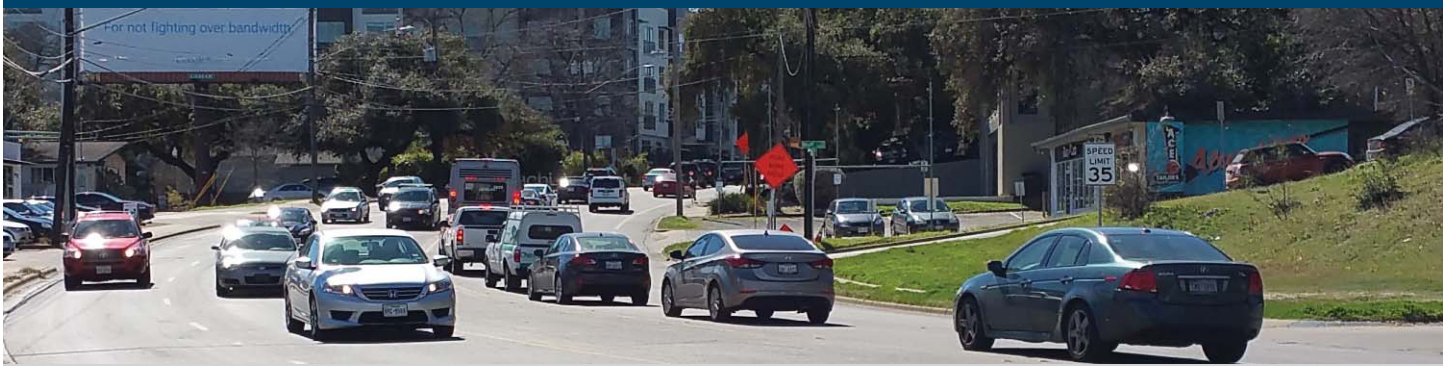
APPENDIX C
2035 TRAVEL DEMAND FORECASTING



SOUTH LAMAR BOULEVARD TRAFFIC FORECASTS

SOUTH LAMAR BOULEVARD CORRIDOR DEVELOPMENT

Date Prepared:

January 26, 2015

South Lamar Boulevard, designated as Loop 343 by Texas Department of Transportation (TxDOT), is a four-lane roadway divided by a two-way left-turn lane along the majority of its length between Riverside Drive and US 290/Ben White Boulevard. Capital Area Metropolitan Planning Organization (CAMPO) designates South Lamar Boulevard as a major arterial.[1] It provides mobility between South Austin and downtown as well as access to numerous businesses and residential neighborhoods and developments. TxDOT's Year 2013 average annual daily traffic (AADT) counts along South Lamar Boulevard show approximately 40,000 vehicles per day (vpd) north of Riverside Drive and approximately 39,000 vpd north of Manchaca Road.[2]

As part of the South Lamar Corridor Development project, HDR has developed Year 2035 AM peak and PM peak hour traffic volume forecasts (automobile, pedestrian, bicycle) at the following existing intersections along South Lamar Boulevard:

- Riverside Drive
- Barton Springs Road
- Treadwell Street
- Lamar Square Drive
- Hether Street/Mary Street
- Oltorf Street
- Bluebonnet Lane
- Manchaca Road
- Barton Skyway
- Panther Trail
- Brodie Oaks/Lamar Oaks driveways
- US 290/Ben White Boulevard (box diamond intersection)

Methodology

As a base, HDR used AM (7:30 – 8:30) and PM peak hour (5:00 – 6:00) automobile turning movement volumes, bicycle counts, and pedestrian counts collected in September 2014 at all corridor intersections listed above.

HDR compiled information from City of Austin's (CoA's) land development review website, "AMANDA," about the locations and land uses of proposed developments located along or adjacent to the South Lamar Boulevard corridor.[3] Some of these developments were under construction during data collection, while others are still in the City's development review process.

HDR obtained historical daily traffic volume counts and forecasts from CAMPO and TxDOT for sections of South Lamar Boulevard and major connecting streets. CAMPO has projected average daily automobile

[1] *CAMPO 2035 Regional Transportation Plan*, Capital Area Metropolitan Planning Organization, Austin, Texas, Adopted May 24, 2010.
[2] 2013 Austin District Traffic Map, Texas Department of Transportation, Austin, Texas, 2014.
[3] "AMANDA," Planning and Development Review Department, City of Austin, Austin, Texas, accessed December 2014 and January 2015.

traffic volumes for Years 2010 and 2035.[4] TxDOT has established Year 2010 and Year 2030 AADT traffic counts/forecasts along South Lamar Boulevard.[5]

Background Traffic Growth

For the automobile traffic forecasts, HDR reviewed CoA's and TxDOT's historical daily traffic volume counts and forecasts to establish an annual peak hour background growth rate.[2,6] Historical traffic counts show that daily automobile traffic volumes along South Lamar Boulevard have not significantly increased over time. The below table provides Year 2001 (CoA) and Year 2013 (TxDOT) daily traffic volumes at two locations along South Lamar Boulevard.

Count Location	Year 2001 (vpd)	Year 2013 (vpd)
North of Riverside Dr.	47,954	39,900
North of Manchaca Rd.	42,024	39,100

TxDOT has forecasted growth in AADT at 1.7 percent annually between 2010 and 2030 along the entire length of South Lamar Boulevard. HDR also consulted CAMPO's daily automobile traffic volume forecasts. Along South Lamar Boulevard, CAMPO's forecasted growth of daily traffic volumes varies between approximately 0.9 percent and approximately 1.4 percent annually between 2015 and 2035, depending on location along the corridor.

After considering the historical traffic volume growth trends, and CAMPO's and TxDOT's forecasts, HDR applied a one (1) percent annual growth rate to all automobile peak hour turning movement volumes at each intersection along the corridor. This results in an overall 23 percent growth in existing automobile volumes to yield Year 2035 peak hour volumes. The background growth reflects changes in traffic patterns, diversions to other travel modes, and incorporates changes in land uses through small projects. In addition to the background growth, HDR included trips generated by proposed land developments (discussed later in this memo).

HDR applied background growth rates to existing (Year 2014) peak hour pedestrian counts. Because most of the corridor has a great mix of land uses and existing pedestrian facilities, HDR applied a higher annual growth rate—four (4) percent. This results in a 128 percent overall growth in existing pedestrian volumes to yield Year 2035 estimates.

HDR applied a five (5) percent annual growth rate to existing peak hour bicycle counts, yielding 179 percent growth between existing (Year 2014) and Year 2035. Because the length of the corridor, approximately three (3) miles, is within typically acceptable bicycling distance, and half of the corridor is within three (3) miles of central downtown, growth in bicycle trips will likely significantly outpace the growth in automobile trips.

[4] CAMPO 2005 Planning Model, Capital Area Metropolitan Planning Organization, Austin, Texas, July 2010.
[5] Statewide Planning Map, Texas Department of Transportation, Austin, Texas, accessed January 21, 2015.
[6] City of Austin Traffic Counts, Capital Area Metropolitan Planning Organization, Austin, Texas, updated November 12, 2013.

Corridor Land Development

HDR identified numerous land development projects that are either newly constructed or currently under review by CoA.[7] They are listed in the table on the following page. The land use types and sizes are those submitted to CoA as part of the site plan application and may differ upon build-out.

