

**Montgomery / Wyoming Restaurants**

**Traffic Impact Study**

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FINAL

**Presented to:**

City of Albuquerque  
Transportation Development Section

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# Montgomery / Wyoming Restaurants (NW Corner) TRAFFIC IMPACT STUDY

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# **Montgomery / Wyoming Restaurants (NW Corner)**

## **TRAFFIC IMPACT STUDY**

### **STUDY PURPOSE**

This study is being conducted in conjunction with a request for approval of a commercial development plan for the property located on the north side of Montgomery Blvd. west of Wyoming Blvd. The purpose of this study is to identify the impact of the Development on the adjacent transportation system, and to make recommendations to mitigate any significant adverse impact on the adjacent transportation system resulting from the implementation of the project. This report is being prepared to meet the requirements of the City of Albuquerque Transportation Development Section in association with the development of the proposed project associated with this site plan.

### **STUDY PROCEDURES**

A scoping meeting was held with City of Albuquerque staff on June 23, 2015 (Jeanne Wolfenbarger and Racquel Michel) prior to beginning the Montgomery / Wyoming Restaurants study to discuss scope and methodology to be utilized within that report.

The resulting basic procedure followed in this study is described as follows:

- 1) Calculate the generated trips for the proposed commercial development consisting of the following proposed restaurants: 2 ea. 6,000 SF High Turnover (Sitdown) restaurants, 2 ea. 3,500 SF Fast-food Restaurants w/ drive-thru window, and a 2,000 SF Coffee/donut Shop w/ drive-thru window.
- 2) Calculate trip distribution for the newly generated trips by this development. The commercial trips shall be distributed based on 2035 DASZ population data within a two-mile radius of the proposed site.
- 3) Determine Trip Assignments for the newly generated trips based on the results of the Trip Distribution Analysis and logical routing to and from the site.
- 4) Obtain AM Peak Hour and PM Peak Hour turning movement traffic counts at the intersections of Montgomery Blvd. / Pennsylvania St., Montgomery Blvd. / Wyoming Blvd., Osuna Rd. / Wyoming Blvd., Gutierrez St. / Wyoming Blvd., Driveway "A" / Wyoming Blvd. and Montgomery Blvd. / Driveway "B".
- 5) Calculate Historic Growth Rates for each of the approaches to the intersections targeted for analysis where the historic data was available. Historic Growth Rates were calculated using Mid-Region Council of Governments Traffic Flow Maps for the years 2004 thru 2013.
- 6) Determine 2017 NO BUILD intersection volumes by growing the data from the existing traffic counts at the calculated historic growth rate to the analysis year. There are no recently approved projects to be added to these volumes.
- 7) Add in data from Trip Assignments Maps and Tables to the 2017 NO BUILD Volumes to obtain 2017 BUILD Volumes for this project.

8) Provide signalized and unsignalized intersection analyses for the following intersections:

| INTERSECTION                            | TYPE CONTROL   | NO BUILD | BUILD |
|---|----------------|----------|-------|
| Montgomery Blvd. / Pennsylvania St. (1) | Traffic Signal | 2017     | 2017  |
| Montgomery Blvd. / Wyoming Blvd. (2)    | Traffic Signal | 2017     | 2017  |
| Osuna Rd. / Wyoming Blvd. (3)           | Traffic Signal | 2017     | 2017  |
| Gutierrez St. / Wyoming Blvd. (4)       | Stop Sign      | 2017     | 2017  |
| Driveway "A" / Wyoming Blvd. (5)        | Stop Sign      | 2017     | 2017  |
| Montgomery Blvd.. / Driveway "B" (6)    | Stop Sign      | 2017     | 2017  |

## **PREVIOUS RELATED TRAFFIC IMPACT STUDIES**

There were no previously approved Traffic Impact Studies to be added to this study.

## **GENERAL AREA CHARACTERISTICS**

Surrounding land uses include commercial along Montgomery Blvd. and residential uses to the north and south. A McDonald's and a Wells Fargo Bank are located to the south of the site on Montgomery Blvd. The project is at the northwest corner of Montgomery Blvd. / Wyoming Blvd. All of the driveways for this site are existing, shared driveways.

## **AREA STREET NETWORK**

Montgomery Blvd. and Wyoming Blvd. are classified as an Urban Principal Arterial roadways on the for the Albuquerque Metropolitan Planning Area. They are currently paved urban six-lane facilities with raised medians and curbs and gutters on both sides of the street. The posted speed limit on both is 40 M.P.H.

Pennsylvania St. is classified as an Urban Collector roadway on the Current Roadway Functional Classification System for the Albuquerque Metropolitan Planning Area. It is currently a paved urban two-lane facility with curbs and gutters and bicycle lanes on both sides of the street. The posted speed limit on Pennsylvania St. is 30 M.P.H.

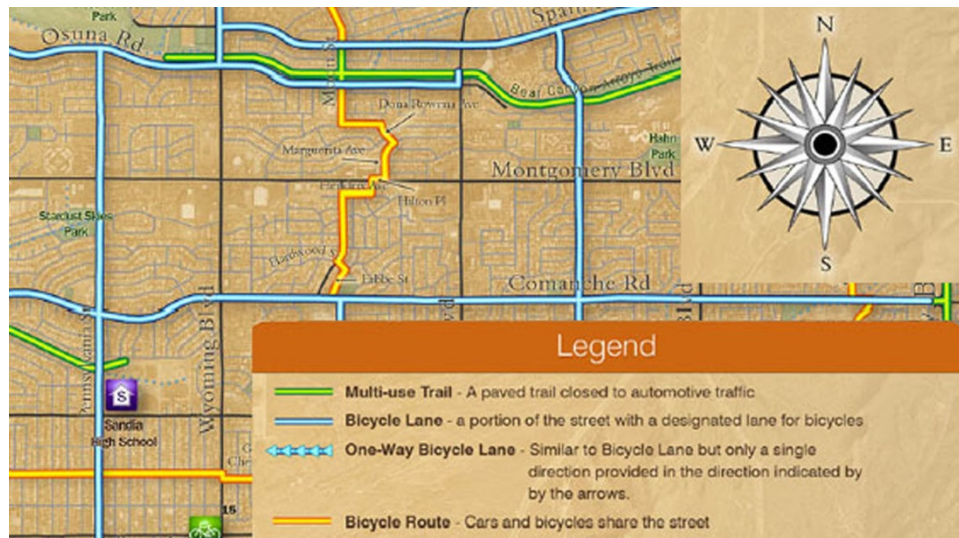
Osuna Rd. is classified as an Existing Urban Minor Arterial roadway on the Current Roadway Functional Classification System for the Albuquerque Metropolitan Planning Area. It is currently paved urban two-lane facility with curbs and gutters and bicycle lanes on both sides of the street. The posted speed limit on Osuna Rd. is 30 M.P.H.

Gutierrez St. is not classified on the Current Roadway Functional Classification System for the Albuquerque Metropolitan Planning Area.

There are three Suntran bus routes in the area, specifically Routes # 5, 31 and 98. Route 5 runs east / west on Montgomery Blvd. and north / south on Carlisle Blvd. to downtown. Route 31 runs north / south on Wyoming Blvd. between Alameda Blvd. and Kirtland Air Force Base (KAFB). Route 98 runs from Ellison / Alameda east to Wyoming and south to KAFB. See the complete route information in the Appendix, Pages A-76 thru A-80.



There are bike routes on Pennsylvania St. and Comanche Rd., and bike lanes and multi-use trails in the area, as shown on the following map.



## **EXISTING TRAFFIC VOLUMES**

2013 Average Weekday Traffic Volumes (AWDT) for major streets in the site plan area are shown on Page A-4 in the Appendix.

Existing AM and PM peak hour turning movement counts for the year 2015 were provided by the consulting engineer for the following intersections:

*Montgomery Blvd. / Pennsylvania St.*  
*Montgomery Blvd. / Wyoming Blvd.*  
*Osuna Rd. / Wyoming Blvd.*  
*Gutierrez St. / Wyoming Blvd.*  
*Driveway "A" / Wyoming Blvd.*  
*Montgomery Blvd. / Driveway "B"*

The existing traffic counts are included at the end of the Appendix.

## **EXISTING LEVELS OF SERVICE**

The Highway Capacity Manual defines Level of Service (LOS) for signalized intersections in terms of average controlled delay per vehicle as follows:

|       |               |                                     |
|-------|---------------|-------------------------------------|
| LOS A | 10.0" or less | Most Vehicles do not stop           |
| LOS B | 10.1 to 20.0" | Some Vehicles stop                  |
| LOS C | 20.1 to 35.0" | Significant number of vehicles stop |
| LOS D | 35.1 to 55.0" | Many vehicles stop.                 |
| LOS E | 55.1 to 80.0" | Limit of acceptable delay.          |
| LOS F | > 80.0"       | Unacceptable delay.                 |

The Highway Capacity Manual defines Level of Service (LOS) for unsignalized intersections in terms of average controlled delay per vehicle also. However, the thresholds for the various

levels of service for unsignalized intersections varies from that of signalized intersections. The following table summarizes the thresholds for various levels of service at unsignalized intersections:

|       |            |
|-------|------------|
| LOS A | 0 to 10.0" |
| LOS B | 10 to 15"  |
| LOS C | 15 to 25"  |
| LOS D | 25 to 35"  |
| LOS E | 35 to 50"  |
| LOS F | > 50"      |

Level of Service D is generally considered acceptable in urban areas and is the desirable base condition for analysis in a traffic study. In addition to consideration of the overall level-of-service of the signalized intersection, the levels-of-service of each individual movement should be considered also. There are cases in large cities where achieving LOS "D" or better at an intersection (signalized or unsignalized) is not possible, especially on heavily travelled arterial roadways in urbanized areas.

Existing Levels-of-Service were not calculated for this study. Instead, the 2017 NO BUILD and the 2017 BUILD Conditions were evaluated.

## **PROPOSED DEVELOPMENT**

The development plan is comprised of proposed commercial uses consisting of the following proposed restaurants: two (2) 6,000 SF High Turnover (Sitdown) restaurants, two (2) 3,500 SF Fast-food Restaurants w/ drive-thru, and a 2,000 SF Coffee/donut Shop w/ drive-thru. The land uses utilized for this analysis should be representative of the type of uses that will result from the proposed development. Should the development occur in such a manner that the actual number of trips generated significantly exceed that projected in this study, the City of Albuquerque may require an updated Traffic Impact Study.

