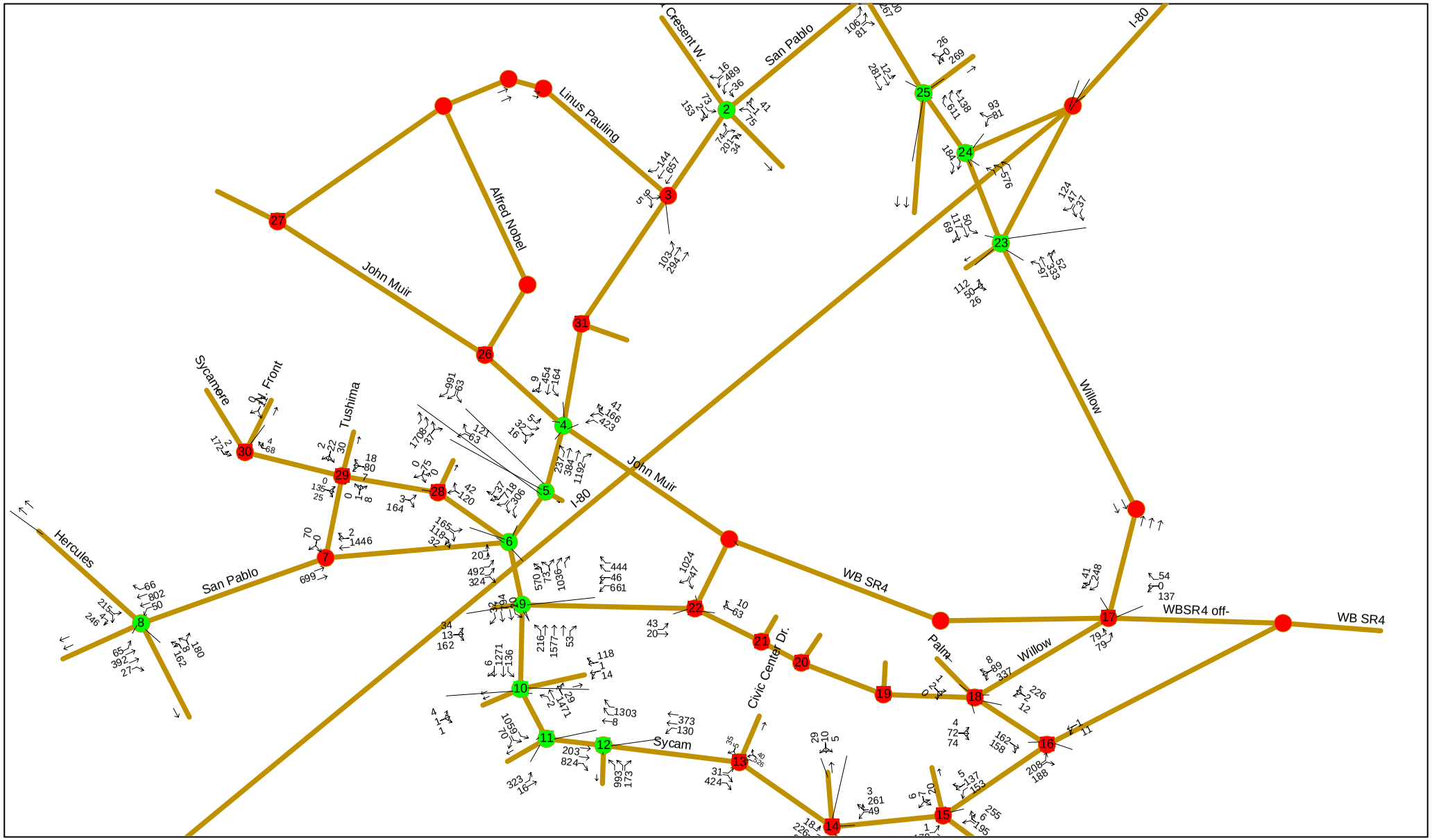
APPENDIX 3.0

Freeway Mainline and Ramp Operation Analysis

Table A Freeway Mainline and Ramp Operation Analysis									
		Exisitng Conditions		Background Conditions		Project Conditions		2035 Conditions	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS
WB I-80 North of SR 4	AM	30	D	30	D	30	D	31	D
	PM	23	C	23	C	23	C	25	D
WB I -80 South of SR 4	AM	31	D	32	D	32	D	35	E
	PM	26	D	27	D	27	D	28	D
EB I-80 North of SR 4	AM	20	C	20	C	20	C	21	C
	PM	30	D	31	D	31	D	30	D
EB I-80 South of SR 4	AM	31	D	32	D	32	D	31	D
	PM	33	D	34	D	34	D	45	F
EB SR 4 East of I-80	AM	12	B	12	B	12	B	14	B
	PM	14	B	14	B	15	B	14	B
WB SR 4 East of I-80	AM	17	B	17	B	18	B	19	C
	PM	21	C	21	C	21	C	31	D
EB I-80 on-ramp from John Muir	AM	19	B	19	B	19	B	17	B
	PM	27	C	27	C	28	D	22	C
WB I-80 on-ramp from John Muir	AM	22	C	23	C	233	C	NA	F
	PM	21	C	22	C	23	C	NA	F
WB I-80 off-ramp to John Muir	AM	27	C	27	C	27	C	27	C
	PM	21	C	21	C	22	C	22	C
EB I-80 off-ramp to SR4-Willow	AM	14	B	15	B	15	B	19	B
	PM	23	C	23	C	25	C	NA	F