These development projects were incorporated into the traffic forecasting methodology, in addition to the background traffic growth. HDR determined the numbers of AM peak and PM peak hour automobile trips that each development is expected to generate.[8] For the PM peak hour, reductions due to "pass-by" were incorporated to reflect the character of the roadway as both a commuter route and a provider of access to local businesses.[9]

Trip Reductions

Based on feedback received from the community, there is a tremendous desire to convert this corridor from its current auto-centric focus to a truly multimodal transportation facility that provides world-class pedestrian, bicycle, and transit facilities to reduce auto dependency. This will result in automobile trips converting to other modes.

To account for transit trips, an automobile trip reduction of ten (10) percent, reflective of mature, robust transit operations along the corridor, was applied to the development-generated trips.

Pedestrian and bicycle trips were each assumed to comprise five (5) percent of the projected trips.

Projected pedestrian and bicycle volumes were increased above background growth forecasts due to the effects of new residential development along South Lamar Boulevard and Barton Springs Road and their proximity to downtown and Lady Bird Lake. Pedestrian volumes were also increased at the south end of the corridor to account for new residential development. Bicycle volumes were modified to reflect increased commuter traffic between downtown and the proposed residential developments.

HDR assumed modest combined transit, pedestrian, and bicycle mode share of 20 percent along the South Lamar Boulevard corridor for the new developments coming on line. To be conservative, HDR did not assume any diversion of automobile trips to pedestrian, bicycle, or transit modes. Annual growth in the use of these modes is expected to exceed that of automobile traffic growth. The City may consider more aggressive assumptions (e.g., between 25 percent and 30 percent combined mode share) to meet its own assumptions or stated goals for the corridor. For example, CoA has recently identified bicycle mode share goals of 15 percent in the central city and five (5) percent citywide by Year 2020.[10] CoA's commitment to Complete Streets may also have a significant effect on alternative mode shares.

[7] "AMANDA," Planning and Development Review Department, City of Austin, Austin, Texas, accessed December 2014 and January 2015.
[8] *Trip Generation Manual*, 9th Ed., Institute of Transportation Engineers, Washington, DC, 2012.
[9] *Trip Generation Handbook*, 2nd Ed., Institute of Transportation Engineers, Washington, DC, 2004.
[10] *2014 Austin Bicycle Plan*, Review Copy, City of Austin Transportation Department, Austin, Texas, 2014.

Project/Development	Address	Nearest Cross Street	Land Use(s) Type	Size
211 South Lamar	211 S. Lamar Blvd.	Riverside Dr.	Apartments	198 DU
			Retail	4,657 SF
Zilkr on the Park	408 Sterzing St.	Barton Springs Rd.	Multi-family	76 DU
Coldwater	1717 Toomey Rd./ 1720 Barton Springs Rd.	Toomey Rd./ Barton Springs Rd.	Restaurant	4,900 SF
			Multi-family	227 DU
1155 Barton Springs	1155 Barton Springs Rd.	Barton Springs Rd.	Condominium	50 DU
			Apartments	15 DU
904 Lamar Building	904-906 S. Lamar Blvd.	Treadwell St.	Office	7,943 SF
Hanover South Lamar	809 S. Lamar Blvd.	Juliet St.	Apartments	340 DU
			General Office	7,011 SF
Lamar Union	1000 S. Lamar Blvd.	Treadwell St.	Apartments	448 DU
			Restaurant	47,145 SF
			Retail	18,590 SF
			Movie theater	9 screens
1300 Plaza II	1300 S. Lamar Blvd.	Lamar Square Dr.	Liquor store	2,314 SF
			Bar	2,280 SF
Post South Lamar II	1414 S. Lamar Blvd.	Lamar Square Dr.	Apartments	351 DU
			Restaurant	6,000 SF
Loro Restaurant	2115 S. Lamar Blvd.	Kinney Ave.	Restaurant	9,000 SF
Bluebonnet Studios	2301 S. Lamar Blvd.	Del Curto Rd.	Studio apartments	107 DU
Abel's Rib House	2330 S. Lamar Blvd.	Bluebonnet Ln.	Restaurant	7,993 SF
Cielo South Lamar	2717 S. Lamar Blvd.	Manchaca Rd.	Apartments	325 DU
			Retail	8,375 SF
			Townhouse	42 DU
The 704 Apartments	3401 S. Lamar Blvd.	Westrock Dr.	Apartments	240 DU
			Retail	10,667 SF
			Restaurant	8,000 SF
			Coffee shop	3,500 SF
Eskew Place	3600 S. Lamar Blvd.	Panther Tr.	Multi-family	69 DU
			Restaurant	unknown
In-N-Out Burger	3701 S. Lamar Blvd.	Panther Tr.	Restaurant	3,750 SF

DU = dwelling units
SF = square feet

Results

After establishing background automobile, pedestrian, and bicycle traffic volume growth along the corridor and identifying land development projects under construction or under review, HDR combined the respective resultant traffic volume sets from the two forecasting steps. As a result, annual automobile traffic volume growth varied from a minimum of one (1) percent (background growth only) at some locations (e.g., side streets without identified future development projects) to over 1.5 percent at others (e.g., some through South Lamar Boulevard through movements, near the southern end of the corridor). Side street movements near large future developments grew at even greater rates. The results are the Year 2035 AM peak and PM peak hour traffic volume forecasts, which are attached.

To compare the forecasted traffic growth rates discussed in the above sections, Figure 1 and Figure 2 provide the existing (Year 2014) PM peak hour (highest automobile volume time period) South Lamar Boulevard bi-directional traffic count and the effects of the various forecasted growth rates on those volumes. Two locations along South Lamar Boulevard are shown—(1) south of Barton Springs Road and (2) south of Barton Skyway.

Figure 1: Y2035 PM Peak Hour Automobile Traffic Growth – South of Barton Springs Rd.

