

DATE SUBMITTED 08/14/15
 SUBMITTED BY PLANNING DIRECTOR
 DATE ACTION REQUIRED 08/19/15

COUNCIL ACTION (x)
 PUBLIC HEARING REQUIRED ()
 RESOLUTION ()
 ORDINANCE 1ST READING ()
 ORDINANCE 2ND READING ()
 CITY CLERK'S INITIALS ()

**IMPERIAL CITY COUNCIL
 AGENDA ITEM**

SUBJECT: DISCUSSION/ACTION: AUSTIN & BREWER UPDATE

1. SUPPORT EXTENSION OF CENTER MEDIAN

DEPARTMENT INVOLVED: PLANNING DEPARTMENT

BACKGROUND/SUMMARY:

Staff and elected officials from both the County and the City of Imperial have been meeting during the past year to explore alternatives for the intersection of Austin and Brewer. A study was completed by Kimley-Horn Traffic Engineers in November 2014 to determine the potential impacts of three (3) design alternatives. Alternative 1 includes the removal of median to allow for full turn movements. Alternative 2 also includes the removal of the median and reconfiguration of existing striping to allow for one southbound through lane, one southbound left-turn, and one shared northbound through and right-turn lane. Alternative 3 also removes the median and widening the roadway to accommodate a total of 4 travel lanes. Alternatives 1 and 2 would result in higher liability concerns due to potential rear end collisions. Alternative 3 would cost approximately \$5.2M to relocate existing IID water and electric facilities and to widen the roadway. The subcommittee also examined the possibility of widening Nance Road to redirect traffic away from Austin but widening Nance Road would cost approximately \$2.4M. The most cost-effective option is to extend the center median by 100' to the north and the south. This would minimize the amount of illegal U-turn and unsafe turn movements from Brewer Road. The delineators and median signage would be removed to make it easier for farm equipment to travel on Austin Road. The cost to extend the median is estimated to be \$155,000 and can be paid out of the LTA regional set-aside funds.

FISCAL IMPACT: No impact to the City.

F.O. INITIALS: _____

STAFF RECOMMENDATION:

Staff recommends that the Council support the extension of the center median at Austin and Brewer.

MANAGER'S RECOMMENDATION:

MANAGER'S INITIALS

MOTION:

SECONDED:
 AYES:
 NAYES:
 ABSENT:

APPROVED () REJECTED ()
 DISAPPROVED () DEFERRED ()
 REFERRED TO:



MEMORANDUM

To: Jorge Galvan, AICP
City of Imperial

From: David Park, P.E.
Kimley-Horn and Associates, Inc.

Date: November 21, 2014

Subject: Intersection Alternatives at Austin Road and Brewer Road

This memorandum was prepared to provide intersection improvement alternatives for the intersection of Austin Road and Brewer Road in the City of Imperial.

The intersection of Austin Road and Brewer Road is currently paved as a side street stop controlled T-intersection. Austin Road is a 2-lane north-south rural arterial and Brewer Road is a 2-lane east-west residential collector. The current width of pavement of Austin Road is approximately 40 feet while Brewer Road is also approximately 40 feet with a striped median. The current intersection geometry includes a northbound thru and right-turn lane, a southbound thru lane, and a stop-controlled westbound right-turn lane. There is a 100-foot long raised median along Austin Road to prevent left-turns into/from Brewer Road.

After review of the 2005 approved traffic study for the Monterey Park Subdivision¹, one major inconsistency between existing conditions and what was previously approved is the turning restrictions at the Austin Road and Brewer Road intersection. The Monterey Park Subdivision, a residential development at the southeast corner of Austin Road and Brewer Road, was assumed to gain a majority of its access via the unrestricted intersection at Austin Road and Brewer Road. However, due to the median along Austin Road, the intersection with Brewer Road is limited to right-in/right-out movements.

As a result of turn restrictions into/from Brewer Road and lack of convenient southbound options, many vehicles were observed and recorded making illegal U-turns around the median or driving in the wrong direction to head south on Austin Road. **Table 1** presents the number of illegal U-turns from Brewer Street that were recorded during typical morning, noon, and afternoon peak hour times on Thursday, November 13, 2014. Roadway and intersection counts collected on November 13, 2014 are also provided as an attachment.