Access is provided into the proposed facility via one driveway accessing Montgomery Blvd. and two accessing Wyoming Blvd. The overall access to the project is as depicted on the Conceptual Site Development Plan on Page A-2 of this study. The first access to the site is Gutierrez St. / Wyoming Blvd, which also serves a church access west of Wyoming Blvd. The second access on Wyoming Blvd. (Driveway "A") is south of Gutierrez and currently serves as access to the McDonald's. The access onto Montgomery Blvd. (Driveway "B") is an existing right-in, right-out, left-in unsignalized intersection to the west of Wyoming Blvd.

## **TRIP GENERATION**

Projected trips were calculated from data in the Institute of Transportation Engineers Trip Generation report (9th Edition, 2012). Trips for the development were determined based on land uses projected to be associated with the site plan for this property.

The resulting number of trips generated for the proposed development is summarized in the following table:

## *Montgomery / Wyoming Restaurant Project*

### Trip Generation Data (ITE Trip Generation Manual - 9th Edition)

| COMMENT             | USE (ITE CODE)                                  | 24 HR VOL | A. M. PEAK HR. |      | P. M. PEAK HR. |      |     |
|---------------------|---|-----------|----------------|------|----------------|------|-----|
|                     | DESCRIPTION                                     | GROSS     | ENTER          | EXIT | ENTER          | EXIT |     |
| Summary Sheet       |   | Units     |                |      |                |      |     |
| 2 Restaurants       | High Turnover (Sit-Down) Restaurant (932)       | 12.00     | 1,526          | 71   | 58             | 71   | 47  |
| 2 Restaurants       | Fast Food Restaurant w/ Drive-Thru Window (934) | 7.00      | 3,473          | 162  | 156            | 119  | 110 |
| 1 Restaurant        | Coffee/Donut Shop w/ Drive Thru Window (937)    | 2.00      | 1,637          | 103  | 99             | 43   | 43  |
| Subtotal            |   |           | 6,636          | 336  | 313            | 233  | 200 |
| Pass-By Trips       |   | 45%       |                | -151 | -141           | -105 | -90 |
| Total Primary Trips |   |           |                | 185  | 172            | 128  | 110 |

(Also, see Pages A-6 thru A-9 in the Appendix of this report for Trip Generation Summary Table and Worksheets.)

### **TRIP DISTRIBUTION**

#### Primary and Diverted Linked Trips:

Trips were distributed as follows:

#### **Commercial Land Uses**

Primary and diverted linked trips for the commercial land use development were distributed proportionally to the 2017 projected population of Data Analysis Subzones within a two mile radius of the proposed development. Population data for the years 2015 and 2025 were taken from the 2035 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2015 and 2025 was interpolated linearly to obtain 2017 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of data analysis subzones are shown in the Appendix. The commercial Trip Distribution map can be found in the Appendix on Page A-19.

### **TRIP ASSIGNMENT**

Trip assignments are first made on a percentage basis derived from data established in the trip distribution determination process and logical routing. Those percentages are then applied to the projected trips to determine individual traffic movements. Percentage trip assignments for commercial trips are shown in the Appendix on Pages A-20 thru A-21. An adjustment for Pass-by Trips of 30% was applied to this project.

## **BACKGROUND TRAFFIC GROWTH**

Implementation year (2017) background annual traffic growth rates for the project were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2004 thru 2013 Traffic Flow maps prepared by the Mid-Region Council of Governments. Most of the Traffic Flow Data for those years taken from the MRCOG Traffic Flow Maps were Standard Data. The data from those years for each approach was plotted on a graph and a linear “regression trend line” calculated using the equation format  $y=mx+b$ . The growth rate was determined by calculating the average volume increase per year during the time period considered and dividing that volume into the most recent AWDT used in the analysis from which future volumes will be calculated. The rate of growth of that trend line was utilized as the annual growth rate for each approach if that calculated rate appeared feasible. However, there were some instances where the rate indicated a negative growth trend or appeared to be unreasonably high or low. In those cases, an appropriate growth rate from an adjacent segment of the same roadway was used, a shorter time span was used to determine the growth rate, or the growth rate was considered to be a generic 1% if appropriate. Additionally, if the  $R^2$  value of the trend line was low, other means of establishing a probable growth rate from the data accumulated was considered. Historical Growth Rate Graphs with linear regression trendlines are shown in the Appendix on Pages A-22 thru A-32. The growth rate utilized for each approach to an intersection is printed at the top of the Turning Movement sheets for each intersection (Appendix Pages A-35 thru A-48).

## **PROJECTED PEAK HOUR TURNING MOVEMENTS FOR 2017 BUILDOUT**

The calculated annual growth rates were applied to the existing (2015) peak hour traffic counts furnished by the consultant to establish the 2017 background traffic volumes. To these volumes, the generated trips based on implementation of the proposed land uses for this project were added to obtain the 2017 BUILD volumes for the intersection analyses. See Appendix Pages A-36 thru A-47 for further information regarding turning movement counts. 2017 NO BUILD and 2017 BUILD Volumes Maps and LOS are at the beginning of the Appendix of this report.

## **INTERSECTION CAPACITY ANALYSIS**

Intersection capacity analyses were performed in accordance with the procedures for signalized and unsignalized intersections in the Highway Capacity Manual, Special Report 209, Transportation Research Board, 2010, using Synchro Version 8 Software (Build 803) for signalized and unsignalized intersections. For signalized intersections, the operational method of analysis was used for 2017 conditions (NO BUILD and BUILD). In addition to utilizing the operational analysis for the intersections, the 1985 planning method may also be used to provide additional information at the intersection to help define critical lane volumes and to help analyze a solution.

Capacity analyses were performed for the following traffic conditions.

- ⇒ 2017 without development of the subject property (NO BUILD)
- ⇒ 2017 with development as per the assumed land uses considering total implementation of the plan.

The results of the 2017 NO BUILD and the 2017 BUILD capacity analyses are summarized in the following sections – *Results and Discussion of Intersection Capacity Analyses*.

## **RESULTS OF SIGNALIZED INTERSECTION CAPACITY ANALYSES**

### **IMPLEMENTATION YEAR (2017)**

#### **Intersection #1 – Montgomery Blvd. / Pennsylvania St. – Page A-49 thru A-72**

The results of the 2017 implementation year analysis of the signalized intersection of Montgomery Blvd. / Pennsylvania St. are summarized in the following table:

**Intersection: 1 - Montgomery Blvd. / Pennsylvania St.**

| 2017 AM Peak Hour BUILD |   |                |           |          |           | 2017 PM Peak Hour BUILD |   |                |           |          |           |
|-------------------------|---|----------------|-----------|----------|-----------|-------------------------|---|----------------|-----------|----------|-----------|
|                         |   | (EXIST. GEOM.) |           |          |           |                         |   | (EXIST. GEOM.) |           |          |           |
|                         |   | NO BUILD       |           | BUILD    |           |                         |   | NO BUILD       |           | BUILD    |           |
|                         |   | Lanes          | LOS-Delay | Lanes    | LOS-Delay |                         |   | Lanes          | LOS-Delay | Lanes    | LOS-Delay |
| EB                      | L | 1              | A - 6.9   | 1        | A - 7.4   | L                       | 1 | B - 10.9       | 1         | B - 11.4 |           |
|                         | T | 3              | B - 11.0  | 3        | B - 11.9  | T                       | 3 | C - 21.9       | 3         | C - 23.0 |           |
|                         | R | >              | B - 11.4  | >        | B - 12.3  | R                       | > | C - 23.9       | >         | C - 25.2 |           |
| WB                      | L | 1              | A - 7.3   | 1        | A - 8.1   | L                       | 1 | B - 17.9       | 1         | B - 20.0 |           |
|                         | T | 3              | A - 1.0   | 3        | A - 1.1   | T                       | 3 | A - 0.8        | 3         | A - 0.9  |           |
|                         | R | >              | A - 1.9   | >        | A - 2.1   | R                       | > | A - 1.6        | >         | A - 1.7  |           |
| NB                      | L | 1              | D - 38.1  | 1        | D - 36.6  | L                       | 1 | D - 37.7       | 1         | D - 36.8 |           |
|                         | T | 1              | D - 49.1  | 1        | D - 49.6  | T                       | 1 | E - 61.8       | 1         | E - 63.3 |           |
|                         | R | >              | D - 49.1  | >        | D - 49.6  | R                       | > | E - 61.8       | >         | E - 63.3 |           |
| SB                      | L | 1              | D - 37.8  | 1        | D - 36.7  | L                       | 1 | D - 42.4       | 1         | D - 41.8 |           |
|                         | T | 1              | D - 47.4  | 1        | D - 44.4  | T                       | 1 | D - 48.4       | 1         | D - 47.1 |           |
|                         | R | >              | D - 47.4  | >        | D - 44.4  | R                       | > | D - 48.4       | >         | D - 47.1 |           |
| Intersection:           |   | B - 10.2       |           | B - 10.7 |           |                         |   | C - 20.2       |           | C - 20.9 |           |

Note: ">" designates a shared right or left turn lane.

The projected operation of the signalized intersection of Montgomery Blvd. / Wyoming Blvd. is acceptable for all conditions analyzed in this report. The projected increase in delay at the intersection resulting from implementation of the Montgomery / Wyoming Restaurants is 0.5 seconds during the 2017 AM Peak Hour and 0.7 seconds during the 2017 PM Peak Hour. Therefore, no recommendation is made for the signalized intersection of Montgomery Blvd. / Pennsylvania St.