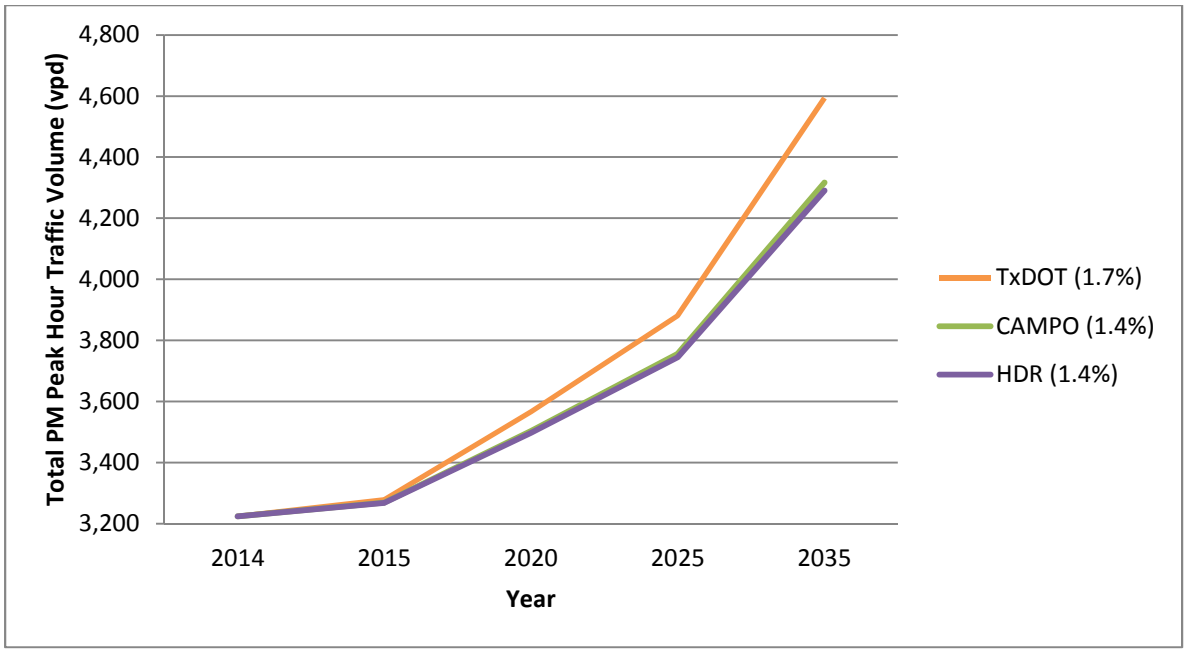
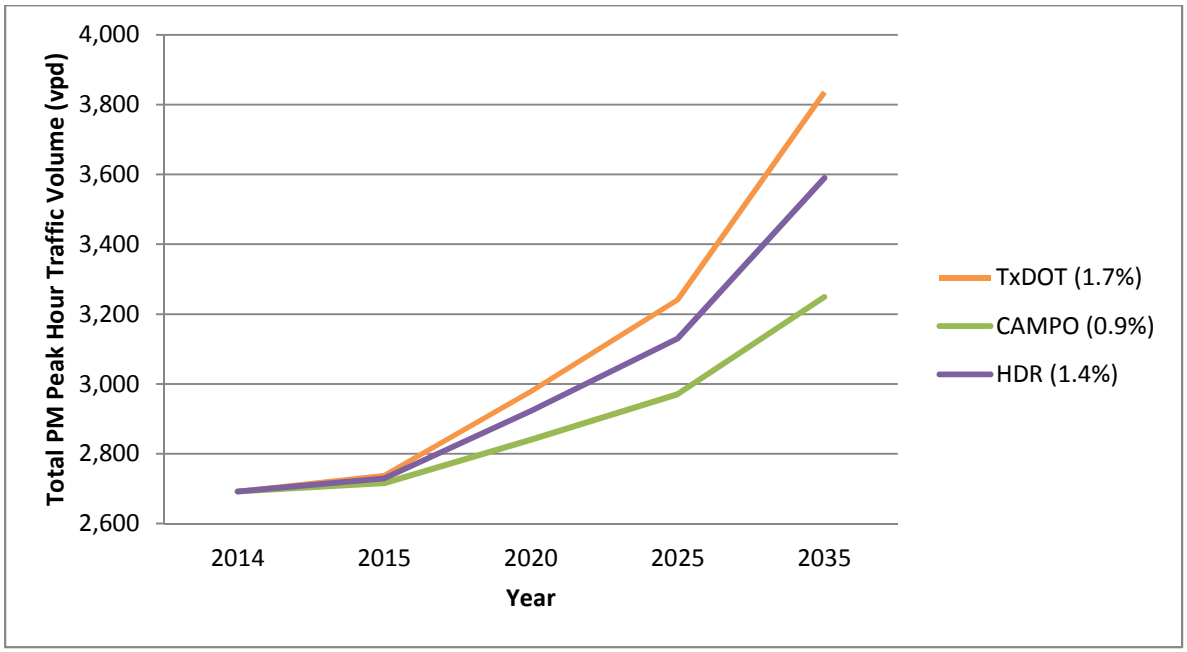


Figure 2: Y2035 PM Peak Hour Automobile Traffic Growth – South of Barton Skyway



Conclusions

In the north section of the corridor, as shown in Figure 1, HDR's final forecasted peak hour growth (background growth plus future development) are in line with CAMPO's projections. TxDOT's forecasts account for more significant automobile traffic volume increases, though its 1.7 percent annual growth rate applies to corridor AADT. In this section of the corridor, already heavily congested during the peak hours, capacity constraints dictate that South Lamar Boulevard cannot accommodate significant increases in automobile traffic during the peak hour. Significant increases in peak hour demand will result in that demand being serviced outside of the peak hour. In addition, the more significant TxDOT-forecasted growth would likely occur outside of the peak hours.

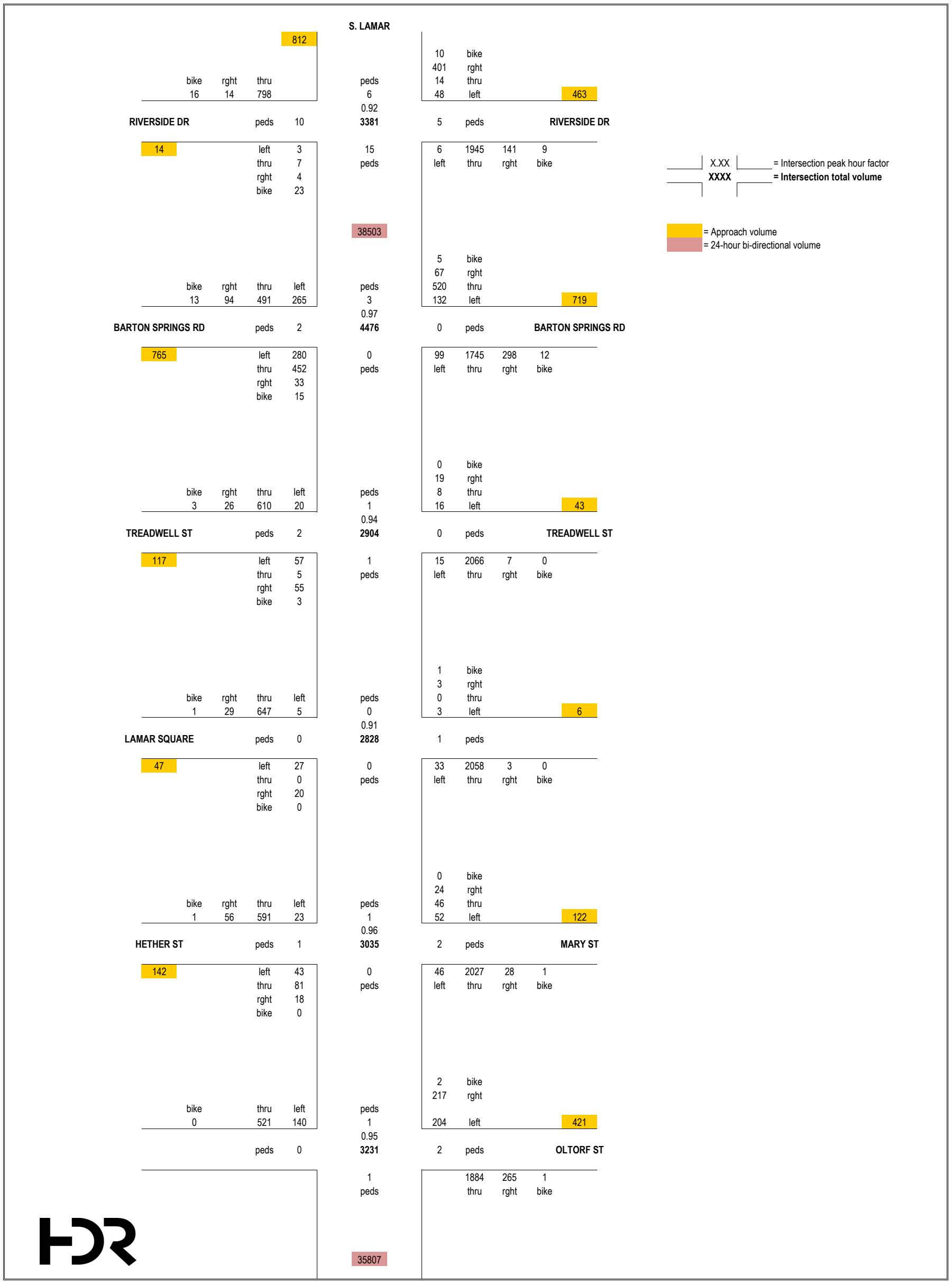
In the south section of the corridor, as shown in Figure 2, HDR's final forecasted peak hour growth (background growth plus future development) exceed CAMPO's projections. Here again, TxDOT's forecasts account for more significant automobile traffic volume increases, though its 1.7 percent annual growth rate applies to corridor AADT. In this section of the corridor, capacity constraints are not as significant as in the northern section closer to downtown. As a result, the corridor can likely accommodate more significant automobile traffic growth than CAMPO's forecasts.