¹ Darnell & Associates, Inc. *Traffic Study for the Monterey Park Subdivision in the City of Imperial*. 2005, May 6.

Table 1: Number of Illegal U-turns at Austin Road and Brewer Road

Time Period	7-9 am	11am-1pm	4-6pm
Illegal U-turns	32	19	29

Currently, for drivers to travel south on Austin Road without making illegal U-turns, drivers have to travel a half mile north from Brewer Road through residential streets or Nance Road to get to Worthington Road, proceed onto Austin Road, then travel an additional half mile south to reach their starting point. Additionally, the Imperial County Airport located east of the residential subdivisions prevents direct eastbound connection to the next north-south roadway at Imperial Avenue (SR 86); therefore, Austin Road is the only available connection to the south.

Alternatives

In an effort to improve connectivity, the following intersection improvement alternatives are being proposed with a few associated benefits (+) and concerns (-).

Alternative 1 – Remove raised median, remove turn restrictions, maintain intersection geometrics, and continue operating as a one-way stop controlled intersection.

- + Provide full access for all movements at the intersection
- + Eliminate illegal U-turns
- + Improved access and connectivity
- + Maintain northbound acceleration lane
- Westbound queues on Brewer Road
- Potential southbound rear-end traffic collisions due to left-turning vehicles waiting for gaps
- Additional intersection delay from additional traffic turning left at the intersection

Alternative 1 Option – Restripe westbound median as a left-turn pocket

Alternative 2 – Remove raised median, remove turn restrictions, modify intersection geometrics, and continue operating as a one-way stop controlled intersection. The intersection would be restriped to provide a northbound shared thru-right lane, a southbound thru, and a southbound left-turn lane. A southbound acceleration lane would also be provided for vehicles making a left from Brewer Road.

- + Provide full access for all movements at the intersection
- + Eliminate illegal U-turns
- + Improved access and connectivity
- + Southbound left-turning vehicles would not impede southbound thru traffic
- + Southbound acceleration lane
- Westbound queues on Brewer Road
- Potential northbound rear-end traffic collisions due to vehicles slowing down to turn right
- Additional intersection delay from geometric changes and additional traffic turning left at the intersection

Alternative 2 Option – Restripe westbound median as a left-turn pocket

Alternative 3 – Remove raised median, remove turn restrictions, widen western side of Austin Road, modify intersection geometrics, and continue operating as a one-way stop controlled intersection. Austin Road would be widened on the west side to provide enough space for four (4) travel lanes through the intersection. The widening would logically occur to the west to avoid the Central Main Canal to the east of Austin Road. After widening and restriping, the intersection would provide a southbound thru and left turn lane while also providing a northbound thru and right-turn lane. Northbound and southbound acceleration lanes would also be provided for vehicles turning out from Brewer Road.

- + Provide full access for all movements at the intersection
- + Eliminate illegal U-turns
- + Improved access and connectivity
- + Southbound left-turning vehicles would not impede southbound thru traffic
- + Northbound right-turning vehicles would not impede northbound thru traffic
- + Southbound acceleration lane provided
- + Northbound acceleration lane provided
- + Widening would be consistent with the Horizon Year (2030) Mitigation Conditions specified in the 2005 traffic study for the Monterey Park Subdivision
- Westbound queues on Brewer Road
- Additional intersection delay from additional traffic accessing the intersection
- Higher construction costs

Alternative 3 Option – Restripe westbound median as a left-turn pocket

Alternatives Not Recommended

The following alternatives were considered and not recommended.

All-Way Stop Control – According to the 2012 California MUTCD (CA-MUTCD), an all-way stop control would be warranted by traffic volumes for a roadway with a speed limit greater than 40 miles per hour if for any 8 hours in a day, combined major street traffic exceeds 210 vehicles per hour and the combined pedestrians, bicycles, and vehicles from the minor street exceed 140 units per hour for the same 8 hours. Based on the ADT volumes collected on Thursday, November 13, the major street traffic volume warrant would be met. However, based on the project traffic volumes from the 2005 traffic study and existing traffic counts, the minor street volumes are not anticipated to meet minimum volume requirements. Therefore, an all-way stop control is not recommended at this time.