The Queuing Analysis for this intersection results in the lanes length changes summarized in the following table:

## Queueing Analysis Summary Sheet

Project: Montgomery / Wyoming Restaurants (NW Corner)  
 Intersection: Montgomery Blvd. / Pennsylvania St.

| <b>2017</b>          |                   |      |        |                       |       |        |                    |      |        |
|----------------------|-------------------|------|--------|-----------------------|-------|--------|--------------------|------|--------|
| <b>Approach</b>      | <b>Left Turns</b> |      |        | <b>Thru Movements</b> |       |        | <b>Right Turns</b> |      |        |
| <b>Eastbound</b>     | # Lanes           | Vol. | Length | # Lanes               | Vol.  | Length | # Lanes            | Vol. | Length |
| Existing Lane Length | 1                 | 22   | 125    | 3                     | 815   | Cont   | 0                  | 48   | 0      |
| AM NO BUILD Queue    | 1                 | 22   | 50     | 3                     | 823   | 350    | 0                  | 48   | 75     |
| AM BUILD Queue       | 1                 | 22   | 50     | 3                     | 848   | 350    | 0                  | 48   | 75     |
| Existing Lane Length | 1                 | 74   | 125    | 3                     | 1,648 | Cont   | 0                  | 155  | 0      |
| PM NO BUILD Queue    | 1                 | 75   | 125    | 3                     | 1,664 | 725    | 0                  | 157  | 225    |
| PM BUILD Queue       | 1                 | 75   | 125    | 3                     | 1,681 | 725    | 0                  | 157  | 225    |
| <b>Westbound</b>     | # Lanes           | Vol. | Length | # Lanes               | Vol.  | Length | # Lanes            | Vol. | Length |
| Existing Lane Length | 1                 | 73   | 125    | 3                     | 1,364 | Cont   | 0                  | 72   | 0      |
| AM NO BUILD Queue    | 1                 | 74   | 125    | 3                     | 1,378 | 525    | 0                  | 73   | 125    |
| AM BUILD Queue       | 1                 | 93   | 125    | 3                     | 1,401 | 550    | 0                  | 75   | 125    |
| Existing Lane Length | 1                 | 70   | 125    | 3                     | 1,174 | Cont   | 0                  | 48   | 0      |
| PM NO BUILD Queue    | 1                 | 71   | 125    | 3                     | 1,186 | 550    | 0                  | 48   | 100    |
| PM BUILD Queue       | 1                 | 83   | 150    | 3                     | 1,201 | 550    | 0                  | 49   | 100    |
| <b>Northbound</b>    | # Lanes           | Vol. | Length | # Lanes               | Vol.  | Length | # Lanes            | Vol. | Length |
| Existing Lane Length | 1                 | 89   | 120    | 1                     | 65    | Cont   | 0                  | 72   | 0      |
| AM NO BUILD Queue    | 1                 | 90   | 125    | 1                     | 66    | 100    | 0                  | 73   | 125    |
| AM BUILD Queue       | 1                 | 90   | 125    | 1                     | 66    | 100    | 0                  | 94   | 125    |
| Existing Lane Length | 1                 | 139  | 120    | 1                     | 188   | Cont   | 0                  | 100  | 0      |
| PM NO BUILD Queue    | 1                 | 140  | 200    | 1                     | 190   | 275    | 0                  | 101  | 175    |
| PM BUILD Queue       | 1                 | 140  | 200    | 1                     | 190   | 275    | 0                  | 115  | 175    |
| <b>Southbound</b>    | # Lanes           | Vol. | Length | # Lanes               | Vol.  | Length | # Lanes            | Vol. | Length |
| Existing Lane Length | 1                 | 32   | 110    | 1                     | 51    | Cont   | 0                  | 44   | 0      |
| AM NO BUILD Queue    | 1                 | 32   | 75     | 1                     | 52    | 100    | 0                  | 44   | 75     |
| AM BUILD Queue       | 1                 | 34   | 75     | 1                     | 52    | 100    | 0                  | 44   | 75     |
| Existing Lane Length | 1                 | 60   | 110    | 1                     | 110   | Cont   | 0                  | 39   | 0      |
| PM NO BUILD Queue    | 1                 | 61   | 125    | 1                     | 111   | 175    | 0                  | 39   | 75     |
| PM BUILD Queue       | 1                 | 63   | 125    | 1                     | 111   | 175    | 0                  | 39   | 75     |

**AM**      **PM**  
 Cycle Length:    **100**      **120**

**NOTE: Queue lengths are in feet.**

Calculated Right Turn Queue Lengths can be reduced by 50% to account for right-turns-on-red and right turn overlaps.

The northbound and southbound left turn lanes can be extended to approximately the recommended lengths in the table above by re-striping the approaches on Pennsylvania St.

## Intersection #2 – Montgomery Blvd. / Wyoming Blvd. – Page A-49 thru A-72

The results of the 2017 implementation year analysis of the signalized intersection of Montgomery Blvd. / Wyoming Blvd. are summarized in the following table:

Intersection: 2 - Montgomery Blvd. / Wyoming Blvd.

| 2017 AM Peak Hour BUILD |   |                 |                 |                 |  | 2017 PM Peak Hour BUILD |            |                 |                 |                 |  |
|-------------------------|---|-----------------|-----------------|-----------------|--|-------------------------|------------|-----------------|-----------------|-----------------|--|
|                         |   | (EXIST. GEOM.)  |                 | (MIT. GEOM.)    |  |                         |            | (EXIST. GEOM.)  |                 | (MIT. GEOM.)    |  |
|                         |   | NO BUILD        | BUILD           | BUILD           |  |                         |            | NO BUILD        | BUILD           | BUILD           |  |
|                         |   | Lanes LOS-Delay | Lanes LOS-Delay | Lanes LOS-Delay |  |                         |            | Lanes LOS-Delay | Lanes LOS-Delay | Lanes LOS-Delay |  |
| EB                      | L | 2 E - 70.1      | 2 E - 70.1      | 2 E - 70.1      |  | L                       | 2 F - 93.5 | 2 F - 93.5      | 2 F - 93.5      |                 |  |
|                         | T | 3 C - 23.2      | 3 C - 22.9      | 3 B - 17.3      |  | T                       | 3 E - 70.6 | 3 E - 67.6      | 3 E - 75.6      |                 |  |
|                         | R | > C - 26.3      | > C - 25.9      | > B - 19.2      |  | R                       | > F - 81.8 | > E - 78.7      | > F - 87.0      |                 |  |
| WB                      | L | 2 D - 51.4      | 2 D - 51.4      | 2 D - 51.4      |  | L                       | 2 F - 98.4 | 2 F - 98.4      | 2 F - 98.4      |                 |  |
|                         | T | 3 D - 53.9      | 3 E - 60.0      | 3 D - 40.3      |  | T                       | 3 E - 61.1 | 3 E - 64.5      | 3 E - 71.8      |                 |  |
|                         | R | > E - 65.0      | > E - 71.8      | > D - 47.4      |  | R                       | > E - 73.3 | > E - 77.5      | > F - 86.0      |                 |  |
| NB                      | L | 2 E - 71.6      | 2 F - 86.9      | 2 F - 86.9      |  | L                       | 2 E - 64.7 | 2 E - 65.8      | 2 E - 61.7      |                 |  |
|                         | T | 3 C - 28.1      | 3 C - 30.3      | 3 D - 36.3      |  | T                       | 3 E - 69.1 | 3 E - 70.7      | 3 E - 70.7      |                 |  |
|                         | R | > C - 29.5      | > C - 32.2      | > D - 40.3      |  | R                       | > E - 80.9 | > F - 82.5      | > F - 82.5      |                 |  |
| SB                      | L | 2 D - 50.7      | 2 D - 51.4      | 2 E - 56.3      |  | L                       | 2 F - 84.3 | 2 F - 116       | 2 F - 89.8      |                 |  |
|                         | T | 3 D - 51.9      | 3 D - 49.7      | 3 D - 41.7      |  | T                       | 3 B - 13.2 | 3 B - 14.0      | 3 B - 10.2      |                 |  |
|                         | R | > E - 63.4      | > E - 61.6      | 1 B - 18.3      |  | R                       | > B - 15.8 | > B - 17.0      | 1 A - 5.4       |                 |  |
| Intersection:           |   | <b>D - 47.0</b> | <b>D - 49.0</b> | <b>D - 40.4</b> |  |                         |            | <b>E - 61.7</b> | <b>E - 63.9</b> | <b>E - 64.3</b> |  |

Note: ">" designates a shared right or left turn lane.

Mitigation includes a southbound right turn lane.

This report demonstrates that the operation of the signalized intersection of Montgomery Blvd. / Wyoming Blvd. has some long delays associated with certain turning movements for the projected 2017 AM and PM Peak Hour NO BUILD and BUILD Conditions analyzed. There is limited possibility of providing additional lanes at any of the approaches to the intersection. The right turn volumes during the PM Peak Hour period seem to show a possibility that future right turn lanes will improve the operation of the signalized intersection. However, there is no available right-of-way for any right turn lanes. In the case of future redevelopment of any of the four corners of the intersection of Montgomery Blvd. / Wyoming Blvd., the City of Albuquerque should consider acquiring additional right-of-way for construction of right turn lanes at the intersection. The analysis demonstrates that trying to mitigate the intersection with a separate southbound right turn lane would slightly decrease the delay during the AM Peak Hour and slightly increase the delay during the PM Peak Hour. Therefore, no recommendation is made for the signalized intersection of Montgomery Blvd. / Wyoming Blvd. Implementation of the Montgomery / Wyoming Restaurants project is calculated to result in a 2 second increase in average delay during the AM Peak Hour and a 2.2 second increase in average delay of the intersection during the PM Peak Hour.

The Queuing Analysis for this intersection results in the lanes length changes summarized in the following table:



## Queueing Analysis Summary Sheet

Project: Montgomery / Wyoming Restaurants (NW Corner)  
 Intersection: Montgomery Blvd. / Wyoming Blvd.