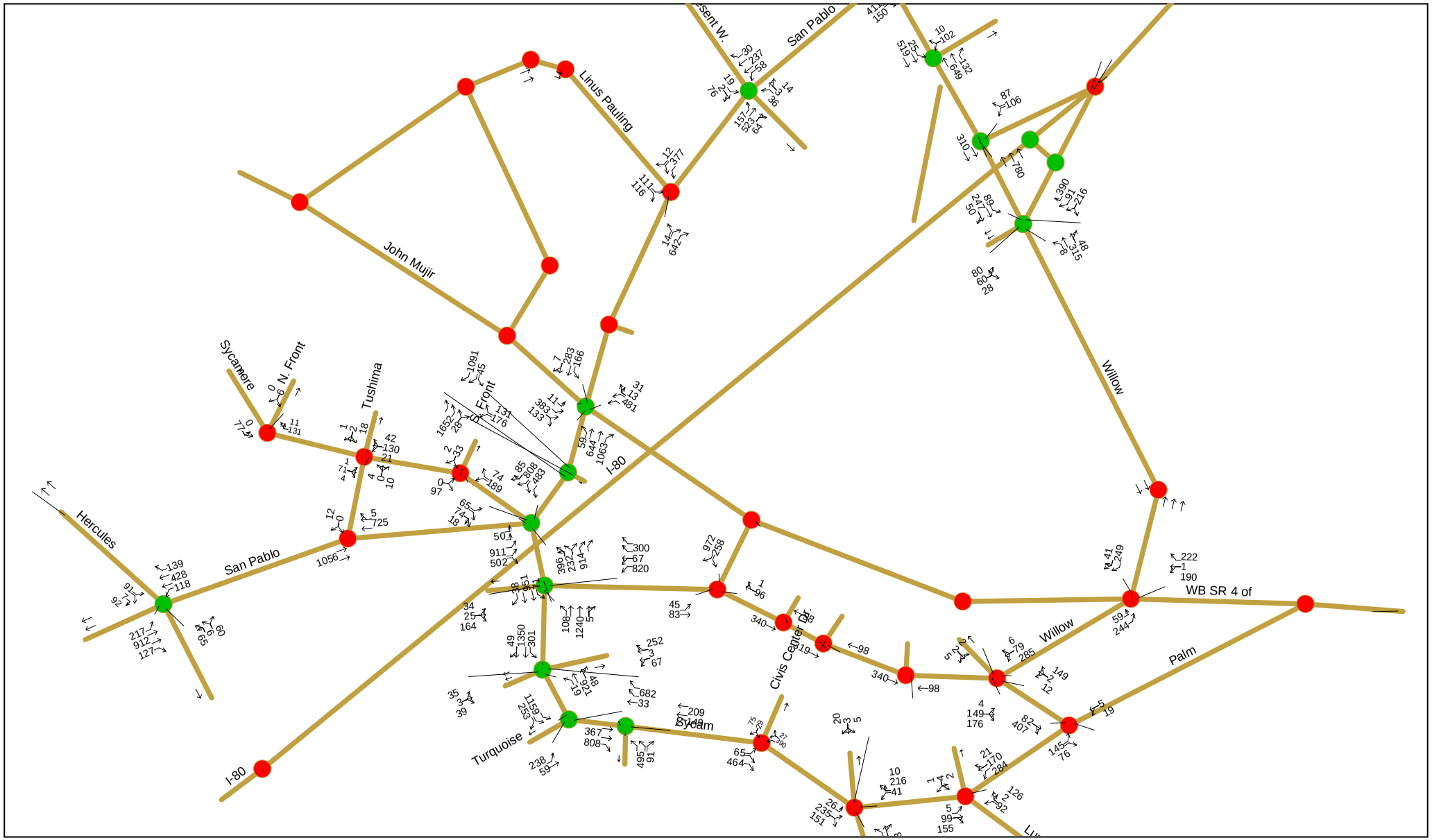
Note: LOS is determined by density, which is expressed as number of vehicle per mile per lane. 2035 cumulative condition assumed added HOV lane on -1-80 north of SR 4. Analysis was conducted using HCS Higway Capacity Manual Method for freeway mainline and ramps. Freeway and ramp volumes were obtained form the traffic report prepared for the New Hercules Town Center project.