Traffic Signal – CA-MUTCD lists several volume warrants that must be met before considering the installation of a traffic signal. Projected traffic volumes with the full buildout of the Monterey Park Subdivision and unrestricted movements at the Austin Road and Brewer Road intersection is anticipated to approach the minimum required volumes to warrant a signal. However, due to the high cost of traffic signal installations, required maintenance, currently restricted movements at the intersection, and uncertainty of what the actual traffic volumes would be in the full buildout conditions, a traffic signal is currently not warranted and is not recommended at this time. A separate traffic signal warrant analysis is recommended based on future conditions with full buildout of the residential subdivisions and the study intersection operating without left-turn restrictions.

Conclusions and Recommendations

The three proposed alternatives for the Austin Road and Brewer Road intersection would eliminate the existing median, resulting in improved access and connectivity for the surrounding area. Depending on the transportation goals and requirements of the City and County of Imperial, Alternatives 2 and 3 with westbound left-turn pockets are recommended for the intersection so that southbound left-turning vehicles have a separate lane to wait for gaps instead of impeding southbound traffic.

The next steps for the City would be to collect detailed survey and right-of-way information to develop 30% conceptual designs and preliminary cost estimates for the alternatives. This information is required due to the constraints east of the intersection and the current limitations of the existing pavement width of Austin Road. The City should also research existing improvement plans for the Monterey Park Subdivision and determine whether those plans can be used to prepare design level conceptual plans. In the event this information is unavailable or unreliable, Kimley-Horn can conduct detailed survey information to confirm pavement widths and right-of-way information. Kimley-Horn can also prepare 30% design level conceptual plans and preliminary cost estimates as a future task if requested by the City. Based on the number of U-turn violations that were observed, the intersection should be improved at a minimum to allow left-turns out from Brewer Road to Austin Road.

Should the City require additional help with these tasks, Kimley-Horn is readily available to assist the City with this task and any additional tasks that may arise. I am willing to discuss the recommendations with the City and any next steps the City would like to pursue.

Please contact me at 619.744.0186 or at david.park@kimley-horn.com should have any questions.

Sincerely,



David Park, P.E.

RCE 82653

Attachments –

- Traffic Counts

VOLUME

Austin Rd N/O Brewer Rd

Day: Thursday
Date: 11/13/2014City: Imperial
Project #: CA14_4284_001

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,348	2,883	0	0	5,231		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	3	0			3	12:00	25	24			49
00:15	0	2			2	12:15	21	27			48
00:30	0	1			1	12:30	27	24			51
00:45	1	4	2	5	3	12:45	30	103	35	110	65
01:00	0	1			1	13:00	37	28			65
01:15	1	0			1	13:15	26	41			67
01:30	1	1			2	13:30	37	38			75
01:45	1	3	1	3	2	13:45	30	130	56	163	86
02:00	0	0			0	14:00	36	44			80
02:15	3	3			6	14:15	26	39			65
02:30	2	1			3	14:30	38	56			94
02:45	1	6	2	6	3	14:45	44	144	50	189	94
03:00	2	1			3	15:00	61	59			120
03:15	2	0			2	15:15	58	102			160
03:30	3	2			5	15:30	51	102			153
03:45	3	10	1	4	4	15:45	43	213	58	321	101
04:00	0	2			2	16:00	41	54			95
04:15	1	1			2	16:15	56	45			101
04:30	1	5			6	16:30	63	79			142
04:45	3	5	7	15	10	16:45	48	208	64	242	112
05:00	12	4			16	17:00	54	68			122
05:15	18	8			26	17:15	57	64			121
05:30	17	16			33	17:30	46	45			91
05:45	17	64	17	45	34	17:45	38	195	65	242	103
06:00	14	15			29	18:00	26	35			61
06:15	14	30			44	18:15	27	42			69
06:30	40	49			89	18:30	34	37			71
06:45	57	125	48	142	105	18:45	35	122	30	144	65
07:00	54	52			106	19:00	35	27			62
07:15	64	78			142	19:15	31	28			59
07:30	93	138			231	19:30	20	21			41
07:45	116	327	108	376	224	19:45	27	113	28	104	55
08:00	77	77			154	20:00	25	29			54
08:15	33	72			105	20:15	19	25			44
08:30	23	42			65	20:30	19	18			37
08:45	16	149	39	230	55	20:45	23	86	22	94	45
09:00	16	24			40	21:00	12	11			23
09:15	17	27			44	21:15	12	7			19
09:30	19	30			49	21:30	13	8			21
09:45	18	70	38	119	56	21:45	9	46	12	38	21
10:00	27	30			57	22:00	4	8			12
10:15	16	26			42	22:15	3	9			12
10:30	22	42			64	22:30	6	6			12
10:45	29	94	27	125	56	22:45	4	17	6	29	10
11:00	22	31			53	23:00	5	6			11
11:15	18	29			47	23:15	7	8			15
11:30	25	24			49	23:30	3	7			10
11:45	28	93	27	111	55	23:45	6	21	5	26	11
TOTALS	950	1181			2131	TOTALS	1398	1702			3100
SPLIT %	44.6%	55.4%			40.7%	SPLIT %	45.1%	54.9%			59.3%