### 2017

| <b>Approach</b>       | <b>Left Turns</b> |            |            | <b>Thru Movements</b> |              |            | <b>Right Turns</b> |            |            |
|-----------------------|-------------------|------------|------------|-----------------------|--------------|------------|--------------------|------------|------------|
| <b>Eastbound</b>      | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| Existing Lane Length  | 2                 | 150        | 250        | 3                     | 554          | Cont       | 0                  | 89         | 0          |
| AM NO BUILD Queue     | 2                 | 152        | 125        | 3                     | 643          | 275        | 0                  | 90         | 125        |
| <b>AM BUILD Queue</b> | <b>2</b>          | <b>152</b> | <b>125</b> | <b>3</b>              | <b>627</b>   | <b>275</b> | <b>0</b>           | <b>90</b>  | <b>125</b> |
| Existing Lane Length  | 2                 | 383        | 250        | 3                     | 1,296        | Cont       | 0                  | 200        | 0          |
| PM NO BUILD Queue     | 2                 | 387        | 300        | 3                     | 1,309        | 600        | 0                  | 202        | 275        |
| <b>PM BUILD Queue</b> | <b>2</b>          | <b>387</b> | <b>300</b> | <b>3</b>              | <b>1,290</b> | <b>575</b> | <b>0</b>           | <b>202</b> | <b>275</b> |
|                       |                   |            |            |                       |              |            |                    |            |            |
| <b>Westbound</b>      | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| Existing Lane Length  | 2                 | 193        | 200        | 3                     | 988          | Cont       | 0                  | 222        | 0          |
| AM NO BUILD Queue     | 2                 | 195        | 150        | 3                     | 998          | 400        | 0                  | 224        | 275        |
| <b>AM BUILD Queue</b> | <b>2</b>          | <b>195</b> | <b>150</b> | <b>3</b>              | <b>1,017</b> | <b>400</b> | <b>0</b>           | <b>243</b> | <b>275</b> |
| Existing Lane Length  | 2                 | 209        | 200        | 3                     | 881          | Cont       | 0                  | 252        | 0          |
| PM NO BUILD Queue     | 2                 | 211        | 175        | 3                     | 890          | 425        | 0                  | 255        | 350        |
| <b>PM BUILD Queue</b> | <b>2</b>          | <b>211</b> | <b>175</b> | <b>3</b>              | <b>903</b>   | <b>425</b> | <b>0</b>           | <b>268</b> | <b>350</b> |
|                       |                   |            |            |                       |              |            |                    |            |            |
| <b>Northbound</b>     | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| Existing Lane Length  | 2                 | 176        | 180        | 3                     | 971          | Cont       | 0                  | 122        | 0          |
| AM NO BUILD Queue     | 2                 | 180        | 150        | 3                     | 992          | 400        | 0                  | 125        | 175        |
| <b>AM BUILD Queue</b> | <b>2</b>          | <b>196</b> | <b>150</b> | <b>3</b>              | <b>1,008</b> | <b>400</b> | <b>0</b>           | <b>125</b> | <b>175</b> |
| Existing Lane Length  | 2                 | 198        | 180        | 3                     | 1,603        | Cont       | 0                  | 244        | 0          |
| PM NO BUILD Queue     | 2                 | 202        | 175        | 3                     | 1,638        | 725        | 0                  | 249        | 325        |
| <b>PM BUILD Queue</b> | <b>2</b>          | <b>213</b> | <b>175</b> | <b>3</b>              | <b>1,649</b> | <b>725</b> | <b>0</b>           | <b>249</b> | <b>325</b> |
|                       |                   |            |            |                       |              |            |                    |            |            |
| <b>Southbound</b>     | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| Existing Lane Length  | 2                 | 185        | 220        | 3                     | 1,416        | Cont       | 0                  | 240        | 0          |
| AM NO BUILD Queue     | 2                 | 187        | 150        | 3                     | 1,430        | 550        | 0                  | 242        | 275        |
| <b>AM BUILD Queue</b> | <b>2</b>          | <b>237</b> | <b>175</b> | <b>3</b>              | <b>1,458</b> | <b>550</b> | <b>0</b>           | <b>242</b> | <b>275</b> |
| Existing Lane Length  | 2                 | 319        | 220        | 3                     | 1,317        | Cont       | 0                  | 190        | 0          |
| PM NO BUILD Queue     | 2                 | 322        | 250        | 3                     | 1,330        | 600        | 0                  | 192        | 275        |
| <b>PM BUILD Queue</b> | <b>2</b>          | <b>360</b> | <b>275</b> | <b>3</b>              | <b>1,346</b> | <b>600</b> | <b>0</b>           | <b>192</b> | <b>275</b> |

AM
PM  
 Cycle Length: 100      120

**NOTE: Queue lengths are in feet.**

Calculated Right Turn Queue Lengths can be reduced by 50% to account for right-turns-on-red and right turn overlaps.

None of the existing left turn lanes can be lengthened without adversely affecting the complementary left turn lanes at nearby driveways. Therefore, no recommendation is made.



The southbound queue lengths for the intersection of Montgomery Blvd. / Wyoming Blvd. were calculated using three different methods – Poisson's Arrival Method (above), SimTraffic and HCM 2010. The following table demonstrates the results.

| <b>Calculation Method</b> | <b>Queue Length (FT)</b> |                     |
|---------------------------|--------------------------|---------------------|
|                           | <b>AM Peak Hour</b>      | <b>PM Peak Hour</b> |
| Poisson's Method          | 550                      | 600                 |
| SimTraffic                | 390                      | 450                 |
| HCM 2010                  | 391                      | 391                 |

Poisson's Arrival method is the most conservative method, as the results clearly display. The proposed driveway will be located approximately 420 feet from the Montgomery Blvd. / Wyoming intersection. Therefore, the Poisson's Arrival Method shows that the driveway will be blocked during the AM and PM Peak Hour; the SimTraffic method shows that the driveway will not be blocked during the AM Peak Hour, but will be blocked during the PM Peak Hour; and the HCM 2010 method shows that the driveway will not be blocked during the AM or PM Peak Hours. The SimTraffic graphics and HCM 2010 reports are included on Appendix Pages A-84 thru A-87.

### Intersection #3 – Osuna Rd. / Wyoming Blvd. – Page A-49 thru A-72

The results of the 2017 implementation year analysis of the signalized intersection of Osuna Rd. / Wyoming Blvd. are summarized in the following table:

#### **Intersection: 3 - Osuna Rd. / Wyoming Blvd.**

| <u>2017 AM Peak Hour BUILD</u> |     |                 |          |                 |          | <u>2017 PM Peak Hour BUILD</u> |     |                 |       |          |       |
|--------------------------------|-----|-----------------|----------|-----------------|----------|--------------------------------|-----|-----------------|-------|----------|-------|
| (EXIST. GEOM.)                 |     |                 |          |                 |          | (EXIST. GEOM.)                 |     |                 |       |          |       |
| NO BUILD                       |     |                 | BUILD    |                 |          | NO BUILD                       |     |                 | BUILD |          |       |
| Lanes                          | LOS | Delay           | Lanes    | LOS             | Delay    | Lanes                          | LOS | Delay           | Lanes | LOS      | Delay |
| EB                             | L   | 1               | D - 37.2 | 1               | D - 37.2 | L                              | 1   | D - 50.4        | 1     | D - 50.2 |       |
|                                | T   | 1               | D - 39.0 | 1               | D - 39.0 | T                              | 1   | D - 44.1        | 1     | D - 44.1 |       |
|                                | R   | 1               | C - 34.1 | 1               | C - 34.4 | R                              | 1   | D - 36.2        | 1     | D - 36.3 |       |
| WB                             | L   | 1               | D - 35.2 | 1               | D - 35.8 | L                              | 1   | D - 44.8        | 1     | D - 45.4 |       |
|                                | T   | 1               | E - 57.0 | 1               | E - 56.9 | T                              | 1   | E - 68.0        | 1     | E - 67.6 |       |
|                                | R   | >               | E - 57.0 | >               | E - 56.9 | R                              | >   | E - 68.0        | >     | E - 67.6 |       |
| NB                             | L   | 1               | B - 14.9 | 1               | B - 16.1 | L                              | 1   | B - 19.0        | 1     | B - 19.8 |       |
|                                | T   | 3               | B - 14.1 | 3               | B - 14.4 | T                              | 3   | C - 25.3        | 3     | C - 25.8 |       |
|                                | R   | >               | B - 14.9 | >               | B - 15.3 | R                              | >   | C - 28.3        | >     | C - 29.2 |       |
| SB                             | L   | 1               | A - 9.7  | 1               | A - 9.9  | L                              | 1   | C - 29.3        | 1     | C - 30.3 |       |
|                                | T   | 3               | B - 18.9 | 3               | B - 19.3 | T                              | 3   | C - 22.8        | 3     | C - 23.1 |       |
|                                | R   | >               | C - 21.7 | >               | C - 22.2 | R                              | >   | C - 25.3        | >     | C - 25.7 |       |
| Intersection:                  |     | <b>C - 20.3</b> |          | <b>C - 20.7</b> |          | <b>C - 28.6</b>                |     | <b>C - 29.0</b> |       |          |       |

Note: ">" designates a shared right or left turn lane.

This report demonstrates that the operation of the signalized intersection of Osuna Rd. / Wyoming Blvd. is acceptable for the projected 2017 AM and PM Peak Hour NO BUILD and BUILD Conditions analyzed. Note that the westbound thru / right turn movements are a LOS "E" for both the AM and PM Peak Hour periods, but the impact of this development on the delays for those movements are insignificant. Implementation of the Montgomery / Wyoming Restaurants project is calculated to result in a 0.4 second increase in average delay during the AM Peak Hour and a 0.4 second increase in average delay of the intersection during the PM Peak Hour.

The Queuing Analysis for this intersection results in the lanes length changes summarized in the following table:

## Queueing Analysis Summary Sheet

Project: Montgomery / Wyoming Restaurants (NW Corner)  
 Intersection: Osuna Rd. / Wyoming Blvd.