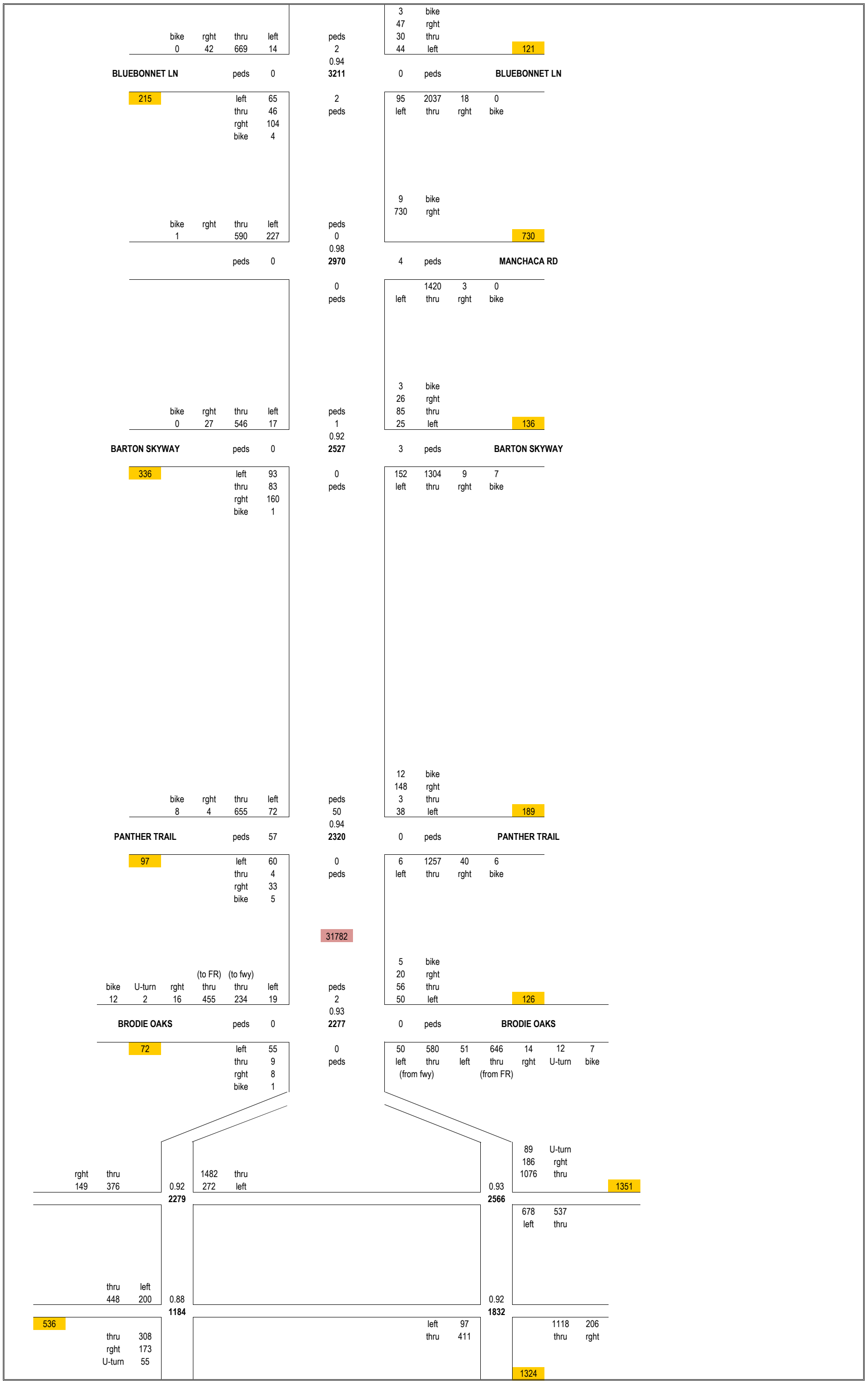
For this task, HDR's forecasts only attempt to account for the Year 2035 weekday AM peak and PM peak hours. In reality, daily traffic volumes may increase at the higher rate that TxDOT has forecasted. Capacity constraints along/adjacent to the corridor (e.g., the Lamar Boulevard bridge over Lady Bird Lake) limit throughput, resulting in traffic pattern changes, such as the extension in time of the AM peak and PM peak periods to two or three hours each.