Schematic Illustrations of Traffic Conditions



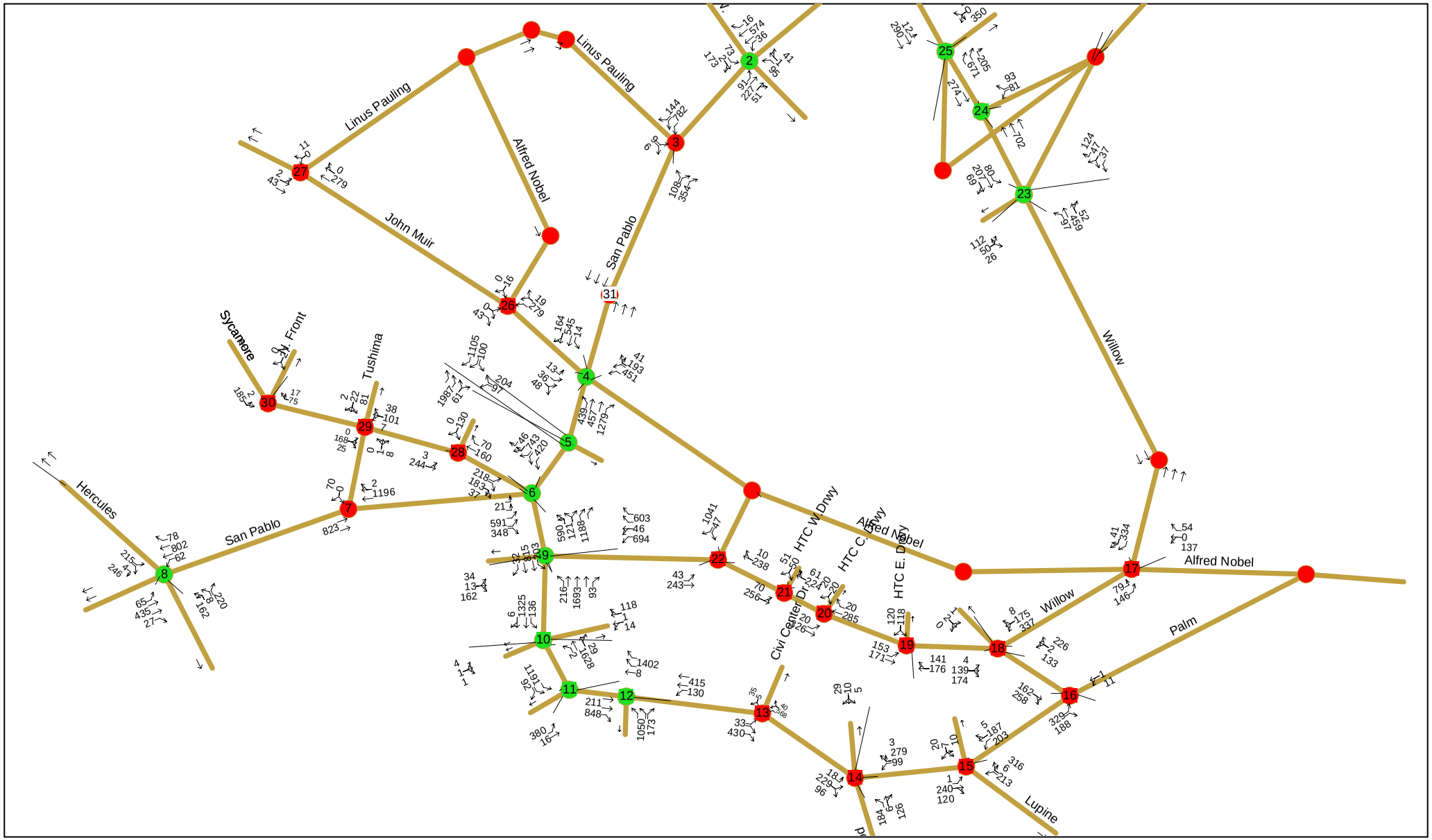
Existing AM Vol

3/27/2009



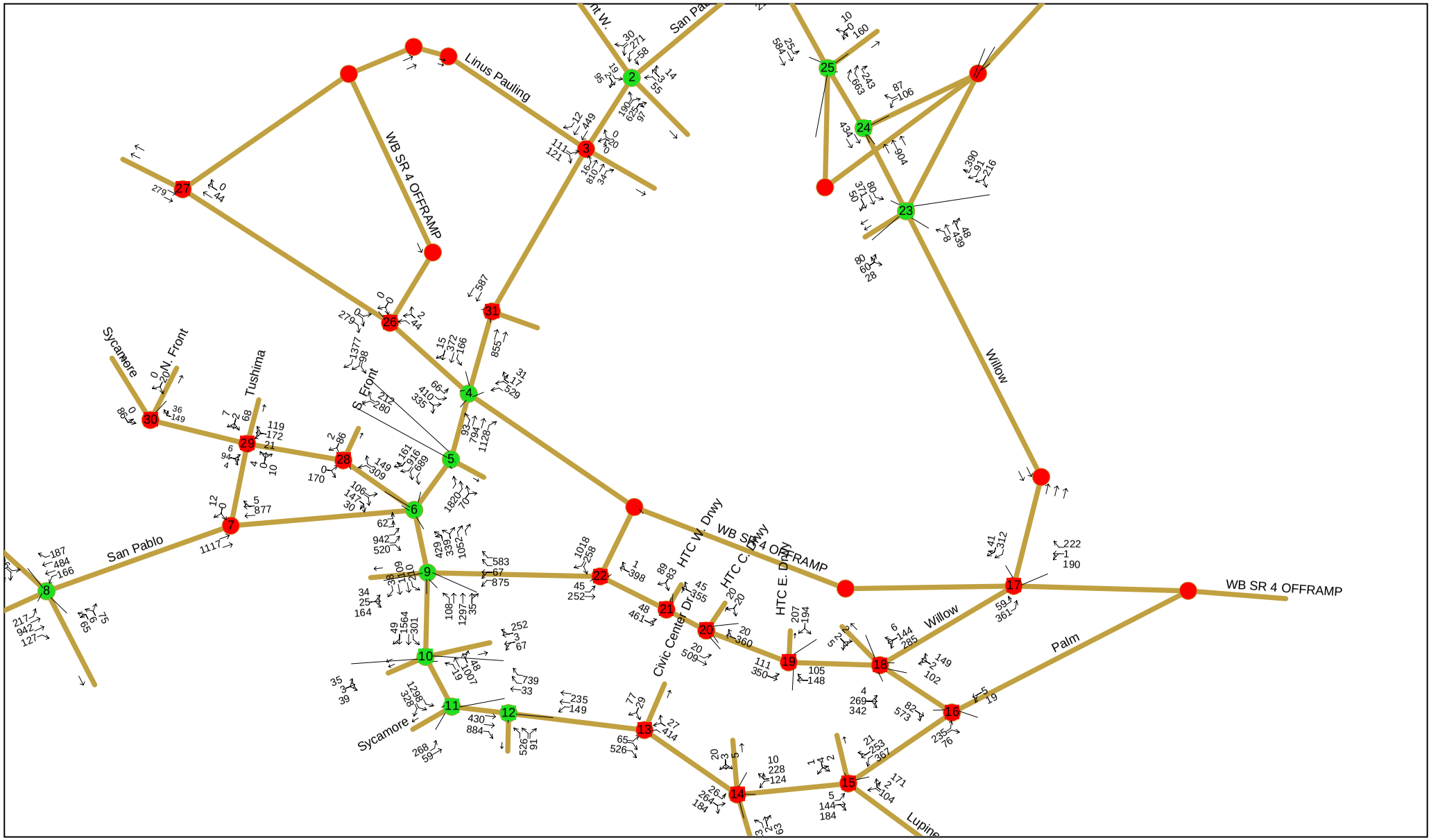
Existing PM Vol

3/27/2009



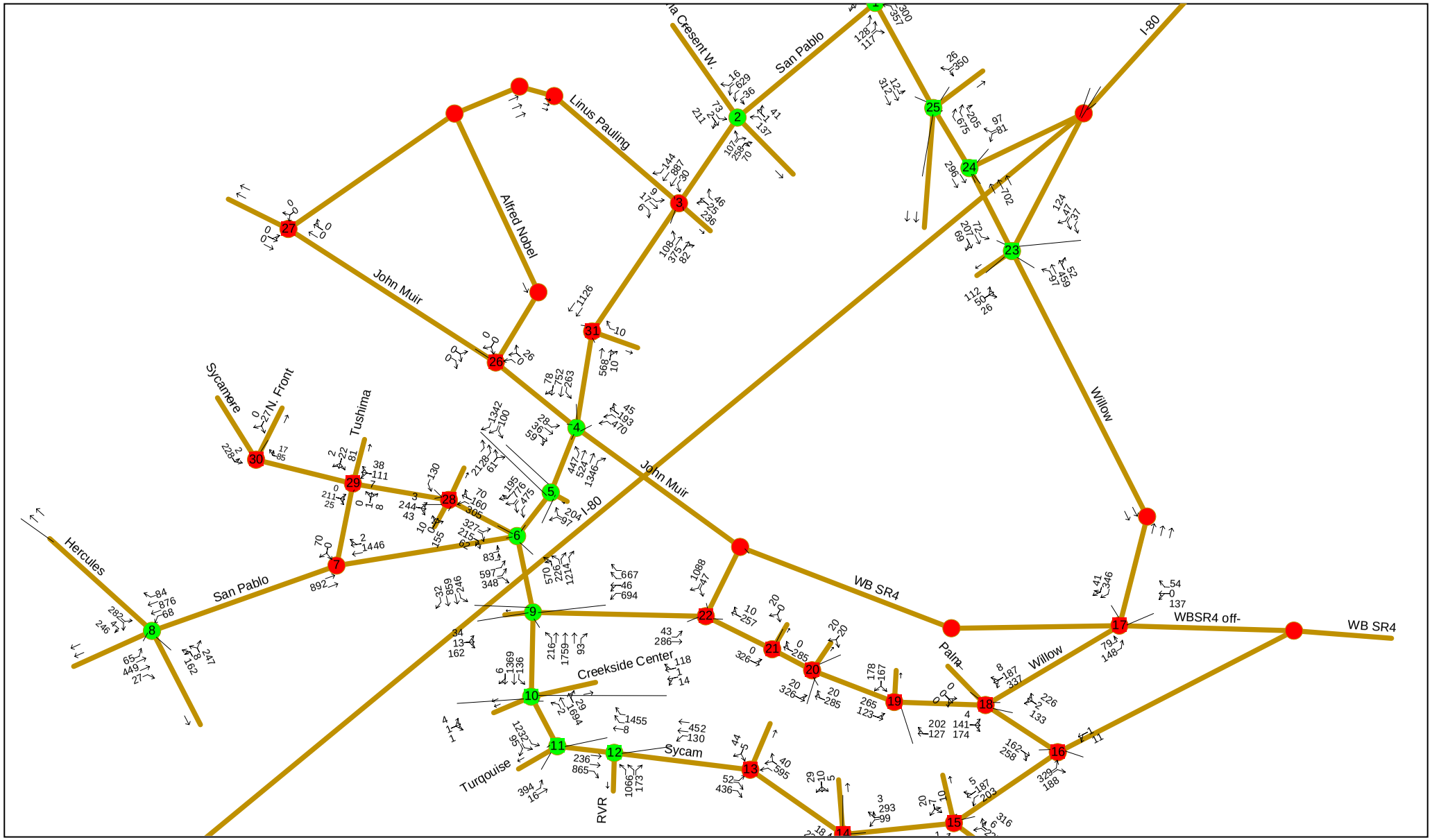
Existing + Background AM Vol

3/27/2009



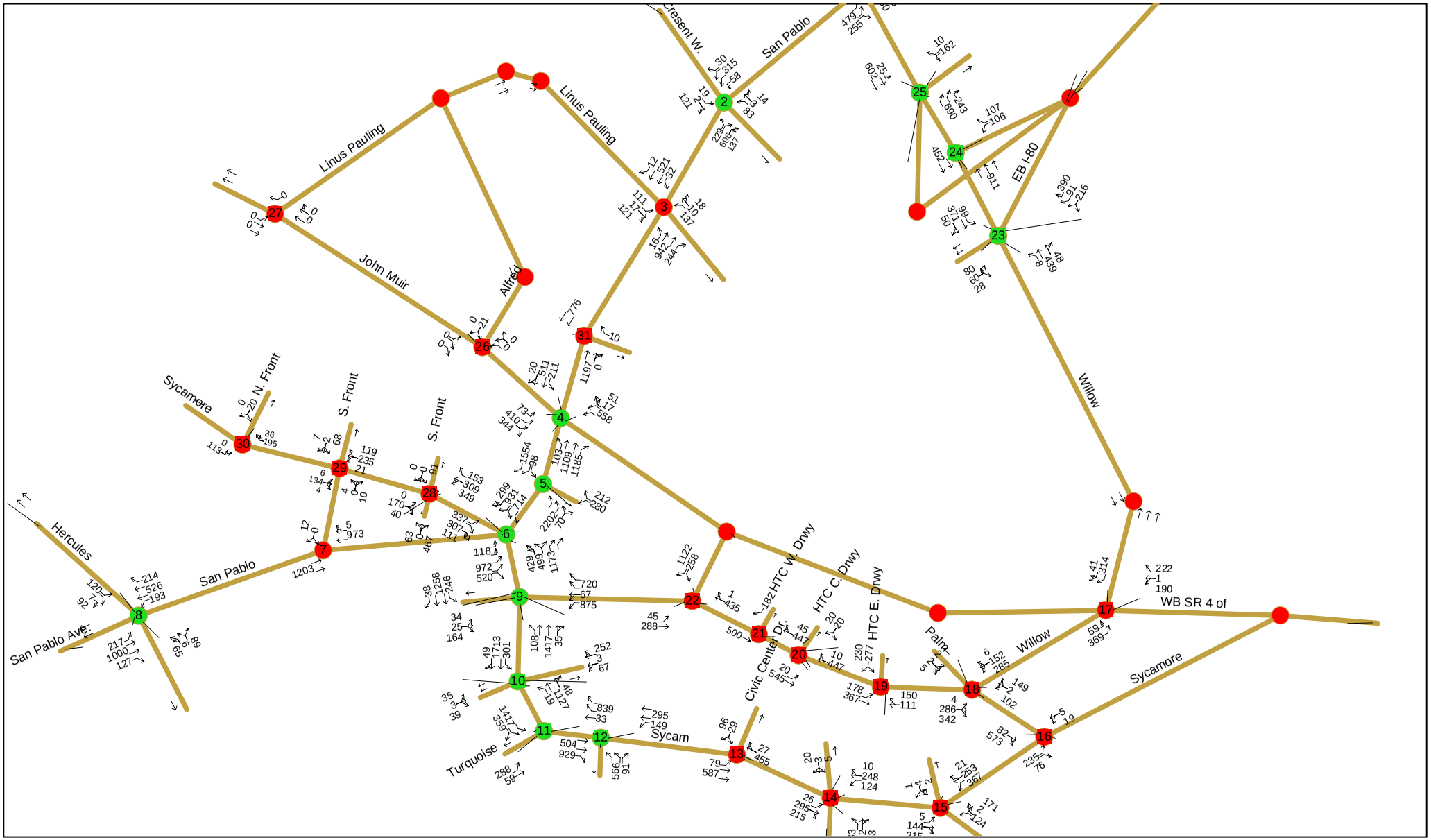
Existing + Background PM Vol

3/27/2009



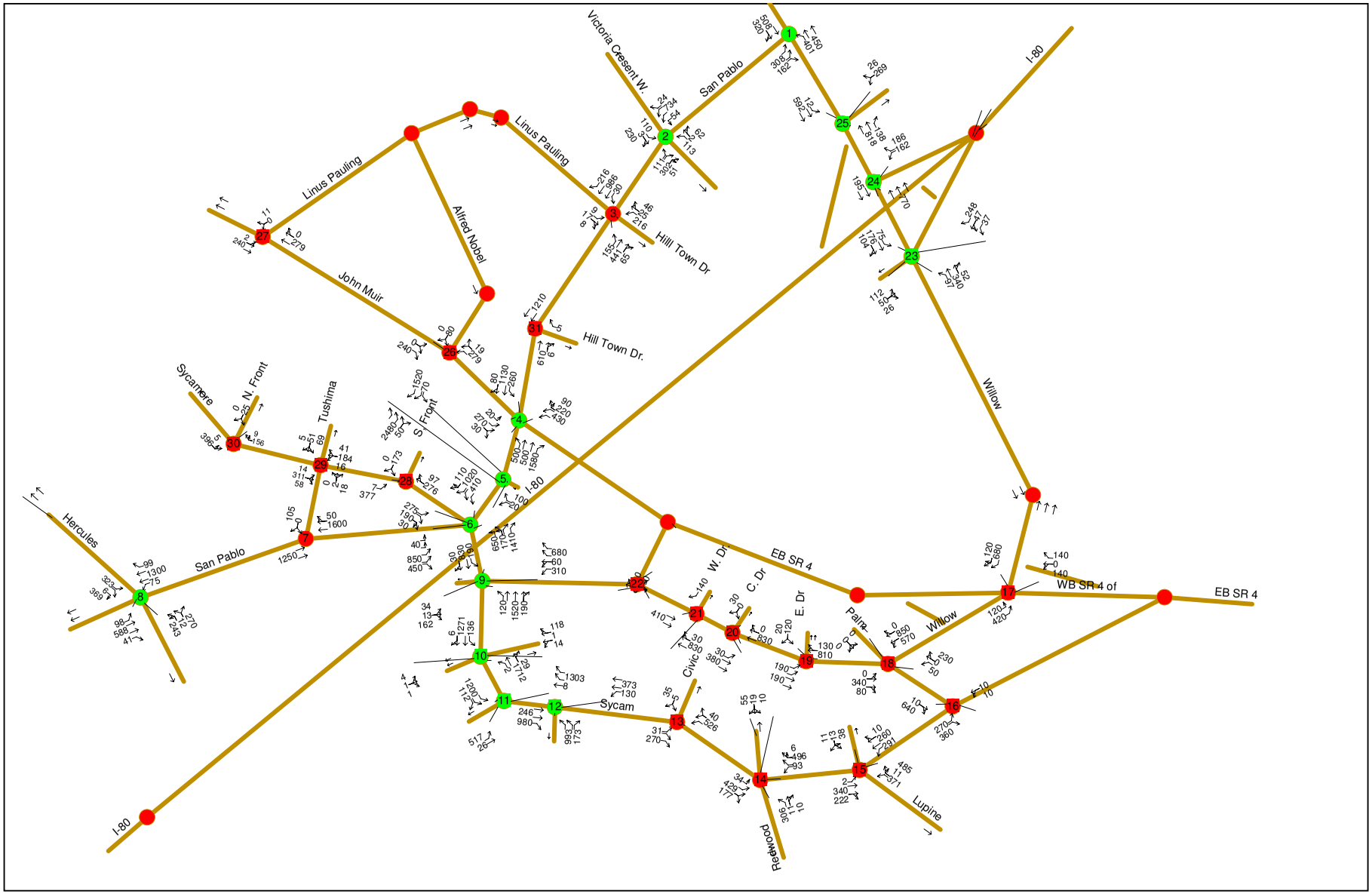