| <b>2017</b>                 |                   |            |            |                       |              |            |                    |            |            |
|-----------------------------|-------------------|------------|------------|-----------------------|--------------|------------|--------------------|------------|------------|
| <b>Approach</b>             | <b>Left Turns</b> |            |            | <b>Thru Movements</b> |              |            | <b>Right Turns</b> |            |            |
| <b>Eastbound</b>            | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| <i>Existing Lane Length</i> | 1                 | 149        | 125        | 1                     | 45           | Cont       | 1                  | 25         | 125        |
| AM NO BUILD Queue           | 1                 | 150        | 200        | 1                     | 45           | 75         | 1                  | 25         | 50         |
| <b>AM BUILD Queue</b>       | <b>1</b>          | <b>150</b> | <b>200</b> | <b>1</b>              | <b>45</b>    | <b>75</b>  | <b>1</b>           | <b>34</b>  | <b>75</b>  |
| <i>Existing Lane Length</i> | 1                 | 480        | 125        | 1                     | 189          | Cont       | 1                  | 64         | 125        |
| PM NO BUILD Queue           | 1                 | 485        | 575        | 1                     | 191          | 275        | 1                  | 65         | 125        |
| <b>PM BUILD Queue</b>       | <b>1</b>          | <b>485</b> | <b>575</b> | <b>1</b>              | <b>191</b>   | <b>275</b> | <b>1</b>           | <b>71</b>  | <b>125</b> |
| <b>Westbound</b>            | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| <i>Existing Lane Length</i> | 1                 | 63         | 150        | 1                     | 94           | Cont       | 0                  | 78         | 0          |
| AM NO BUILD Queue           | 1                 | 64         | 100        | 1                     | 95           | 150        | 0                  | 79         | 125        |
| <b>AM BUILD Queue</b>       | <b>1</b>          | <b>86</b>  | <b>125</b> | <b>1</b>              | <b>95</b>    | <b>150</b> | <b>0</b>           | <b>79</b>  | <b>125</b> |
| <i>Existing Lane Length</i> | 1                 | 46         | 150        | 1                     | 74           | Cont       | 0                  | 69         | 0          |
| PM NO BUILD Queue           | 1                 | 46         | 100        | 1                     | 75           | 125        | 0                  | 70         | 125        |
| <b>PM BUILD Queue</b>       | <b>1</b>          | <b>61</b>  | <b>125</b> | <b>1</b>              | <b>75</b>    | <b>125</b> | <b>0</b>           | <b>70</b>  | <b>125</b> |
| <b>Northbound</b>           | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| <i>Existing Lane Length</i> | 1                 | 40         | 170        | 3                     | 1,312        | Cont       | 0                  | 41         | 0          |
| AM NO BUILD Queue           | 1                 | 40         | 75         | 3                     | 1,325        | 525        | 0                  | 41         | 75         |
| <b>AM BUILD Queue</b>       | <b>1</b>          | <b>48</b>  | <b>75</b>  | <b>3</b>              | <b>1,352</b> | <b>525</b> | <b>0</b>           | <b>61</b>  | <b>100</b> |
| <i>Existing Lane Length</i> | 1                 | 54         | 170        | 3                     | 2,096        | Cont       | 0                  | 70         | 0          |
| PM NO BUILD Queue           | 1                 | 55         | 100        | 3                     | 2,117        | 900        | 0                  | 71         | 125        |
| <b>PM BUILD Queue</b>       | <b>1</b>          | <b>60</b>  | <b>125</b> | <b>3</b>              | <b>2,134</b> | <b>900</b> | <b>0</b>           | <b>84</b>  | <b>150</b> |
| <b>Southbound</b>           | # Lanes           | Vol.       | Length     | # Lanes               | Vol.         | Length     | # Lanes            | Vol.       | Length     |
| <i>Existing Lane Length</i> | 1                 | 50         | 160        | 3                     | 1,765        | Cont       | 0                  | 208        | 0          |
| AM NO BUILD Queue           | 1                 | 51         | 100        | 3                     | 1,783        | 650        | 0                  | 210        | 250        |
| <b>AM BUILD Queue</b>       | <b>1</b>          | <b>51</b>  | <b>100</b> | <b>3</b>              | <b>1,812</b> | <b>675</b> | <b>0</b>           | <b>210</b> | <b>250</b> |
| <i>Existing Lane Length</i> | 1                 | 99         | 160        | 3                     | 1,734        | Cont       | 0                  | 226        | 0          |
| PM NO BUILD Queue           | 1                 | 100        | 175        | 3                     | 1,751        | 750        | 0                  | 228        | 300        |
| <b>PM BUILD Queue</b>       | <b>1</b>          | <b>100</b> | <b>175</b> | <b>3</b>              | <b>1,771</b> | <b>775</b> | <b>0</b>           | <b>228</b> | <b>300</b> |

**AM**      **PM**  
 Cycle Length: **100**      **120**

**NOTE: Queue lengths are in feet.**

Calculated Right Turn Queue Lengths can be reduced by 50% to account for right-turns-on-red and right turn overlaps.

The eastbound left turn lane on Osuna Rd. can be lengthened by re-striping the lane and sharpening the transition some. No other recommendation is made.

## RESULTS OF UNSIGNALIZED INTERSECTION CAPACITY ANALYSES

### IMPLEMENTATION YEAR (2017)

#### Intersection #4 – Gutierrez St. / Wyoming Blvd. – Page A-49 thru A-72

The results of the analysis of the full access unsignalized intersection of Gutierrez St. / Wyoming Blvd. are summarized in the following table:

**Intersection: 4 - Guitierrez Rd. (Driveway) / Wyoming Blvd.**

| 2017 AM Peak Hour BUILD |   |                |           |          |           | 2017 PM Peak Hour BUILD |   |                |           |          |           |
|-------------------------|---|----------------|-----------|----------|-----------|-------------------------|---|----------------|-----------|----------|-----------|
|                         |   | (EXIST. GEOM.) |           |          |           |                         |   | (EXIST. GEOM.) |           |          |           |
|                         |   | NO BUILD       |           | BUILD    |           |                         |   | NO BUILD       |           | BUILD    |           |
|                         |   | Lanes          | LOS-Delay | Lanes    | LOS-Delay |                         |   | Lanes          | LOS-Delay | Lanes    | LOS-Delay |
| EB                      | L | >              | F - 262   | >        | F - 999   | L                       | > | F - 720        | >         | F - 999  |           |
|                         | T | 1              | F - 262   | 1        | F - 999   | T                       | 1 | F - 720        | 1         | F - 999  |           |
|                         | R | >              | F - 262   | >        | F - 999   | R                       | > | F - 720        | >         | F - 999  |           |
| WB                      | L | >              | F - 196   | >        | F - 999   | L                       | > | F - 734        | >         | F - 999  |           |
|                         | T | 1              | F - 196   | 1        | F - 999   | T                       | 1 | F - 734        | 1         | F - 999  |           |
|                         | R | >              | F - 196   | >        | F - 999   | R                       | > | F - 734        | >         | F - 999  |           |
| NB                      | L | 1              | E - 39.8  | 1        | E - 43.2  | L                       | 1 | D - 31.1       | 1         | D - 32.5 |           |
|                         | T | 3              | A - 0.0   | 3        | A - 0.0   | T                       | 3 | A - 0.0        | 3         | A - 0.0  |           |
|                         | R | >              | A - 0.0   | >        | A - 0.0   | R                       | > | A - 0.0        | >         | A - 0.0  |           |
| SB                      | L | 1              | C - 22.8  | 1        | C - 23.2  | L                       | 1 | E - 49.5       | 1         | E - 50.0 |           |
|                         | T | 3              | A - 0.0   | 3        | A - 0.0   | T                       | 3 | A - 0.0        | 3         | A - 0.0  |           |
|                         | R | >              | A - 0.0   | >        | A - 0.0   | R                       | > | A - 0.0        | >         | A - 0.0  |           |
| Intersection:           |   | u - 2.6        |           | u - 65.4 |           |                         |   | u - 4.8        |           | u - 0.1  |           |

Note: ">" designates a shared right or left turn lane.

It should first be noted that the traffic utilizing the church driveway on the west side of Wyoming Blvd. (aligned with Gutierrez Rd.) is almost nil. The church will generate a significant volume of traffic on Tuesday evenings after 6:00 pm, on Saturday late afternoon beginning about 5:00 pm, and on Sunday mornings and noontime. The long delays reported from the calculated operational analysis of the unsignalized intersection of Gutierrez Rd. / Wyoming Blvd. is primarily due to the very high volume of traffic on Wyoming Blvd.

Most unsignalized driveways along major arterial streets in the Albuquerque metro area will have long calculated delays on the side street. The intersection of Gutierrez Rd. / Wyoming Blvd. is no different. The calculated delays are long. In almost every case, the left turn traffic turning from the side street (or driveway) onto the main street (Wyoming Blvd.) is the movement that creates the longest delays. Therefore, it is recommended for the driveway aligning with Gutierrez Rd. that the driveway be constructed with two exiting lanes (one for left turn movements and one for thru / right turn movements). This should allow thru and right turn movements to occur with reasonably moderate delay while the left turn traffic from the side street will have long delays. No other recommendation is made for this intersection.

**Intersection #5 – Driveway “A” / Wyoming Blvd. – Page A-49 thru A-72**

Driveway “A” is the full access driveway located midway between Gutierrez St. and Wyoming Blvd. The results of the analysis of the unsignalized intersection of Driveway “A” / Wyoming Blvd. are summarized in the following table:

**Intersection: 5 - Driveway "A" / Wyoming Blvd.**

| <b><u>2017 AM Peak Hour BUILD</u></b> |          |                        |                        | <b><u>2017 PM Peak Hour BUILD</u></b> |            |                        |                        |
|---------------------------------------|----------|------------------------|------------------------|---------------------------------------|------------|------------------------|------------------------|
|                                       |          | <b>(EXIST. GEOM.)</b>  |                        |                                       |            | <b>(EXIST. GEOM.)</b>  |                        |
|                                       |          | <b>NO BUILD</b>        | <b>BUILD</b>           |                                       |            | <b>NO BUILD</b>        | <b>BUILD</b>           |
|                                       |          | <b>Lanes LOS-Delay</b> | <b>Lanes LOS-Delay</b> |                                       |            | <b>Lanes LOS-Delay</b> | <b>Lanes LOS-Delay</b> |
| <b>EB</b>                             | <b>L</b> | > F - 54.0             | > F - 999              | <b>L</b>                              | > F - 69.7 | > F - 291              |                        |
|                                       | <b>T</b> | 1 F - 54.0             | 1 F - 999              | <b>T</b>                              | 1 F - 69.7 | 1 F - 291              |                        |
|                                       | <b>R</b> | > F - 54.0             | > F - 999              | <b>R</b>                              | > F - 69.7 | > F - 291              |                        |
| <b>NB</b>                             | <b>L</b> | 1 E - 35.6             | 1 F - 66.0             | <b>L</b>                              | 1 D - 31.9 | 1 E - 44.9             |                        |
|                                       | <b>T</b> | 3 A - 0.0              | 3 A - 0.0              | <b>T</b>                              | 3 A - 0.0  | 3 A - 0.0              |                        |
|                                       | <b>R</b> | > A - 0.0              | > A - 0.0              | <b>R</b>                              | > A - 0.0  | > A - 0.0              |                        |
| <b>SB</b>                             | <b>L</b> | > A - 0.0              | > A - 0.0              | <b>L</b>                              | > A - 0.0  | > A - 0.0              |                        |
|                                       | <b>T</b> | 3 A - 0.0              | 3 A - 0.0              | <b>T</b>                              | 3 A - 0.0  | 3 A - 0.0              |                        |
|                                       | <b>R</b> | 1 A - 0.0              | 1 A - 0.0              | <b>R</b>                              | 1 A - 0.0  | 1 A - 0.0              |                        |
| <b>Intersection:</b>                  |          | <b>u - 0.5</b>         | <b>u - 20.1</b>        |                                       |            | <b>u - 0.9</b>         | <b>u - 9.5</b>         |

Note: ">" designates a shared right or left turn lane.