SOUTH LAMAR BOULEVARD CORRIDOR DEVELOPMENT

2014 Existing AM Peak Traffic Volume

7:30 - 8:30 AM

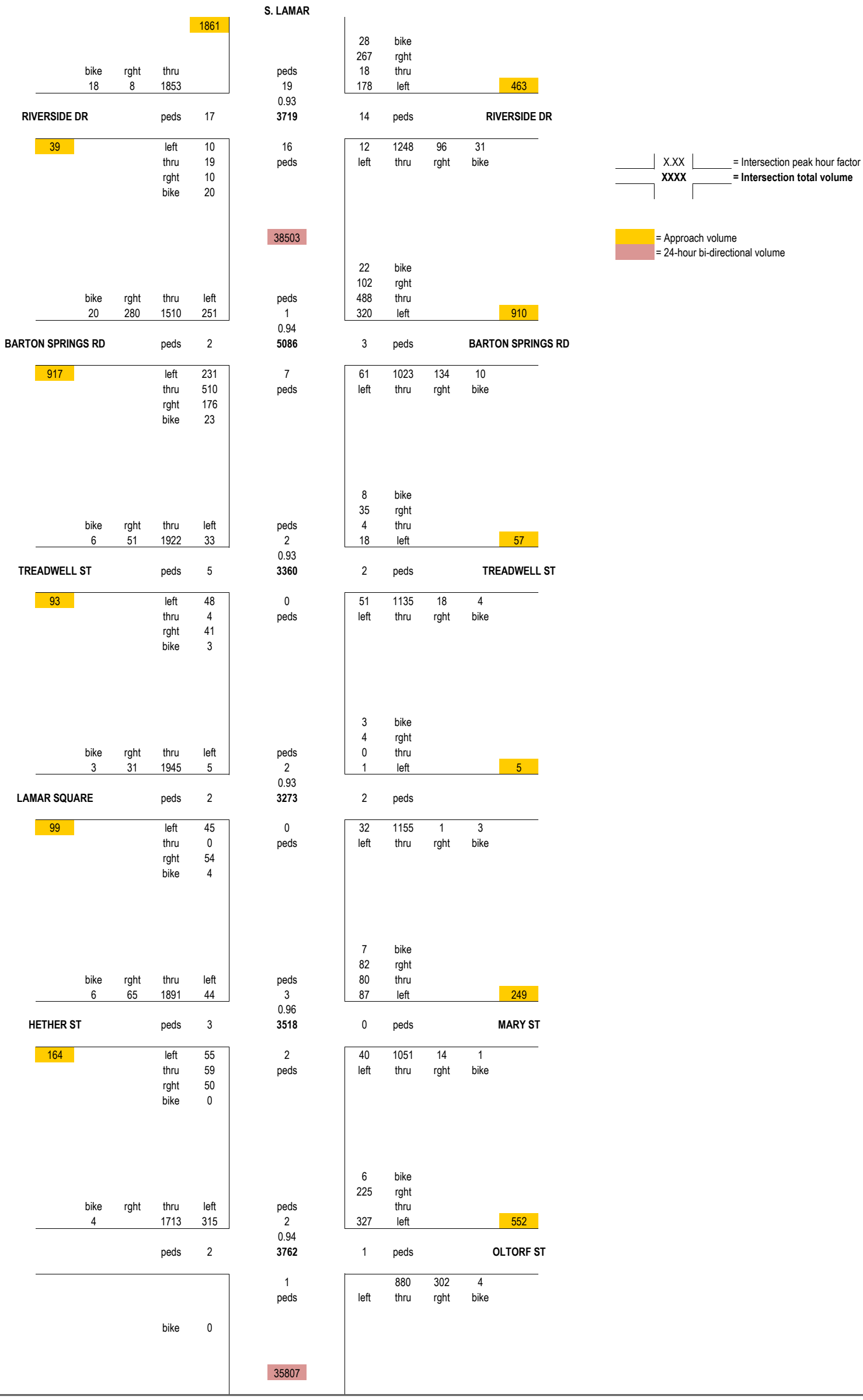


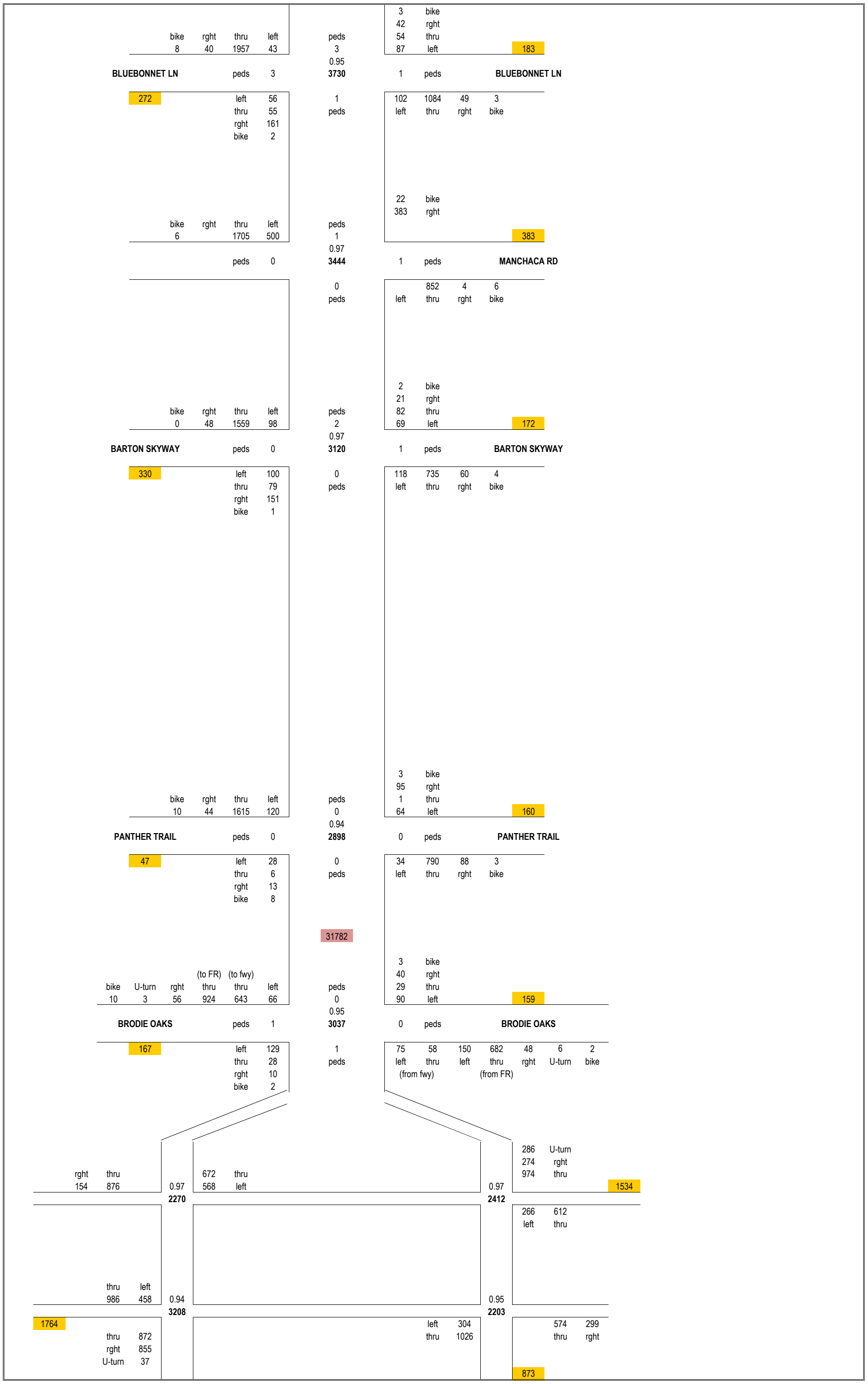

bike 0
rght 42
thru 669
left 14
peds 2
0.94
BLUEBONNET LN
peds 0
3211
3 bike
47 rght
30 thru
44 left
121
peds 0
BLUEBONNET LN
215
left 65
thru 46
rght 104
bike 4
2 peds
95 left
2037 thru
18 rght
0 bike
9 bike
730 rght
bike 1
rght
thru 590
left 227
peds 0
0.98
peds 0
2970
4 peds
730
MANCHACA RD
0 peds
1420 thru
3 rght
0 bike
left
bike 0
rght 27
thru 546
left 17
peds 1
0.92
BARTON SKYWAY
peds 0
2527
3 peds
3 bike
26 rght
85 thru
25 left
136
BARTON SKYWAY
336
left 93
thru 83
rght 160
bike 1
0 peds
152 left
1304 thru
9 rght
7 bike
12 bike
148 rght
bike 8
rght 4
thru 655
left 72
peds 50
0.94
PANTHER TRAIL
peds 57
2320
3 thru
38 left
189
peds 0
PANTHER TRAIL
97
left 60
thru 4
rght 33
bike 5
0 peds
6 left
1257 thru
40 rght
6 bike
31782
5 bike
20 rght
56 thru
50 left
126
bike 12
U-turn 2
rght 16
(to FR) thru 455
(to fwy) thru 234
left 19
peds 2
0.93
BRODIE OAKS
peds 0
2277
0 peds
BRODIE OAKS
72
left 55
thru 9
rght 8
bike 1
0 peds
50 left
(from fwy)
580 thru
51 left
646 thru
(from FR)
14 rght
12 U-turn
7 bike
89 U-turn
186 rght
1076 thru
rght 149
thru 376
0.92
1482 thru
272 left
0.93
1351
2279
2566
678 left
537 thru
thru 448
left 200
0.88
1184
0.92
1832
536
thru 308
rght 173
U-turn 55
left 97
thru 411
1118 thru
206 rght
1324