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,348	2,883	0	0	5,231		
AM Peak Hour	07:15	07:15			07:15	PM Peak Hour	16:30	15:00		15:00	
AM Pk Volume	350	401			751	PM Pk Volume	222	321		534	
Pk Hr Factor	0.754	0.726			0.813	Pk Hr Factor	0.881	0.787		0.834	
7 - 9 Volume	476	606	0	0	1082	4 - 6 Volume	403	484	0	0	887
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	350	401	0	0	751	4 - 6 Pk Volume	222	275	0	0	497
Pk Hr Factor	0.754	0.726	0.000	0.000	0.813	Pk Hr Factor	0.881	0.870	0.000	0.000	0.875

VOLUME

Brewer Rd E/O Austin Rd

Day: Thursday
Date: 11/13/2014City: Imperial
Project #: CA14_4284_002

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	1,218	469	1,687					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			4	0	4	12:00			15	2	17			
00:15			3	0	3	12:15			17	4	21			
00:30			2	0	2	12:30			17	2	19			
00:45			3	12	1	1	12:45		19	68	5	13	24	81
01:00			3	0	3	13:00			19	7	26			
01:15			1	0	1	13:15			11	14	25			
01:30			2	0	2	13:30			18	10	28			
01:45			2	8	1	1	13:45		10	58	2	33	12	91
02:00			3	0	3	14:00			22	8	30			
02:15			0	1	1	14:15			27	2	29			
02:30			1	0	1	14:30			15	6	21			
02:45			0	4	0	1	14:45		17	81	3	19	20	100
03:00			0	2	2	15:00			23	6	29			
03:15			0	3	3	15:15			21	5	26			
03:30			0	1	1	15:30			29	8	37			
03:45			0	2	8	2	15:45		23	96	7	26	30	122
04:00			0	0	0	16:00			22	6	28			
04:15			2	1	3	16:15			17	15	32			
04:30			0	2	2	16:30			24	9	33			
04:45			1	3	3	6	16:45		32	95	10	40	42	135
05:00			2	5	7	17:00			46	12	58			
05:15			0	1	1	17:15			39	8	47			
05:30			2	6	8	17:30			25	10	35			
05:45			5	9	3	15	17:45		29	139	14	44	43	183
06:00			4	5	9	18:00			22	4	26			
06:15			2	4	6	18:15			28	6	34			
06:30			8	7	15	18:30			33	8	41			
06:45			14	28	6	22	18:45		26	109	3	21	29	130
07:00			10	9	19	19:00			19	6	25			
07:15			10	23	33	19:15			25	6	31			
07:30			9	17	26	19:30			16	4	20			
07:45			25	54	19	68	19:45		33	93	1	17	34	110
08:00			15	9	24	20:00			21	5	26			
08:15			12	8	20	20:15			24	3	27			
08:30			16	7	23	20:30			20	2	22			
08:45			16	59	8	32	20:45		21	86	2	12	23	98
09:00			8	2	10	21:00			19	1	20			
09:15			4	3	7	21:15			14	2	16			
09:30			18	5	23	21:30			10	4	14			
09:45			7	37	6	16	21:45		9	52	3	10	12	62
10:00			10	2	12	22:00			11	0	11			
10:15			11	2	13	22:15			10	1	11			
10:30			11	8	19	22:30			6	0	6			
10:45			13	45	6	18	22:45		4	31	1	2	5	33
11:00			8	11	19	23:00			3	2	5			
11:15			8	10	18	23:15			3	3	6			
11:30			17	7	24	23:30			2	2	4			
11:45			8	41	9	37	23:45		2	10	0	7	2	17
TOTALS			300	225	525	TOTALS			918	244	1162			
SPLIT %			57.1%	42.9%	31.1%	SPLIT %			79.0%	21.0%	68.9%			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	1,218	469	1,687		
AM Peak Hour			07:45	07:00	07:15	PM Peak Hour			16:45	16:15	17:00
AM Pk Volume			68	68	127	PM Pk Volume			142	46	183
Pk Hr Factor			0.680	0.739	0.722	Pk Hr Factor			0.772	0.767	0.789
7 - 9 Volume	0	0	113	100	213	4 - 6 Volume	0	0	234	84	318
7 - 9 Peak Hour			07:45	07:00	07:15	4 - 6 Peak Hour			16:45	16:15	17:00
7 - 9 Pk Volume	0	0	68	68	127	4 - 6 Pk Volume	0	0	142	46	183
Pk Hr Factor	0.000	0.000	0.680	0.739	0.722	Pk Hr Factor	0.000	0.000	0.772	0.767	0.789