As discussed in the previous intersection analysis for Gutierrez Rd., the Driveway “A” analysis reports long delays for the eastbound traffic in the driveway desiring to turn onto Wyoming Blvd. Also, it is recommended that Driveway “A” should be constructed with two exiting lanes (one for left turns and one for right turns) and one entering lane.

**Intersection #6 – Montgomery Blvd. / Driveway “B” – Page A-49 thru A-72**

Driveway “B” is an existing right-in, right-out, left-in only driveway to the west of Wyoming Blvd. The results of the analysis of the unsignalized intersection of Montgomery Blvd. / Driveway “B” are summarized in the following table:

**Intersection: 6 - Montgomery Blvd. / Driveway "B"**

| <u>2017 AM Peak Hour BUILD</u> |   |                |           |         |           | <u>2017 PM Peak Hour BUILD</u> |   |                |           |          |           |
|--------------------------------|---|----------------|-----------|---------|-----------|--------------------------------|---|----------------|-----------|----------|-----------|
|                                |   | (EXIST. GEOM.) |           |         |           |                                |   | (EXIST. GEOM.) |           |          |           |
|                                |   | NO BUILD       |           | BUILD   |           |                                |   | NO BUILD       |           | BUILD    |           |
|                                |   | Lanes          | LOS-Delay | Lanes   | LOS-Delay |                                |   | Lanes          | LOS-Delay | Lanes    | LOS-Delay |
| EB                             | L | 1              | C - 25.0  | 1       | E - 35.9  | L                              | 1 | C - 19.5       | 1         | C - 23.3 |           |
|                                | T | 3              | A - 0.0   | 3       | A - 0.0   | T                              | 3 | A - 0.0        | 3         | A - 0.0  |           |
|                                | R | >              | A - 0.0   | >       | A - 0.0   | R                              | > | A - 0.0        | >         | A - 0.0  |           |
| WB                             | L | >              | A - 0.0   | >       | A - 0.0   | L                              | > | A - 0.0        | >         | A - 0.0  |           |
|                                | T | 3              | A - 0.0   | 3       | A - 0.0   | T                              | 3 | A - 0.0        | 3         | A - 0.0  |           |
|                                | R | 1              | A - 0.0   | 1       | A - 0.0   | R                              | 1 | A - 0.0        | 1         | A - 0.0  |           |
| SB                             | L | >              | A - 0.0   | >       | A - 0.0   | L                              | > | A - 0.0        | >         | A - 0.0  |           |
|                                | T | >              | A - 0.0   | >       | A - 0.0   | T                              | > | A - 0.0        | >         | A - 0.0  |           |
|                                | R | 1              | C - 18.7  | 1       | C - 23.7  | R                              | 1 | C - 16.1       | 1         | C - 17.7 |           |
| Intersection:                  |   | u - 0.7        |           | u - 2.5 |           |                                |   | u - 0.3        |           | u - 1.0  |           |

Note: ">" designates a shared right or left turn lane.

The operation of Driveway “B” based on projected 2017 AM and PM Peak Hour BUILD Volumes in this report is acceptable. Driveway “B” is an existing right-in, right-out, left-in only unsignalized driveway.

It should be noted that Levels of Service (LOS) for unsignalized intersections cannot be compared directly with Levels of Service for signalized intersections. LOS for unsignalized intersections is based on reserve capacity, which is converted to generalized levels of delay; LOS for signalized intersections is based on actual delay in seconds..

**LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS**

| <b><u>Average Delay</u></b><br><b><u>(secs)</u></b> | <b><u>Level-of-Service</u></b> |
|---|--------------------------------|
| ≤ 10  | A                              |
| > 10 and ≤ 15                                       | B                              |
| > 15 and ≤ 25                                       | C                              |
| > 25 and ≤ 35                                       | D                              |
| > 35 and ≤ 50                                       | E                              |
| > 50  | F                              |

Generally speaking, a Level-of-Service D or better is an acceptable parameter for design purposes.

## **CONCLUSIONS**

This analysis was conducted using the following methodology: Trip Generation was established using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual (9<sup>th</sup> Edition). Generated Trips were distributed proportionately based on the Population Data Analysis Subzones within a 2-mile radius of the site; Growth rate of background traffic volumes was established from 2015 and 2025 COG Model Data from the 2035 data set; and the intersection analyses were performed in accordance with the 2010 Highway Capacity Manual, Special Report 209. The Traffic Impact Study showed a moderate increase in traffic congestion for the adjacent transportation network based on 100% buildout of the proposed project.

In summary, the proposed development of the Montgomery / Wyoming Restaurants project at the northwest corner of Montgomery Blvd. / Wyoming Blvd. will present no significant adverse impact to the adjacent transportation system provided that the following recommendations are followed:

## **RECOMMENDATIONS**

### **FROM IMPLEMENTATION YEAR (2017) ANALYSIS**

- ◆ Design and construction of the proposed development should be such that adequate site distances are maintained at all proposed driveways and intersections, and at existing intersections contingent to this site.
- ◆ Access to the project should be via two unsignalized driveways on Wyoming Blvd. and one right-in, right-out, left-in only driveway on Montgomery Blvd. as depicted on the preliminary site development plan on Page A-2 in the Appendix of this report. Driveway "A" and Gutierrez St. on Wyoming Blvd. are existing unsignalized intersections. Driveway "B" on Montgomery Blvd. is an existing right-in, right-out, left-in only unsignalized intersection. All driveways accessing this development should be constructed in compliance with City of Albuquerque D.P.M. requirements.
- ◆ The proposed north driveway (which aligns with Gutierrez Rd.) should be combined with the existing church driveway to operate as one driveway. This will require cooperation with the adjacent property owner (at this time it is a church facility). The new driveway should be constructed with two exiting lanes (one for left turn movements and one for thru / right turn movements) and one entering lane minimum. See Settlement Agreement on Appendix Pages A-89 thru A-95.
- ◆ Driveway "A" should be constructed as an unsignalized driveway with two exiting lanes (one for left turn movements and one for right turn movements) and one entering lane minimum.
- ◆ **Montgomery Blvd. / Pennsylvania St.** – Extend the northbound and southbound left turn lanes (to approximately 200 feet and 125 feet, respectively) by re-striping the approaches on Pennsylvania St.
- ◆ **Osuna Rd. / Wyoming Blvd.** – Lengthen the eastbound left turn lane on Osuna Rd. to the extent possible by re-striping the lane and sharpening the transition.

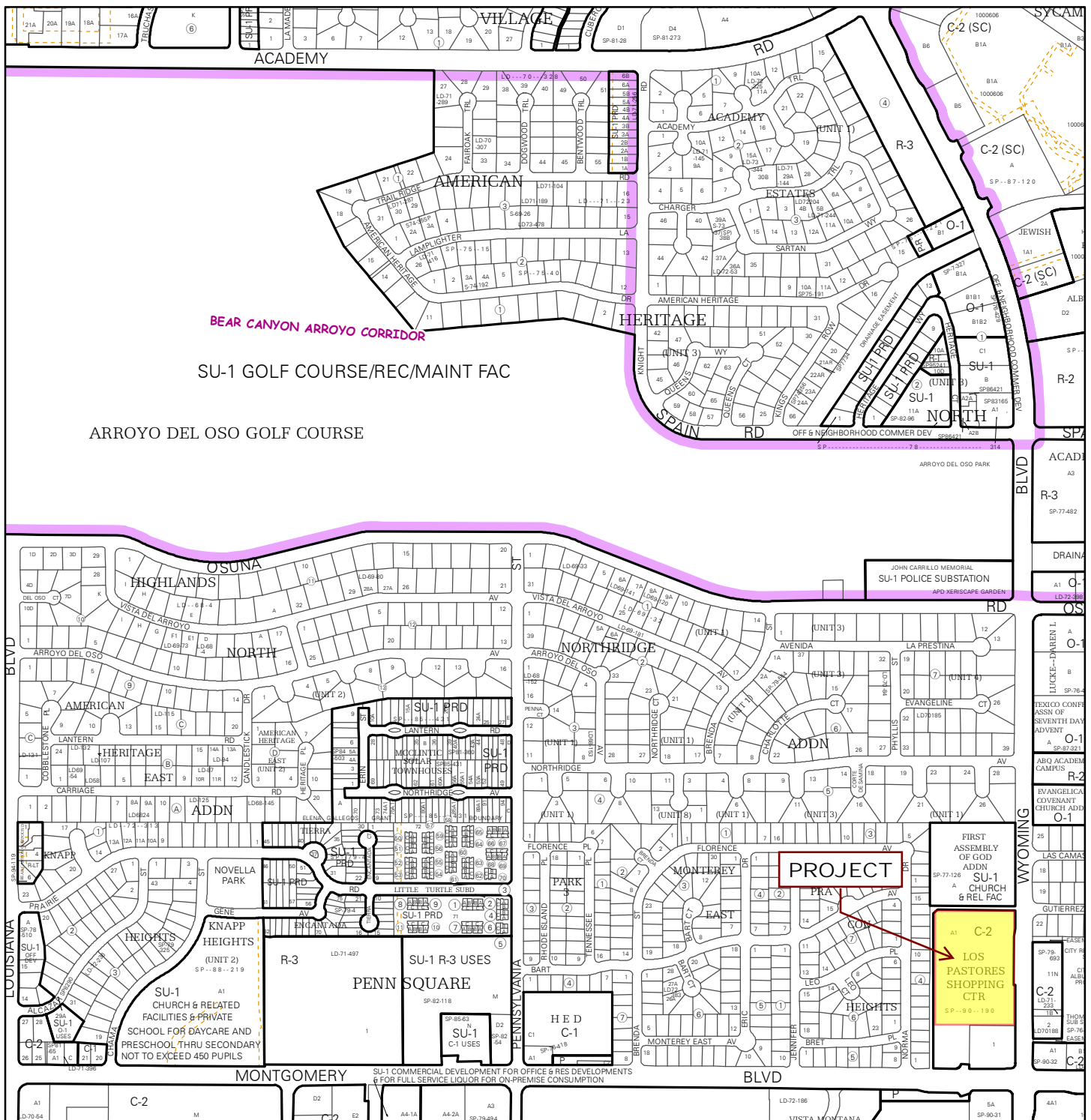
The recommended improvements are included on the Recommendations Exhibit on Appendix Page A-88.