SOUTH LAMAR BOULEVARD CORRIDOR DEVELOPMENT

2014 Existing PM Peak Traffic Volume

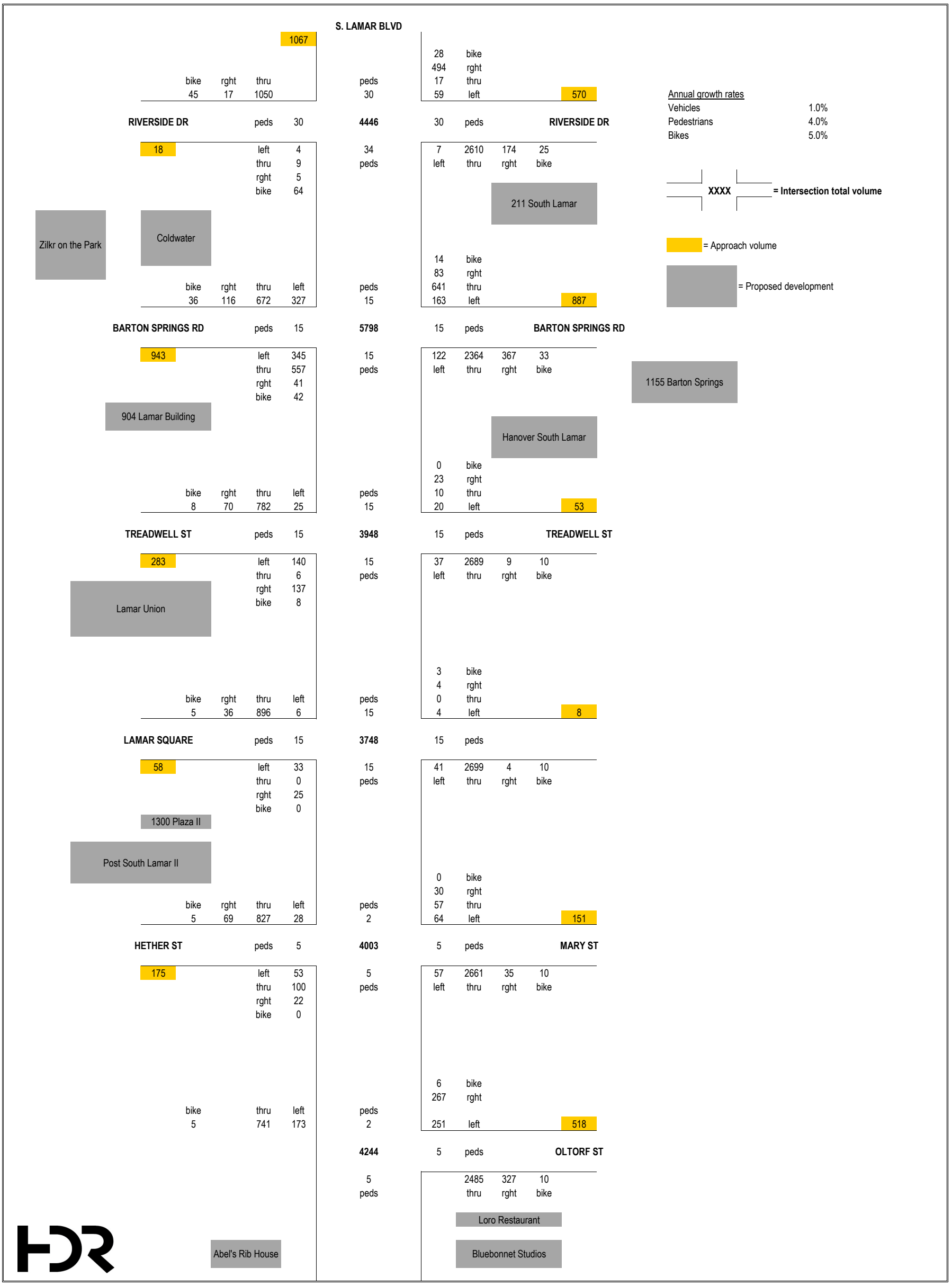
5:00 - 6:00 PM

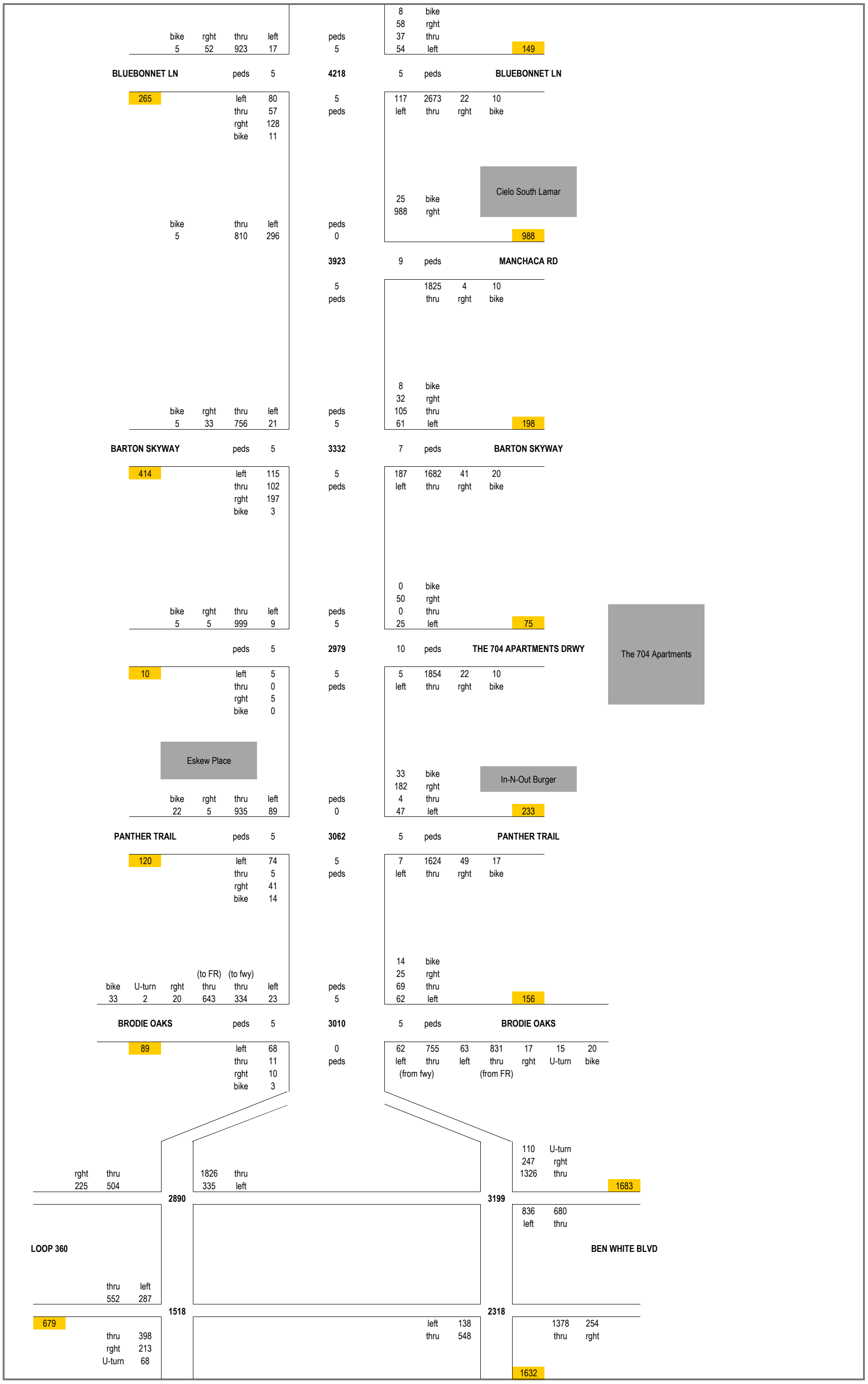



bike 8
rght 40
thru 1957
left 43
peds 3
0.95
BLUEBONNET LN
peds 3
3730
272
left 56
thru 55
rght 161
bike 2
bike 6
rght
thru 1705
left 500
peds 1
0.97
peds 0
3444
bike 0
rght 48
thru 1559
left 98
peds 2
0.97
BARTON SKYWAY
peds 0
3120
330
left 100
thru 79
rght 151
bike 1
bike 10
rght 44
thru 1615
left 120
peds 0
0.94
PANTHER TRAIL
peds 0
2898
47
left 28
thru 6
rght 13
bike 8
31782
bike 10
U-turn 3
rght 56
(to FR) thru 924
(to fwy) thru 643
left 66
peds 0
0.95
BRODIE OAKS
peds 1
3037
167
left 129
thru 28
rght 10
bike 2
3 bike
42 rght
54 thru
87 left
183
BLUEBONNET LN
1 peds
102 left
1084 thru
49 rght
3 bike
22 bike
383 rght
383
MANCHACA RD
1 peds
0 left
852 thru
4 rght
6 bike
2 bike
21 rght
82 thru
69 left
172
BARTON SKYWAY
1 peds
118 left
735 thru
60 rght
4 bike
3 bike
95 rght
1 thru
64 left
160
PANTHER TRAIL
0 peds
34 left
790 thru
88 rght
3 bike
3 bike
40 rght
29 thru
90 left
159
BRODIE OAKS
1 peds
75 left (from fwy)
58 thru
150 left
682 thru (from FR)
48 rght
6 U-turn
2 bike
rght 154
thru 876
0.97
2270
672 thru
568 left
0.97
2412
286 U-turn
274 rght
974 thru
1534
thru 986
left 458
0.94
3208
0.95
2203
266 left
612 thru
1764
thru 872
rght 855
U-turn 37
left 304
thru 1026
574 thru
299 rght
873