Existing+Backgroud + Project AM Vol

3/27/2009



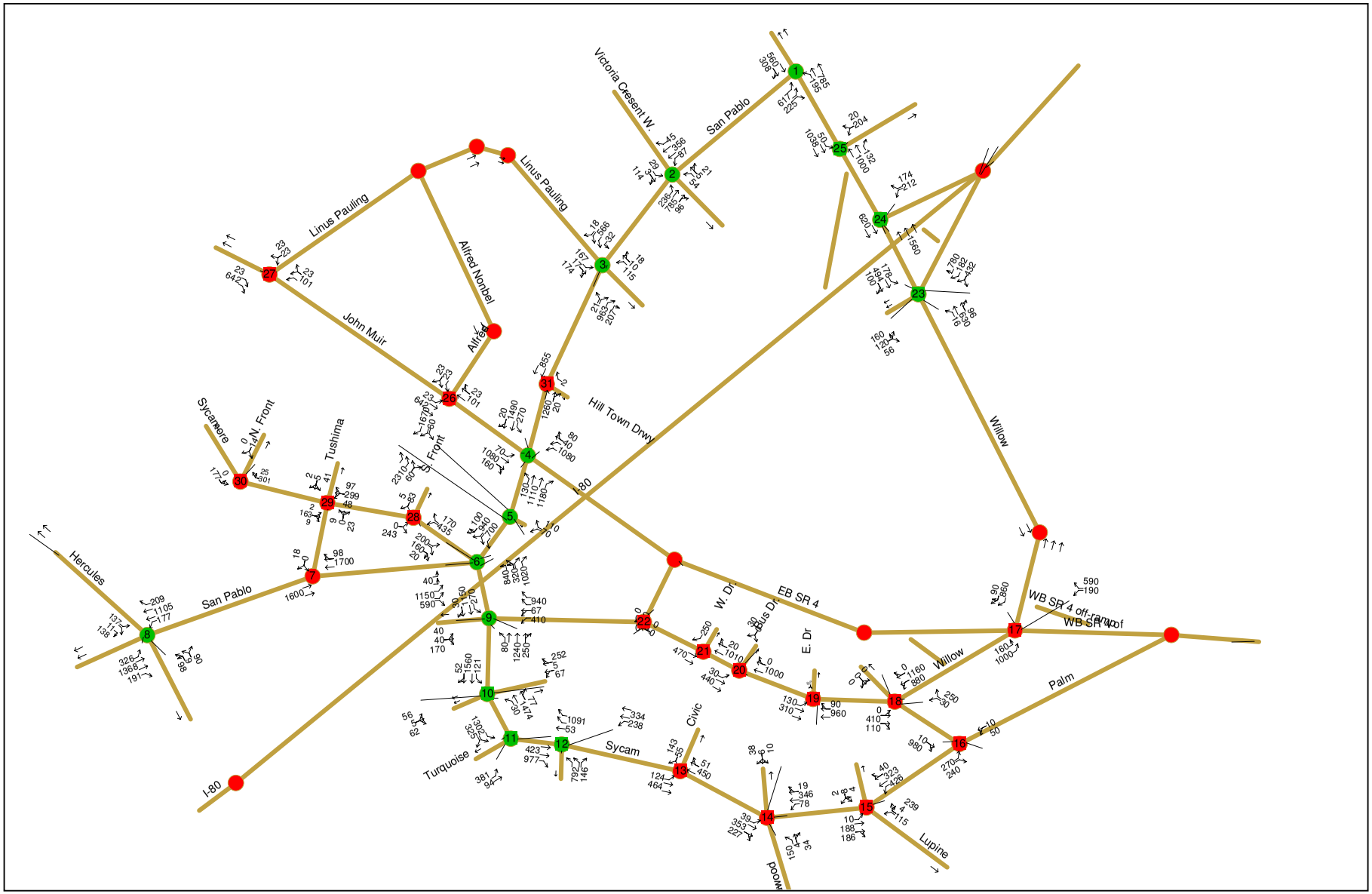
Existing+Backgroud + Project PM Vol

3/27/2009



2035 AM Vol. (w/project)

PHA Transportation Consultants
12/11/2008

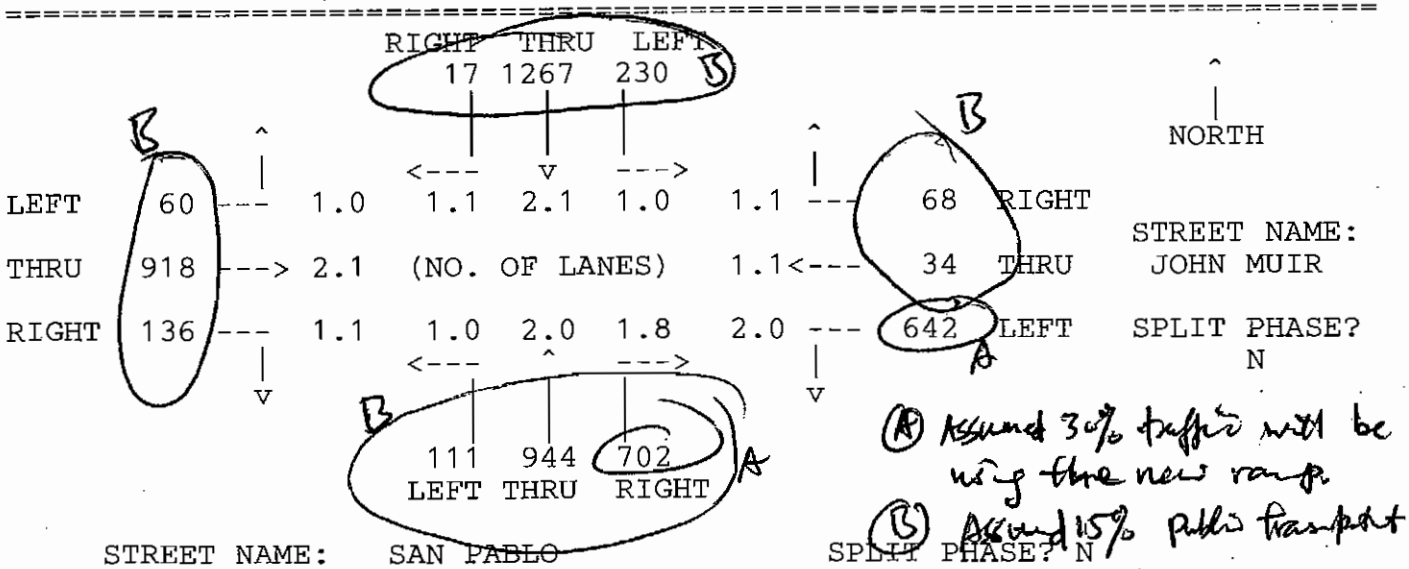


2035 PM Vol. W/Project

PHA Transportation Consultants
12/18/2008

LOS Calculations for the San Pablo/John Muir Intersection

INTERSECTION 4 SAN PABLO and JOHN MUIR HERCULES
COUNT DATE/TIME: PEAK HOUR:
CONDITION : 2035 pm mitigated FILE rda3ex.i



(A) Assumed 30% traffic will be using the new ramp.
(B) Assumed 15% public transport

STREET NAME: SAN PABLO SPLIT PHASE? N

6 PHASE SIGNAL

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	702	0 *	1650	0.0000	
	THRU (T)	944	944	3300	0.2861	
	LEFT (L)	111	111	1650	0.0673	0.0673
SB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	1267	1267	3300	0.3839	
	LEFT (L)	230	230	1650	0.1394	
	T + R		1284	3300	0.3891	0.3891
EB	RIGHT (R)	136	136	1650	0.0824	
	THRU (T)	918	918	3300	0.2782	
	LEFT (L)	60	60	1650	0.0364	
	T + R		1054	3300	0.3194	0.3194
WB	RIGHT (R)	68	68	1650	0.0412	
	THRU (T)	34	34	1650	0.0206	
	LEFT (L)	642	642	3000	0.2140	0.2140
	T + R		102	1650	0.0618	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.99
ADJUSTMENT FOR LOST YELLOW TIME: 0.00