## **Appendix**

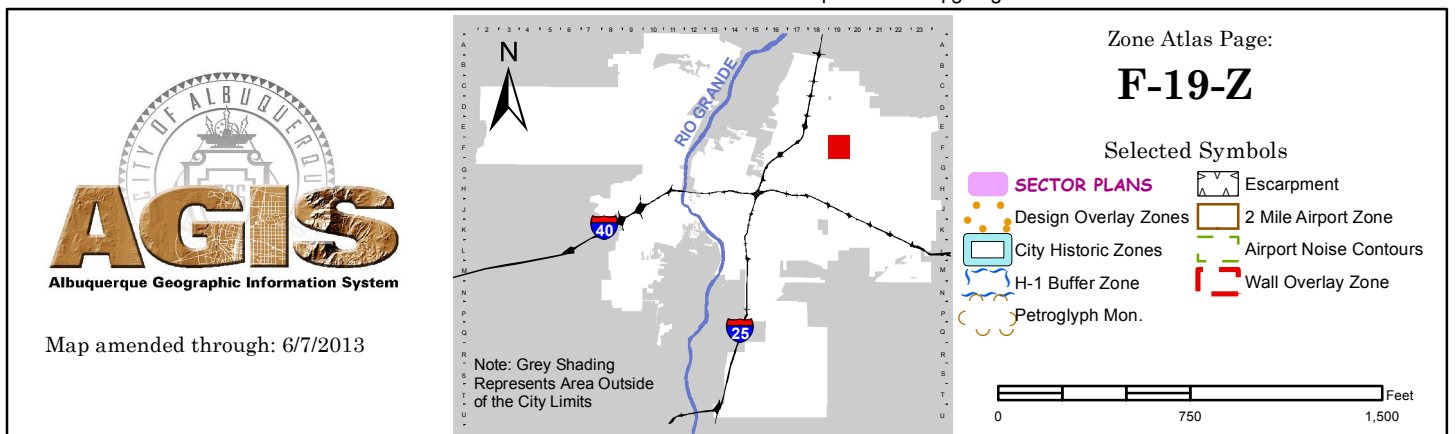
|  |                |
|--|----------------|
| <b><u>SITE INFORMATION / TRIP GENERATION / TRIP DISTRIBUTION &amp; ASSIGNMENTS</u></b> |                |
| Vicinity Map   | A-1            |
| Preliminary Site Development Plan  | A-2            |
| Aerial Map   | A-3            |
| 2013 MRCOG Traffic Flow Map (AWDT Map)   | A-4 thru A-5   |
| <b><u>TRIP GENERATION</u></b>  |                |
| Trip Generation Summary Sheet  | A-6            |
| Individual Trip Generation Worksheets  | A-7 thru A-9   |
| <b><u>TRIP DISTRIBUTION</u></b>  |                |
| Data Analysis Subzone Map – Commercial   | A-10           |
| Trip Distribution Worksheets   | A-11 thru A-18 |
| Percentage Trip Distribution Map – Commercial  | A-19           |
| Percentage Trip Assignments Worksheets – Commercial                                    | A-20 thru A-21 |
| <b><u>HISTORIC GROWTH RATE</u></b>   |                |
| Historic Growth Rate Summary Table   | A-22           |
| Growth Worksheets  | A-23 thru A-32 |
| Historic Growth Rate Map   | A-33           |
| Pass-by Trip Assignments   | A-34           |
| <b><u>TURNING MOVEMENT COUNTS</u></b>  |                |
| 2017 Summary Table of Turning Movement Volumes   | A-35 thru A-36 |
| Individual Intersection Turning Movement Volumes Worksheets                            | A-37 thru A-48 |
| <b><u>INTERSECTION ANALYSES</u></b>  |                |
| Intersection #1 – Montgomery Blvd. / Pennsylvania St.                                  | A-49 thru A-72 |
| Intersection #2 – Montgomery Blvd. / Wyoming Blvd.                                     | A-49 thru A-72 |
| Intersection #3 – Osuna Rd. / Wyoming Blvd.  | A-49 thru A-72 |
| Intersection #4 – Gutierrez St. / Wyoming Blvd.  | A-49 thru A-72 |
| Intersection #5 – Driveway “A” / Wyoming Blvd.   | A-49 thru A-72 |
| Intersection #6 – Montgomery Blvd. / Driveway “B”                                      | A-49 thru A-72 |
| <b><u>QUEUING ANALYSIS REPORTS / PLANNING METHOD REPORTS</u></b>                       |                |
| <b><u>Supporting Data</u></b>  |                |
| Scoping Letter from COA  | A-73 thru A-75 |
| ABQ Ride Routes 5, 31, 98  | A-76 thru A-80 |
| Traffic Count Data / Intersection Data   | A-81 thru A-83 |
| SimTraffic Queue Length Exhibits   | A-84 thru A-85 |
| HCM 2010 Synchro Queue Reports   | A-86 thru A-87 |
| Recommendations Exhibit  | A-88           |
| Settlement Agreement   | A-89 thru A-95 |



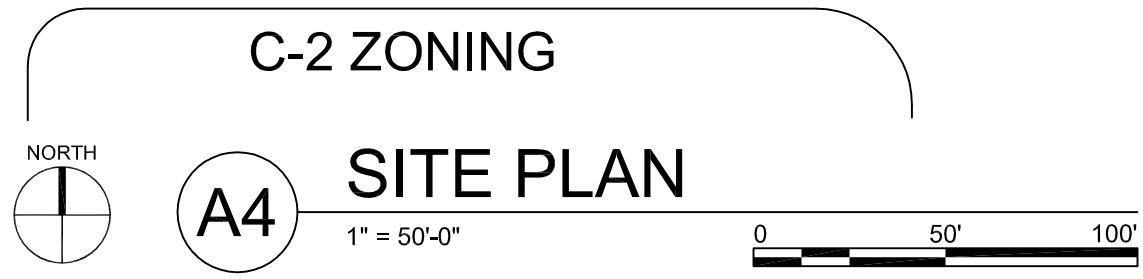
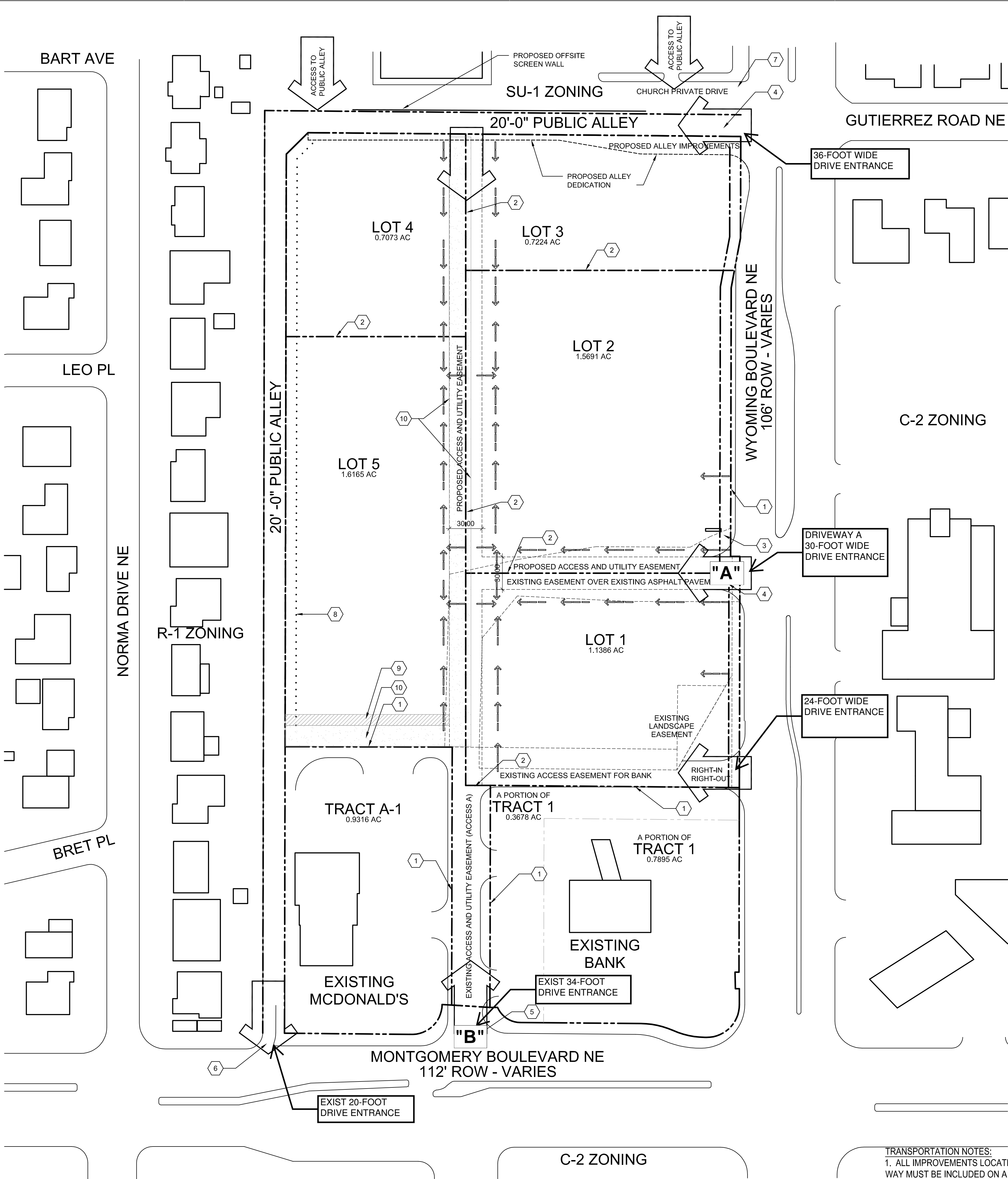
## **APPENDIX**



For more current information and details visit: <http://www.cabq.gov/gis>



D  
C  
B  
A



## GENERAL NOTES

A. APPLICABLE PLANS: REFER TO DESIGN GUIDELINES, SHEET 3 OF 4 AND 4 OF 4 OF PROJECT DESIGN STANDARD GUIDELINES, THIS PACKAGE.