VOLUME

Austin Rd S/O Brewer Rd

Day: Thursday
Date: 11/13/2014

City: Imperial
Project #: CA14_4284_003

DAILY TOTALS					NB	SB	EB	WB	Total		
					3,073	2,744	0	0	5,817		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	7	0			7	12:00	37	24			61
00:15	3	2			5	12:15	34	24			58
00:30	2	1			3	12:30	40	23			63
00:45	3	15	2	5	20	12:45	41	152	31	102	254
01:00	3	1			4	13:00	44	23			67
01:15	2	0			2	13:15	25	38			63
01:30	3	1			4	13:30	43	37			80
01:45	3	11	2	4	15	13:45	36	148	46	144	292
02:00	3	0			3	14:00	47	35			82
02:15	2	1			3	14:15	48	37			85
02:30	2	1			3	14:30	48	50			98
02:45	1	8	0	2	10	14:45	53	196	43	165	361
03:00	0	2			2	15:00	77	52			129
03:15	2	3			5	15:15	72	92			164
03:30	1	2			3	15:30	69	85			154
03:45	2	5	3	10	15	15:45	60	278	56	285	563
04:00	0	2			2	16:00	50	55			105
04:15	3	2			5	16:15	65	43			108
04:30	0	6			6	16:30	69	81			150
04:45	3	6	5	15	21	16:45	72	256	59	238	494
05:00	7	5			12	17:00	89	73			162
05:15	14	7			21	17:15	90	58			148
05:30	11	16			27	17:30	65	56			121
05:45	17	49	15	43	92	17:45	62	306	58	245	551
06:00	15	16			31	18:00	43	34			77
06:15	11	22			33	18:15	46	42			88
06:30	39	46			85	18:30	63	37			100
06:45	63	128	45	129	257	18:45	56	208	26	139	347
07:00	54	64			118	19:00	46	26			72
07:15	60	85			145	19:15	52	25			77
07:30	76	127			203	19:30	31	20			51
07:45	131	321	102	378	699	19:45	57	186	24	95	281
08:00	77	70			147	20:00	37	27			64
08:15	38	68			106	20:15	41	22			63
08:30	28	45			73	20:30	37	18			55
08:45	28	171	44	227	398	20:45	41	156	17	84	240
09:00	19	21			40	21:00	33	12			45
09:15	17	22			39	21:15	21	6			27
09:30	34	31			65	21:30	19	11			30
09:45	19	89	31	105	194	21:45	15	88	12	41	129
10:00	37	25			62	22:00	14	5			19
10:15	20	23			43	22:15	10	9			19
10:30	27	38			65	22:30	10	5			15
10:45	36	120	27	113	233	22:45	6	40	7	26	66
11:00	18	37			55	23:00	7	8			15
11:15	22	27			49	23:15	8	8			16
11:30	34	32			66	23:30	4	8			12
11:45	36	110	26	122	232	23:45	7	26	3	27	53
TOTALS	1033	1153			2186	TOTALS	2040	1591			3631
SPLIT %	47.3%	52.7%			37.6%	SPLIT %	56.2%	43.8%			62.4%

