



## MEMORANDUM

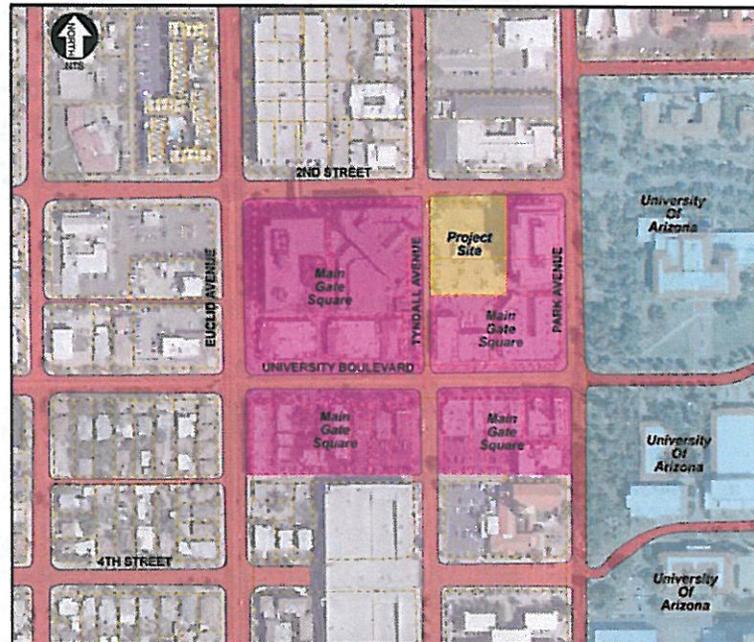
To: **Mr. Thomas Warne**  
The Marshall Foundation

From: **Marcos Esparza, P.E., PTOE**

Date: **September 28, 2009**

Subject: **University of Arizona Main Gate Plan Amendment - Trip Generation Comparison**  
CLA 2009.19

**Introduction and Purpose:** This memorandum evaluates the trip generation for the Marshall Foundation's new multi-use commercial project near the University of Arizona campus. The project is located within the University Main Gate area, bounded by University Boulevard on the south, 2nd Street on the north, Park Avenue on the east and Tyndall Avenue on the west. This is the parking lot shown in the center of the aerial photo below. Our work is in support of your request for approval of a plan amendment by the City.



The purpose of this study is to compare the trip generation estimates for the presently zoned land uses (offices, retail and movie theater) and a proposed change in the land uses (hotel, retail and movie theater). A preliminary development plan ("University Square" 6/04/07 revision) shows the entitled land use including the Phase 5 section which is the subject of this analysis. Phase 5 is the location of the proposed movie theater/hotel/retail uses.

The preliminary development plan was to have 79,513 square feet of office, theater and retail uses in Phase 5. The new plan for the Phase 5 area includes a 151-room hotel, a 31,302 square feet movie theater and 15,697 square feet of ground floor retail space. A 12,000 square foot lobby area and 4,000 square feet of ingress/egress area for the two-level underground parking garage will also be on the first floor. This analysis only considers the trip generation of the

proposed changes in land use only for Phase 5 as shown on the preliminary development plan. All of the approved and proposed land uses are summarized in Exhibit 1 below.

**Existing Conditions**

The project site is located within the northeastern quadrant of Main Gate Square. Phase 5 of the project is currently a surface parking lot.



*Site Location (Existing Parking Lot east of Marriott Hotel)*



*Looking west on 2nd Street. Access to site would be on 2nd Street.*

Main Gate Square is located just west of the University of Arizona main campus. Within Main Gate Square, stores, restaurants and other services are located north and south of University Boulevard between Euclid Avenue on the west and Park Avenue on the east. The area

experiences a high level of pedestrian and bike activity due to its proximity to the University of Arizona and student residences. The area is well served by Sun Tran and Cat Tran, the Historic Trolley, and the proposed Modern Street Car. The current routes for these transit services are provided in an appendix to this letter.