## KEYED NOTES

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PRIMARY DEVELOPMENT SIGN
- FULL ACCESS
- RIGHT-IN / RIGHT-OUT / LEFT-IN ACCESS
- RIGHT-OUT ONLY ACCESS
- EXISTING ACCESS TO BE CLOSED. ALTERNATE EQUAL ACCESS TO BE PROVIDED WITH PROPOSED ALLEY IMPROVEMENTS.
- PROPOSED 10'-0" ALLEY DEDICATION
- PROPOSED 10'-0" PRIVATE UTILITY EASEMENT
- PROPOSED 20'-0" WATERLINE EASEMENT TO ABCWUA

## SITE DATA

LEGAL DESCRIPTION:  
TRACT A-1 REDIVISION OF TR A (NOW COMPRISING TRS A1 & A2)  
LOS PASTORES SHOPPING CENTER EXC SLWY PORT & PORT OUT  
TO R/W CONT 5.77 AC +/-  
Acres: 6.75

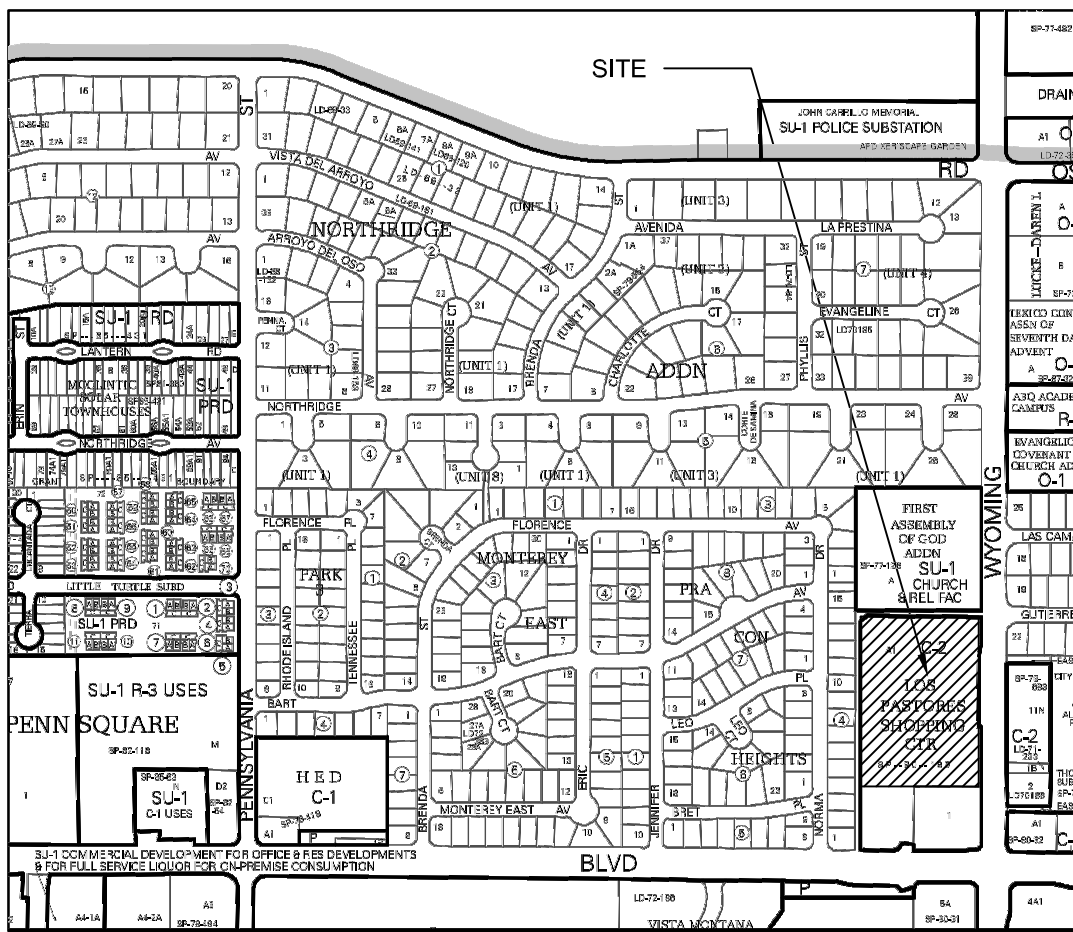
ZONE:  
C-2

MAXIMUM BUILDING HEIGHT: SEE DESIGN STANDARDS  
BUILDING SETBACKS: SEE DESIGN STANDARDS  
PROPOSED USES: RETAIL, RESTAURANT, OR OFFICE  
MAXIMUM FAR: 1.0

## SITE PLAN LEGEND

- PEDESTRIAN INGRESS / EGRESS
- VEHICULAR INGRESS / EGRESS
- PROPERTY LINE EXISTING AS NOTED
- PROPERTY LINE PROPOSED AS NOTED
- PROPOSED ALLEY IMPROVEMENTS

## LEGEND



VICINITY MAP  
Zone Atlas Map F-19-Z

FORMER PROJECT NUMBER:

PROJECT NUMBER: 1010550

APPLICATION NUMBER:

Is an Infrastructure List Required? ( ) Yes ( ) No If yes, then a set of approved DRC plans with a work order is required for any construction within Public Right-of-Way or for construction of public improvements.

SITE DEVELOPMENT PLAN APPROVAL:

TRAFFIC ENGINEER, TRANSPORTATION DIVISION DATE

ABCWUA DATE

PARKS AND RECREATION DEPARTMENT DATE

CITY ENGINEER DATE

SOLID WASTE MANAGEMENT DATE

DRB CHAIRPERSON, PLANNING DEPARTMENT DATE

ARCHITECTURE / DESIGN / INSPIRATION

DEKKER  
PERICH  
SABATINI

7601 JEFFERSON NE, SUITE 100  
ALBUQUERQUE, NM 87109

505.761.9700 / DPSDESIGN.ORG

SEAL

PROJECT

NW CORNER  
MONTGOMERY & WYOMING  
ALBUQUERQUE, NM  
Project Location

REVISIONS

1 9/14/2015 PLANNING COMMENTS

DRAWN BY GG

REVIEWED BY CG

DATE 05/12/15

PROJECT NO 14-0077

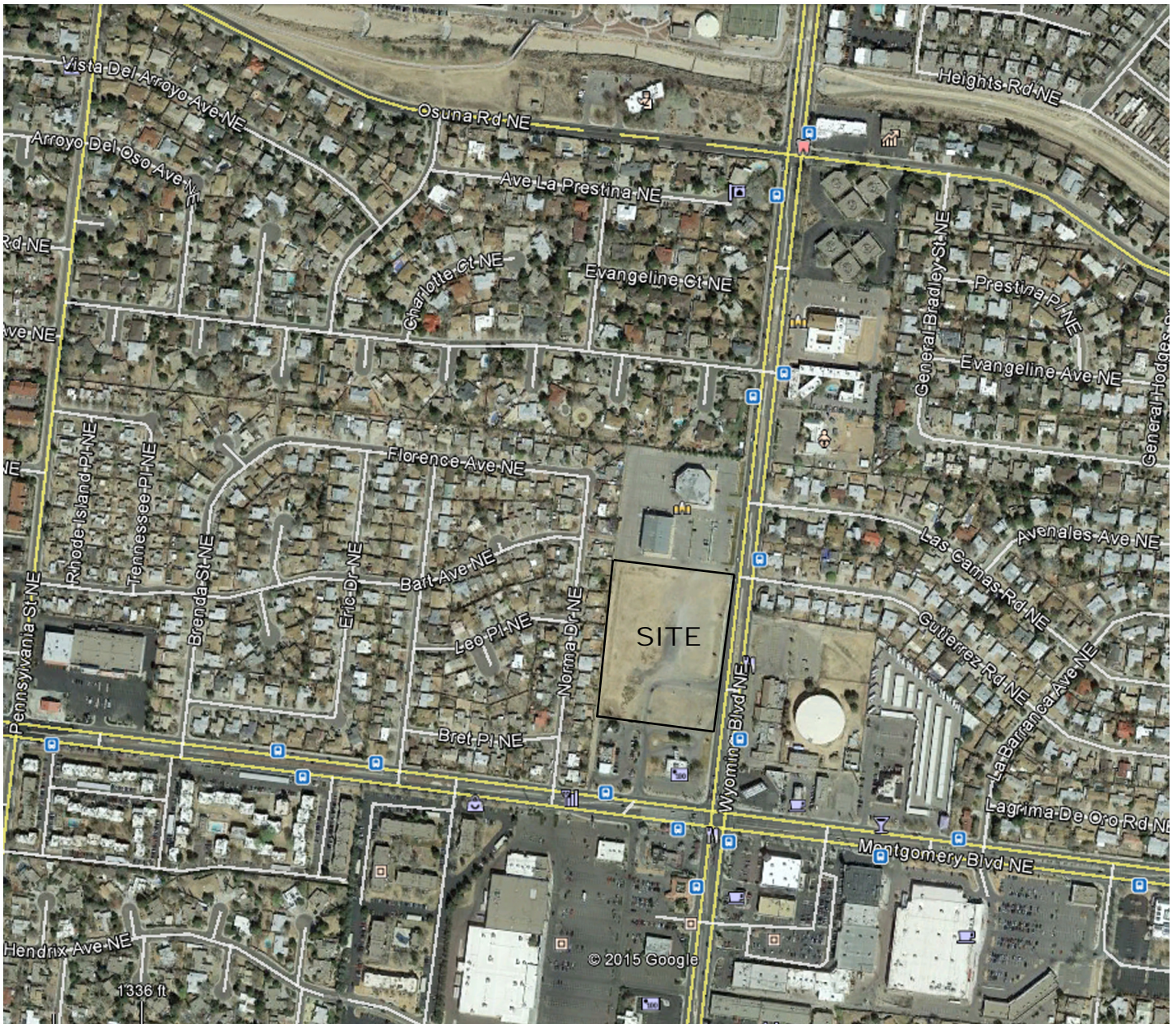
DRAWING NAME

AMENDED  
SITE DEVELOPMENT  
PLAN FOR  
SUBDIVISION

SHEET NO

SPSD





## *Montgomery / Wyoming Restaurants*

(NW Corner)  
Aerial Map