DAILY TOTALS					NB	SB	EB	WB	Total
					3,073	2,744	0	0	5,817

AM Peak Hour	07:15	07:15			07:15	PM Peak Hour	16:30	15:15			16:30
AM Pk Volume	344	384			728	PM Pk Volume	320	288			591
Pk Hr Factor	0.656	0.756			0.781	Pk Hr Factor	0.889	0.783			0.912
7 - 9 Volume	492	605	0	0	1097	4 - 6 Volume	562	483	0	0	1045
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	16:30	16:30			16:30
7 - 9 Pk Volume	344	384	0	0	728	4 - 6 Pk Volume	320	271	0	0	591
Pk Hr Factor	0.656	0.756	0.000	0.000	0.781	Pk Hr Factor	0.889	0.836	0.000	0.000	0.912

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

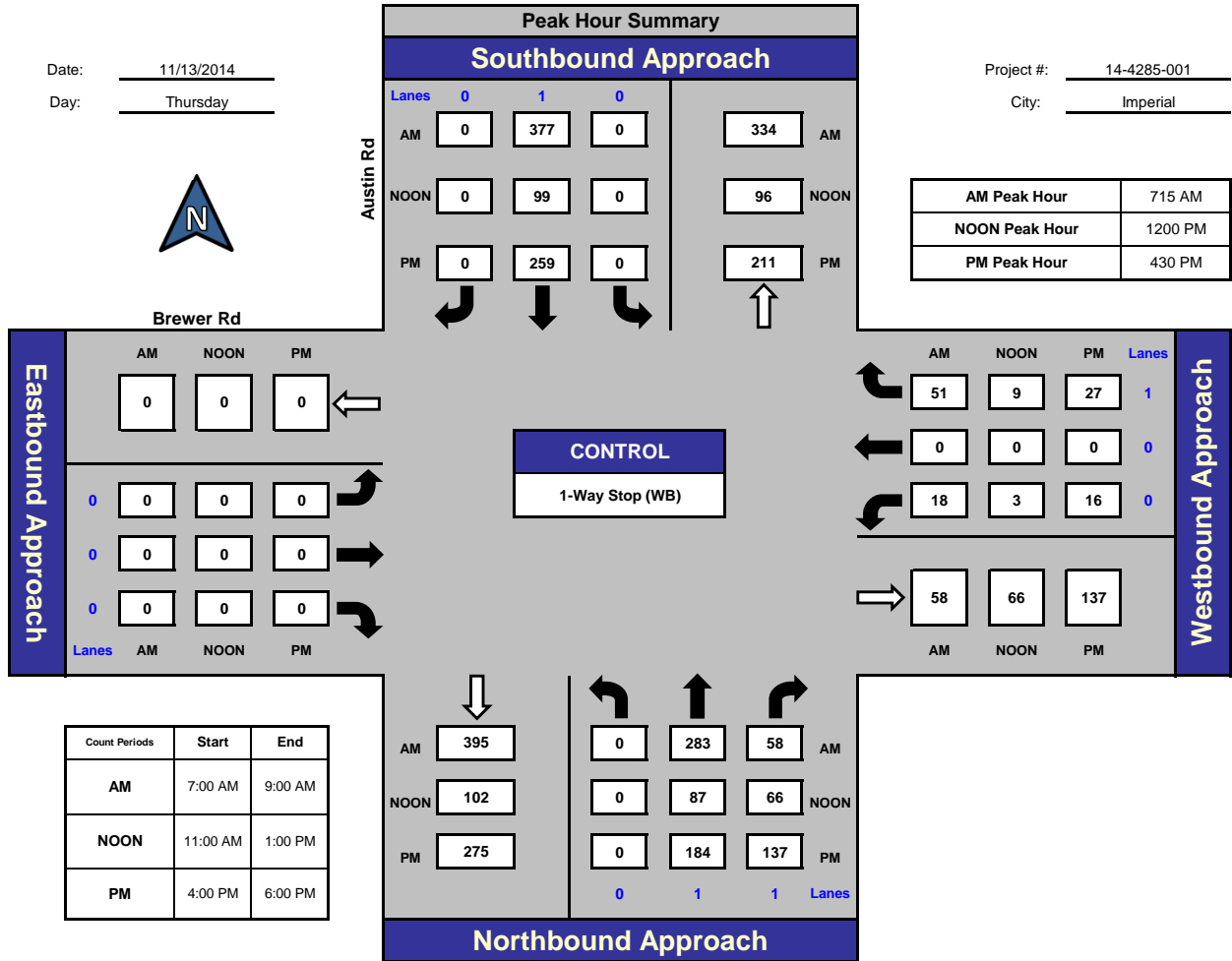
Austin Rd and Brewer Rd, Imperial

Date: 11/13/2014

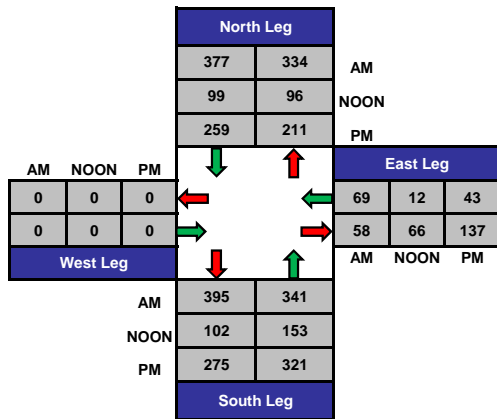
Day: Thursday

Project #: 14-4285-001

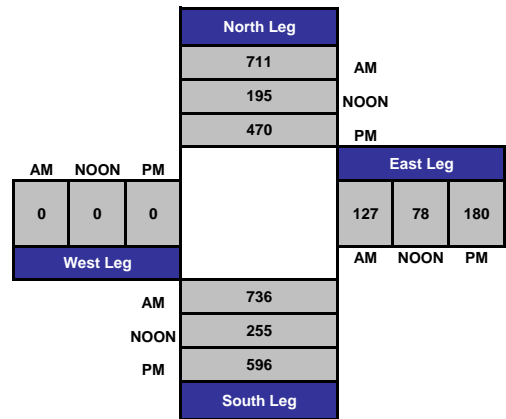
City: Imperial

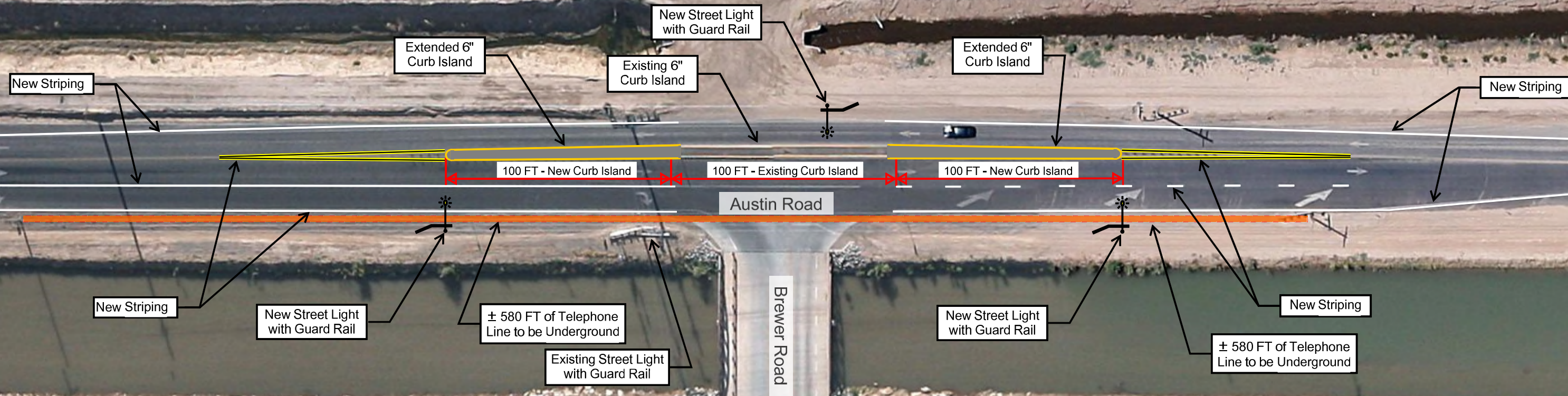


Total Ins & Outs



Total Volume Per Leg





**IMPERIAL COUNTY
PUBLIC WORKS DEPARTMENT
EL CENTRO, CALIFORNIA**

**AUSTIN ROAD IMPROVEMENTS
AT BREWER ROAD IN IMPERIAL COUNTY
- CONCRETE ISLAND EXTENSION**

**COUNTY PROJECT NO. 6033
JULY 13, 2015**