2026 (FUTURE)</i>												
AM Peak		B					B	B				B
		B						B				B
		B										
MD Peak		B					B	B				B
		B						B				B
		B										
PM Peak		B					B	B				B
		B						B				B
		B										
AM Queue		30'					30'	90'				170'
MD Queue		45'					35'	100'				125'
PM Queue		70'					75'	210'				105'
EX Storage		-					135'	-				-

**7TH STREET & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>												
AM Peak	B	B	B	B	E	E	B	E	C			
	B		B			E			D			
	B											
MD Peak	B	A	A	A	E	E	B	D	B			
	A		A			D			C			
	B											
PM Peak	B	B	B	B	E	E	A	E	C			
	B		B			E			D			
	C											
AM Queue	55'	180'	125'	315'	115'	120'	30'	145'	20'			
MD Queue	40'	155'	25'	165'	145'	145'	30'	25'	25'			
PM Queue	55'	315'	40'	210'	305'	305'	45'	55'	30'			
EX Storage	500'	-	500'	-	120'	-	-	160'	-			
<i>PROPOSED 2021</i>												
AM Peak	B	B	B	B	E	E	B	E	C			
	B		B			E			D			
	B											
MD Peak	B	A	A	A	E	E	B	D	B			
	A		A			D			C			
	B											
PM Peak	B	B	B	B	E	E	A	E	C			
	B		B			E			D			
	C											
AM Queue	55'	180'	125'	315'	115'	120'	30'	145'	25'			
MD Queue	40'	155'	25'	165'	145'	145'	30'	25'	25'			
PM Queue	55'	315'	40'	210'	305'	305'	45'	55'	30'			
EX Storage	500'	-	500'	-	120'	-	-	160'	-			
<i>PROPOSED 2026 (FUTURE)</i>												
AM Peak	C	B	C	B	E	E	B	E	C			
	B		B			E			D			
	C											
MD Peak	B	A	B	A	E	E	A	D	B			
	A		A			D			C			
	B											
PM Peak	B	B	C	B	E	E	A	E	D			
	B		B			D			D			
	C											
AM Queue	55'	220'	175'	395'	125'	130'	35'	150'	55'			
MD Queue	45'	190'	30'	200'	155'	155'	30'	30'	25'			
PM Queue	65'	385'	50'	255'	320'	330'	45'	60'	50'			
EX Storage	500'	-	500'	-	120'	-	-	160'	-			

**1<sup>ST</sup> STREET & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>												
AM Peak	A	A	A	B	A	B	A	B	A	B	A	
	A		B			B			A			
	B											
MD Peak	A	B	B	B	A	B	A	B	A	B	A	
	B		B			B			A			
	B											
PM Peak	B	B	B	B	B	B	B	B	B	B	A	
	B		B			B			B			
	B											
AM Queue	25'	25'	25'	25'	25'	50'	25'	25'	25'			
MD Queue	25'	25'	25'	25'	25'	25'	25'	25'	25'			
PM Queue	25'	50'	25'	25'	25'	50'	25'	50'	25'			
EX Storage	100'	-	100'	-	95'	-	90'	-	-			
<i>PROPOSED 2021</i>												
AM Peak	A	A	A	A	A	B	A	A				
	A		A			B			A			
	A											
MD Peak	A	B	A	A	A	A	A	B				
	A		A			A			B			
	A											
PM Peak	B	B	B	A	A	B	A	B				
	B		B			B			B			
	B											
AM Queue	25'	25'	25'	25'	25'	50'	25'	25'				
MD Queue	25'	25'	25'	25'	25'	25'	25'	50'				
PM Queue	25'	25'	25'	25'	25'	50'	25'	50'				
EX Storage	100'	-	100'	-	95'	-	90'	-				
<i>PROPOSED 2026 (FUTURE)</i>												
AM Peak	A	A	A	B	A	B	A	B				
	A		A			B			B			
	B											
MD Peak	A	B	A	B	A	B	A	B				
	B		B			B			B			
	B											
PM Peak	B	B	B	B	A	B	B	B				
	B		B			B			B			
	B											
AM Queue	25'	25'	25'	25'	25'	50'	25'	50'				
MD Queue	25'	50'	25'	25'	25'	50'	25'	50'				
PM Queue	25'	50'	25'	25'	25'	50'	25'	60'				
EX Storage	100'	-	100'	-	95'	-	90'	-				

**2<sup>ND</sup> STREET & FILLMORE ST  
LOS AND 95% QUEUES**

Intersection	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
<i>EXISTING 2021</i>												
AM Peak	A	A	A	A	A	A	A	A	A	A	A	A
	A		A			A			A			
	A											
MD Peak	A	A	A	A	A	A	A	A	A	A	A	A
	A		A			A			A			
	A											
PM Peak	B	A	A	A	A	A	B	A	A	B	A	A
	B		A			A			B			
	A											
AM Queue	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'
MD Queue	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'
PM Queue	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'	25'
EX Storage	-	50'	-	160'	75'	-	-	-	-	-	-	-
<i>PROPOSED 2021</i>												
AM Peak	A	A	A	A	A	A	B	A	A	A	A	A
	A		A			A			A			
	A											
MD Peak	A	A	A	A	A	A	A	A	A	A	A	B
	A		A			A			A			
	A											
PM Peak	B	A	A	A	A	A	B	A	A	B	A	B
	A		A			B			B			
	B											
AM Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
MD Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
PM Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
EX Storage	-	50'	-	160'	75'	-	-	-	-	-	-	-
<i>PROPOSED 2026 (FUTURE)</i>												
AM Peak	A	A	A	B	A	A	B	A	A	B	A	B
	A		A			B			B			
	B											
MD Peak	B	A	A	A	A	A	B	A	A	B	A	B
	A		A			B			B			
	B											
PM Peak	B	A	A	A	A	A	B	A	A	B	A	B
	B		A			B			B			
	B											
AM Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
MD Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
PM Queue	25'	25'	25'	25'	25'	25'	50'	25'	25'	50'	25'	50'
EX Storage	-	50'	-	160'	75'	-	-	-	-	-	-	-