TOTAL VOLUME-TO-CAPACITY RATIO: 0.99
INTERSECTION LEVEL OF SERVICE: E

* ADJUSTED FOR RIGHT TURN ON RED

Developed by TJKM Transportation Consultants, Pleasanton, CA, 1991 YY

LOS Calculations for the San Pablo/Tennent Intersection

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: CCTA West County - AM Peak 10/03/07

INTERSECTION 6 SAN PABLO/TENNENT PINOLE
Count Date 6/5/07 Time 7-9 AM Peak Hour 7:30-8:30

```
CCTA METHOD               RIGHT THRU LEFT                          3-PHASE SIGNAL
-----------                   9 1060  124
                              |   |    |
          ^                   |   |    |          ^
          |              <---     v    --->       | Split? Y
LEFT     23 ---  1.1     1.1  2.2  1.1     1.1 ---   68  RIGHT
                                                               STREET NAME:
THRU     65 ---> 1.1     (NO. OF LANES)    1.1<---   40  THRU  TENNENT

RIGHT    23 ---  1.1     1.1  2.1  1.0     1.0 ---  229  LEFT
          |              <---  ^   --->       |
          v                   |   |    |          v
 N                            |   |    |                       SIG WARRANTS:
W + E                        26  310  219                        Urb=Y, Rur=Y
 S                         LEFT THRU RIGHT Split? N

                STREET NAME: SAN PABLO
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	219	0 *	1720	0.0000	
	THRU (T)	310	310	3440	0.0901	
	LEFT (L)	26	26	1720	0.0151	0.0151
	T + L		336	3440	0.0977	
SB	RIGHT (R)	9	9	1720	0.0052	
	THRU (T)	1060	1060	3440	0.3081	
	LEFT (L)	124	124	1720	0.0721	
	T + R		1069	3440	0.3108	
	T + L		1184	3440	0.3442	
	T + R + L		1193	3440	0.3468	0.3468
EB	RIGHT (R)	23	23	1720	0.0134	
	THRU (T)	65	65	1720	0.0378	
	LEFT (L)	23	23	1720	0.0134	
	T + R		88	1720	0.0512	
	T + L		88	1720	0.0512	
	T + R + L		111	1720	0.0645	0.0645
WB	RIGHT (R)	68	68	1720	0.0395	
	THRU (T)	40	40	1720	0.0233	
	LEFT (L)	229	229	1720	0.1331	0.1331
	T + R		108	1720	0.0628	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=WEST,VOL=WESTAM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: CCTA West County - PM Peak 10/03/07

INTERSECTION 6 SAN PABLO/TENNENT PINOLE
Count Date 6/5/07 Time 4-6 PM Peak Hour 5:00-6:00

CCTA METHOD RIGHT THRU LEFT 3-PHASE SIGNAL

34 690 83

			<---	v	--->		Split? Y		
LEFT	49	--- 1.1	1.1	2.2	1.1	1.1	---	94	RIGHT
									STREET NAME:
THRU	79	---> 1.1	(NO. OF LANES)			1.1	<---	75	THRU TENNENT
RIGHT	17	--- 1.1	1.1	2.1	1.0	1.0	---	95	LEFT
			<---	^	--->				

N
W + E
S

26 1121 194
LEFT THRU RIGHT Split? N

SIG WARRANTS:
Urb=Y, Rur=Y

STREET NAME: SAN PABLO

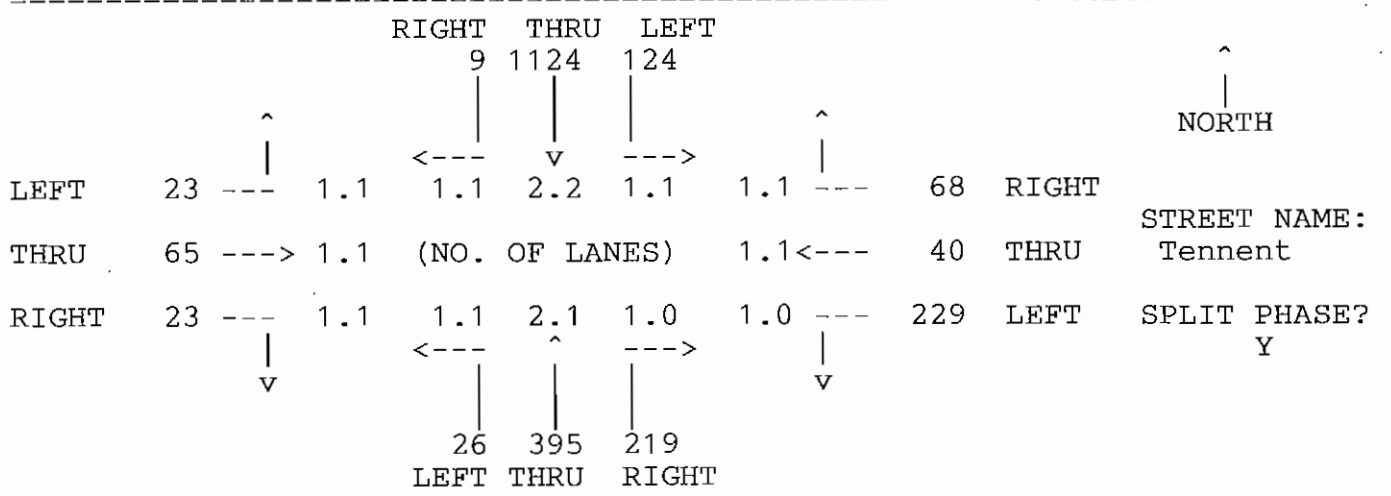
MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	194	99 *	1720	0.0576	
	THRU (T)	1121	1121	3440	0.3259	