SOUTH LAMAR BOULEVARD CORRIDOR DEVELOPMENT

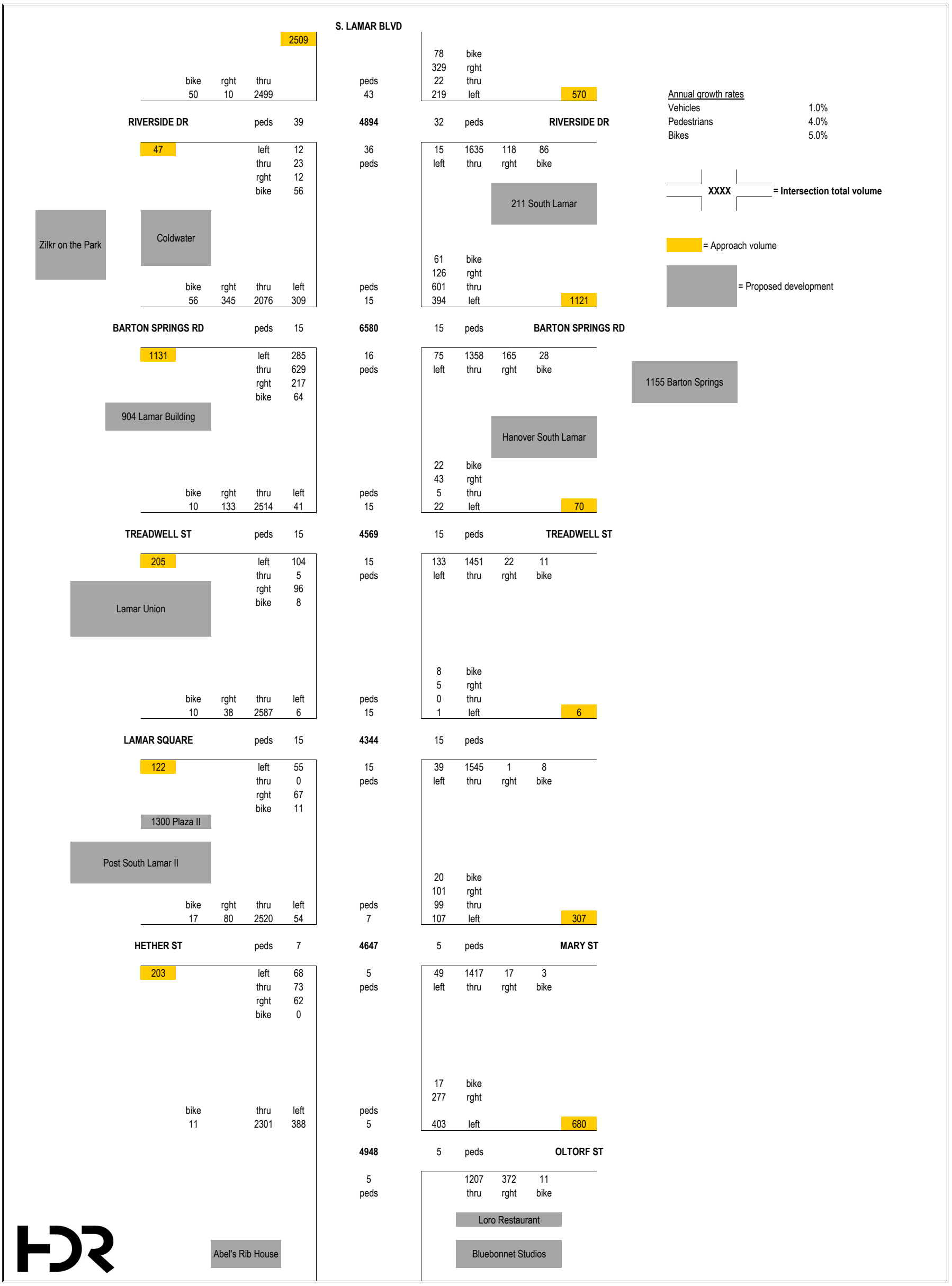
2035 Forecasted AM Peak Traffic Volumes

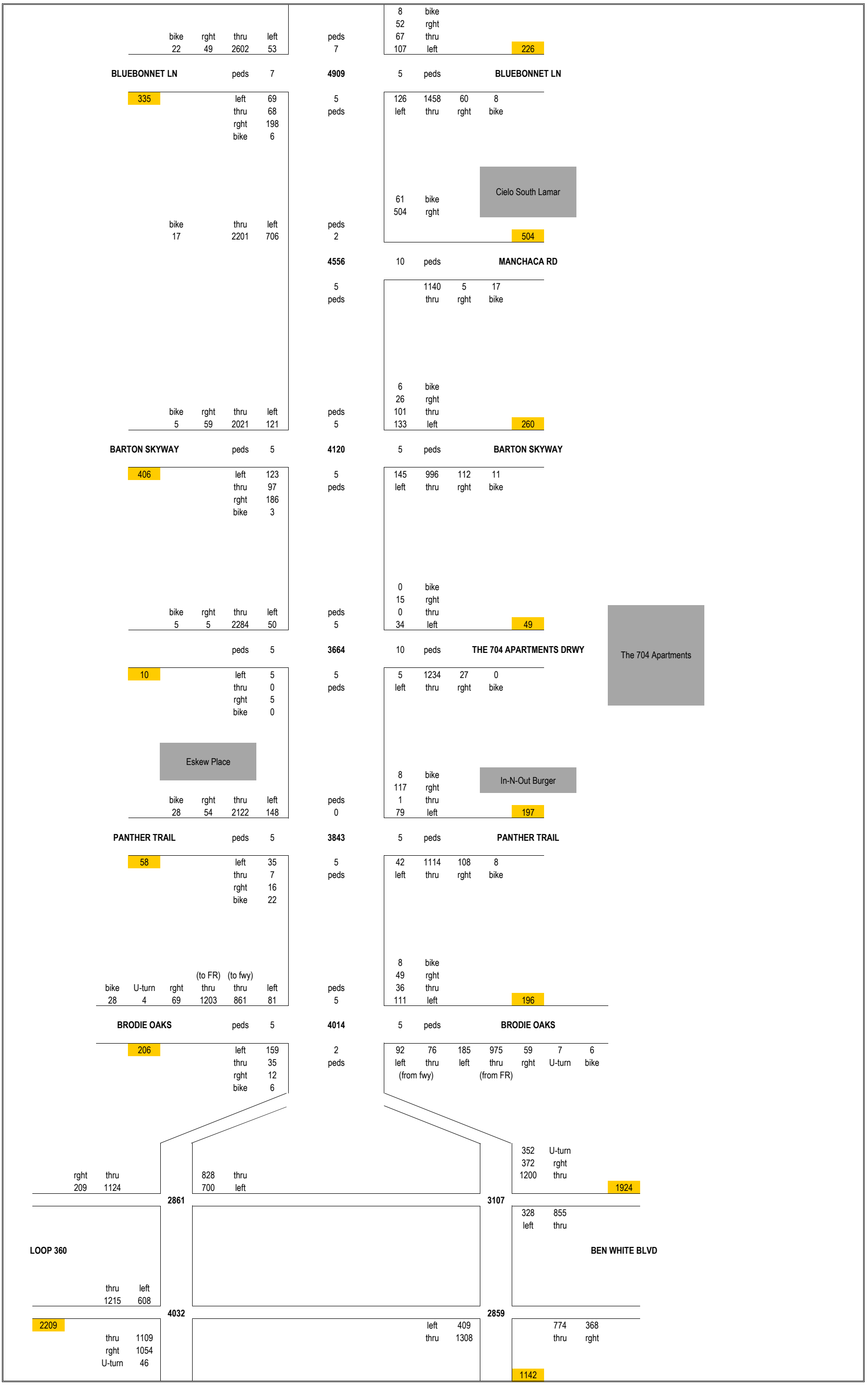



8 bike
58 rght
37 thru
54 left
149
bike rght thru left
5 52 923 17
peds 5
BLUEBONNET LN
peds 5
4218
5 peds
BLUEBONNET LN
265
left 80
thru 57
rght 128
bike 11
5 peds
117 left
2673 thru
22 rght
10 bike
Cielo South Lamar
25 bike
988 rght
988
bike thru left
5 810 296
peds 0
3923
9 peds
MANCHACA RD
5 peds
1825 thru
4 rght
10 bike
8 bike
32 rght
105 thru
61 left
198
bike rght thru left
5 33 756 21
peds 5
BARTON SKYWAY
peds 5
3332
7 peds
BARTON SKYWAY
414
left 115
thru 102
rght 197
bike 3
5 peds
187 left
1682 thru
41 rght
20 bike
0 bike
50 rght
0 thru
25 left
75
bike rght thru left
5 5 999 9
peds 5
The 704 Apartments
peds 5
2979
10 peds
THE 704 APARTMENTS DRWY
10
left 5
thru 0
rght 5
bike 0
5 peds
5 left
1854 thru
22 rght
10 bike
Eskew Place
33 bike
182 rght
4 thru
47 left
In-N-Out Burger
233
bike rght thru left
22 5 935 89
peds 0
PANTHER TRAIL
peds 5
3062
5 peds
PANTHER TRAIL
120
left 74
thru 5
rght 41
bike 14
5 peds
7 left
1624 thru
49 rght
17 bike
14 bike
25 rght
69 thru
62 left
156
bike U-turn rght (to FR) thru (to fwy) thru left
33 2 20 643 334 23
peds 5
BRODIE OAKS
peds 5
3010
5 peds
BRODIE OAKS
89
left 68
thru 11
rght 10
bike 3
0 peds
62 left (from fwy)
755 thru
63 left
831 thru (from FR)
17 rght
15 U-turn
20 bike
110 U-turn
247 rght
1326 thru
1683
rght thru
225 504
1826 thru
335 left
2890
3199
836 left
680 thru
LOOP 360
BEN WHITE BLVD
thru left
552 287
1518
2318
679
thru 398
rght 213
U-turn 68
left 138