Access to Main Gate Square by motor vehicle is via Euclid Avenue, Park Avenue, University Avenue, Tyndall Avenue and 2<sup>nd</sup> Street. Short-term on-street metered parking is available on University Boulevard and 2<sup>nd</sup> Street.

The Marriott Hotel is located within Main Gate Square, east of Euclid Avenue and south of and adjacent to 2<sup>nd</sup> Street. Other major uses include the Arizona Bookstore, Gentle Ben's Brewing Company and Chipotle Mexican Grill.

### **Trip Generation**

This land uses represented in the Phase 5 area of the preliminary development plan includes office, movie theater and retail uses. The proposed uses include a hotel, movie theater, retail and educational uses. We conducted a trip generation comparative analysis based on the sizes of the retail and theater uses in both plans as well as for the office use in the currently zoned plan and for the hotel in the proposed plan.

We also assumed that half (50%) of the retail patrons would be from the surrounding businesses or walk-by traffic. For the currently zoned land uses, this combination will generate about 2,969 vehicle trips per day, with 50 during the am peak hour and 152 during the pm peak hour. We estimated that the proposed land uses generated about 3,104 daily trips, with about 132 during the am peak hour and 195 during the pm peak hour. Therefore, the new uses will generate a slightly higher number of trips during the peak hours and during the day as a whole. In general, this comparative increase is not substantial, particularly on a daily basis. The trip generation comparison between the proposed and previous land uses on the site is also shown in Exhibit 1.

**Exhibit 1 Land Use Summary and Trip Generation**

Present Zoning Land Use	Unit	Units	AM Rate	AM Trips	PM Rate	PM Trips	Daily Rate	Daily Trips
Office Building (ITE LU 710)	KSF	20.0	1.55	31	1.49	30	11.01	220
Movie Theater* (ITE LU 444)	KSF	54.0	N/A	N/A	2.01	109	48.65	2627
Specialty Retail Center** (LU 814)	KSF	5.5	3.42	19	2.51	14	22.16	122
<b>Totals</b>				<b>50</b>		<b>152</b>		<b>2969</b>

Proposed Land Use	Unit	Units	AM Rate	AM Trips	PM Rate	PM Trips	Daily Rate	Daily Trips
Hotel	Rooms	151	0.52	79	0.61	92	8.17	1234
Movie Theater* (ITE LU 444)	KSF	31.3	N/A	N/A	2.01	63	48.65	1523
Specialty Retail Center** (LU 814)	KSF	15.7	3.42	54	2.51	39	22.16	348
<b>Totals</b>				<b>132</b>		<b>195</b>		<b>3104</b>
<b>Net Trips with Proposed Land Uses</b>				<b>82</b>		<b>42</b>		<b>135</b>

Note: Trip Rates from Institute of Transportation Engineers' *Trip Generation, 8th Edition*

\* Movie theater is assumed to not be open during AM peak hour. Also trip rates reduced from ITE weekday rates as follows:

Tuesday/Wed/Thursday Weekly Traffic for Movie Theater is about 53% of Friday Traffic. So we applied a 0.53 factor to the published Movie Theater Friday PM Peak Hour.

Tuesday/Wed/Thursday Weekly Traffic for Movie Theater is about 49% of Saturday Traffic. So we applied a 0.49 factor to the published Movie Theater Saturday Daily Rate.

(See Page 795, ITE Trip Generation, 8th Edition, Volume 2 of 3)

\*\* ITE Trip Rates for Specialty Retail Center were reduced by 50% to consider internal and pedestrian trips.

**Conclusions and Recommendations:**

1. When compared to the previous zoned land uses, the proposed land uses will generate more trips during the weekday peak hours and during the day as a whole. However, the comparative increase is not very substantial, particularly for the daily trip generation.
2. The City may require a more detailed traffic impact study during the design phase to identify the traffic impacts of the project on the local roadway system and how the impacts could be mitigated.