	LEFT (L)	26	26	1720	0.0151	
	T + L		1147	3440	0.3334	0.3334
SB	RIGHT (R)	34	34	1720	0.0198	
	THRU (T)	690	690	3440	0.2006	
	LEFT (L)	83	83	1720	0.0483	0.0483
	T + R		724	3440	0.2105	
	T + L		773	3440	0.2247	
	T + R + L		807	3440	0.2346	
EB	RIGHT (R)	17	17	1720	0.0099	
	THRU (T)	79	79	1720	0.0459	
	LEFT (L)	49	49	1720	0.0285	
	T + R		96	1720	0.0558	
	T + L		128	1720	0.0744	
	T + R + L		145	1720	0.0843	0.0843
WB	RIGHT (R)	94	94	1720	0.0547	
	THRU (T)	75	75	1720	0.0436	
	LEFT (L)	95	95	1720	0.0552	
	T + R		169	1720	0.0983	0.0983

TOTAL VOLUME-TO-CAPACITY RATIO: 0.56
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=WEST,VOL=WESTPM,CAP=

CCTA INTERSECTION CAPACITY ANALYSIS 3/26/9

INTERSECTION 1 San Pablo and Tennent Pinole
COUNT DATE/TIME: PEAK HOUR: AM
CONDITION : existing plus project am FILE SanPablo



STREET NAME: San Pablo SPLIT PHASE? N

3 PHASE SIGNAL

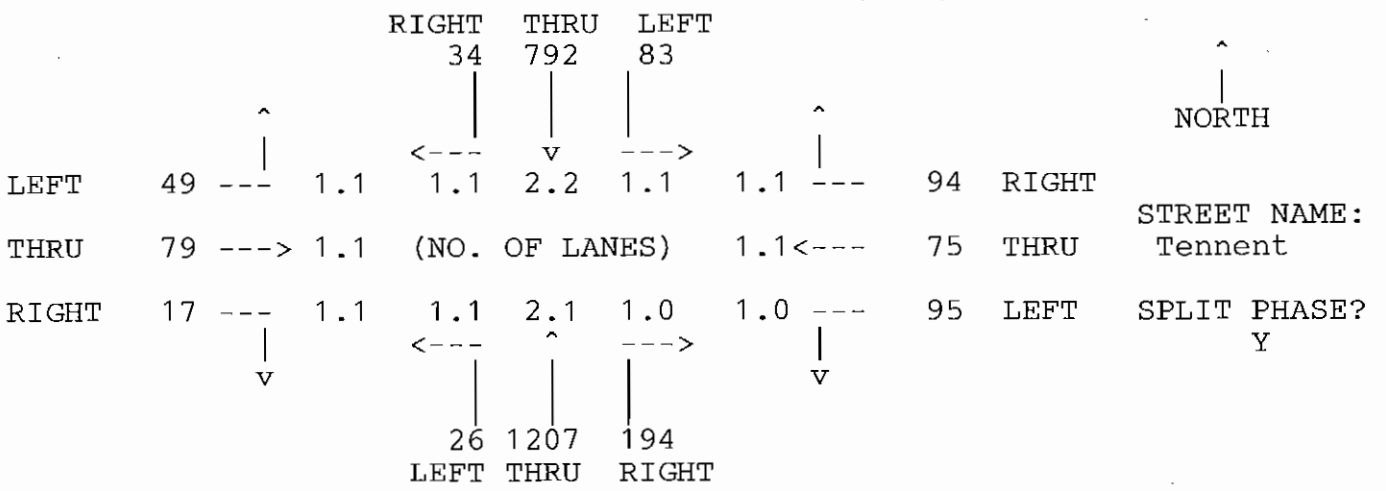
	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	219	0 *	1720	0.0000	
	THRU (T)	395	395	3440	0.1148	
	LEFT (L)	26	26	1720	0.0151	0.0151
	T + L		421	3440	0.1224	
SB	RIGHT (R)	9	9	1720	0.0052	
	THRU (T)	1124	1124	3440	0.3267	
	LEFT (L)	124	124	1720	0.0721	
	T + R		1133	3440	0.3294	
	T + L		1248	3440	0.3628	
	T + R + L		1257	3440	0.3654	0.3654
EB	RIGHT (R)	23	23	1720	0.0134	
	THRU (T)	65	65	1720	0.0378	
	LEFT (L)	23	23	1720	0.0134	
	T + R		88	1720	0.0512	
	T + L		88	1720	0.0512	
	T + R + L		111	1720	0.0645	0.0645
WB	RIGHT (R)	68	68	1720	0.0395	
	THRU (T)	40	40	1720	0.0233	
	LEFT (L)	229	229	1720	0.1331	0.1331
	T + R		108	1720	0.0628	

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.58
ADJUSTMENT FOR LOST YELLOW TIME: 0.00

TOTAL VOLUME-TO-CAPACITY RATIO: 0.58
INTERSECTION LEVEL OF SERVICE: A

CCTA INTERSECTION CAPACITY ANALYSIS 3/26/9

INTERSECTION 1 San Pablo and Tennent Pinole
COUNT DATE/TIME: PEAK HOUR: PM
CONDITION : existing plus rda projects FILE SanPablo



STREET NAME: San Pablo SPLIT PHASE? N

3 PHASE SIGNAL

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	194	99 *	1720	0.0576	
	THRU (T)	1207	1207	3440	0.3509	
	LEFT (L)	26	26	1720	0.0151	
	T + L		1233	3440	0.3584	0.3584
SB	RIGHT (R)	34	34	1720	0.0198	
	THRU (T)	792	792	3440	0.2302	
	LEFT (L)	83	83	1720	0.0483	0.0483
	T + R		826	3440	0.2401	
	T + L		875	3440	0.2544	
	T + R + L		909	3440	0.2642	
EB	RIGHT (R)	17	17	1720	0.0099	
	THRU (T)	79	79	1720	0.0459	
	LEFT (L)	49	49	1720	0.0285	
	T + R		96	1720	0.0558	
	T + L		128	1720	0.0744	
	T + R + L		145	1720	0.0843	0.0843
WB	RIGHT (R)	94	94	1720	0.0547	
	THRU (T)	75	75	1720	0.0436	
	LEFT (L)	95	95	1720	0.0552	
	T + R		169	1720	0.0983	0.0983

VOLUME-TO-CAPACITY RATIO FOR THE INTERSECTION: 0.59
ADJUSTMENT FOR LOST YELLOW TIME: 0.00

TOTAL VOLUME-TO-CAPACITY RATIO: 0.59
INTERSECTION LEVEL OF SERVICE: A