thru 548
1378 thru
254 rght
1632

SOUTH LAMAR BOULEVARD CORRIDOR DEVELOPMENT

2035 Forecasted PM Peak Traffic Volumes




bike 22
rght 49
thru 2602
left 53
peds 7
8 bike
52 rght
67 thru
107 left
226
BLUEBONNET LN
peds 7
4909
5 peds
BLUEBONNET LN
335
left 69
thru 68
rght 198
bike 6
5 peds
126 left
1458 thru
60 rght
8 bike
Cielo South Lamar
61 bike
504 rght
bike 17
thru 2201
left 706
peds 2
504
4556
10 peds
MANCHACA RD
5 peds
1140 thru
5 rght
17 bike
6 bike
26 rght
101 thru
133 left
260
bike 5
rght 59
thru 2021
left 121
peds 5
BARTON SKYWAY
peds 5
4120
5 peds
BARTON SKYWAY
406
left 123
thru 97
rght 186
bike 3
5 peds
145 left
996 thru
112 rght
11 bike
0 bike
15 rght
0 thru
34 left
49
bike 5
rght 5
thru 2284
left 50
peds 5
peds 5
3664
10 peds
THE 704 APARTMENTS DRWY
The 704 Apartments
10
left 5
thru 0
rght 5
bike 0
5 peds
5 left
1234 thru
27 rght
0 bike
Eskew Place
8 bike
117 rght
1 thru
79 left
In-N-Out Burger
197
bike 28
rght 54
thru 2122
left 148
peds 0
PANTHER TRAIL
peds 5
3843
5 peds
PANTHER TRAIL
58
left 35
thru 7
rght 16
bike 22
5 peds
42 left
1114 thru
108 rght
8 bike
8 bike
49 rght
36 thru
111 left
196
bike 28
U-turn 4
rght 69
(to FR) thru 1203
(to fwy) thru 861
left 81
peds 5
BRODIE OAKS
peds 5
4014
5 peds
BRODIE OAKS
206
left 159
thru 35
rght 12
bike 6
2 peds
92 left
(from fwy)
76 thru
185 left
975 thru
(from FR)
59 rght
7 U-turn
6 bike
352 U-turn
372 rght
1200 thru
1924
rght 209
thru 1124
828 thru
700 left
2861
3107
328 left
855 thru
LOOP 360
BEN WHITE BLVD
thru 1215
left 608
4032
2859
2209
left 409
thru 1308
774 thru
368 rght
thru 1109
rght 1054
U-turn 46
1142