

**MEMORANDUM**

**TO:** Victoria Haase, Zoning Case Manager

**FROM:** Scott A. James, P.E., PTOE, Land Use Review/Transportation  
Ivan Naranjo, MBA, Senior Transportation Planner

**DATE:** May 13, 2016

**SUBJECT:** Traffic Impact Analysis for Champion's Tract 3 Development  
Zoning Case No. C14-2015-0160

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Section 25-6-114 of the Land Development Code requires that a traffic impact analysis (TIA) be conducted for a project proposed with a zoning application if the development is anticipated to generate more than 2,000 daily trips.

The project site is located south of RM 2222 and west of Loop 360 in north Austin. The project site is currently vacant and is currently zoned GO – CO. The proposed zoning is GO-CO-MU to allow for multi-family mixed use development. The projected build out year for this development is 2018.

**Roadways**

RM 2222 is identified in the Austin Metropolitan Area Transportation Plan as a four lane divided major arterial roadway (MAD-4), with a center two way left turn lane (CTWLTL) in the vicinity of the site. The roadway offers connection from points west to Loop 360 and central Austin. According to the Texas Department of Transportation (TxDOT), the daily traffic volumes along RM 2222 were approximately 42,000 vehicles per day (vpd) east of City Park Road and approximately 34,300 vpd west of the site. The posted speed limit is sixty miles per hour (60 MPH) west of City Park Road and fifty-five miles per hour (55 MPH) east of City Park Road.

Loop 360 is a four lane divided grade separated highway traveling in a north-south direction with a posted speed limit of fifty-five miles per hour (55 MPH). The connection with FM 2222 is via diamond interchange. According to the Texas Dept. of Transportation (TxDOT), the daily traffic volumes along Loop 360 were 46,100 vehicles per day (vpd) north of the RM 2222 interchange and approximately 44,800 vpd south of this interchange.

City Park Road is a minor arterial roadway (per the CAMPO 2010 volume map) and primary roadway serving Emma Long Park and several residential communities. The posted speed limit is 40 miles per hour (40 MPH). Morning peak hour traffic counts indicate approximately 5,000 vehicles per day use this roadway.

Jester Boulevard is a minor arterial roadway (per the CAMPO 2010 volume map) and has a posted speed limit of 30 miles per hour (30 MPH). Morning peak hour traffic counts indicate approximately 3,000 vehicles per day use this roadway.

**Trip Generation and Traffic Analysis**

Based on the ITE publication Trip Generation, 9<sup>th</sup> Edition, the proposed 325 apartment dwelling units would generate an estimated 2,094 vehicle trips per day (vpd). Table 1 below summarizes the site trip generation rates used in the traffic analysis:

**Table 1 – Site Trip Generation**

	Land Use	Size	24-Hour Two-Way Volume	AM Peak Hour		PM Peak Hour	
				Enter	Exit	Enter	Exit
<b>Proposed</b>	High-Rise Apartment	325 DU	2,094	33	130	128	68

Site traffic is expected to use City Park Road and one driveway on FM 2222 for access to the site. The driveway on FM 2222 is restricted to “right in/right out” operation only. Table 2 presents the percentage distribution to the surrounding roadways:

**Table 2 – Distribution of site generated trips**

Roadway	Traffic Percentage
North (via Loop 360)	35%
South (via Loop 360)	25%
South (via City Park Road)	2%
East (via RM 2222)	25%
West (via RM 2222)	13%
<b>Total</b>	<b>100%</b>

For this study, traffic counts were conducted on July 29, 2014 at the identified study intersections. Since data collection occurred during the summer break, the raw counts were adjusted by means of a 10% growth factor to account for school-related traffic. In addition, one identified background project, located at the northeast corner of RM 2222/Champion Grandview Way, was used to increase expected daily peak-hour volumes.

Study intersections were evaluated using the Highway Capacity Manual (HCM) method for capacity analysis. When the estimated additional trips were added to the identified intersections, the traffic analysis showed increased congestion and delay at some intersections. Table 3 (presented on the following pages) provides a summary of the calculated average delay(s) for each of the study intersections:

Table 3 – Calculation of intersection level of service (LOS)\* and delay (in seconds per vehicle)

Intersection Studied	Movement	2014 Existing		2016 Forecasted		2016 Mitigated Site + Forecasted	
		AM	PM	AM	PM	AM	PM
Jester Blvd & RM 2222	NB	A (5.7)	<b>E (75.4)</b>	A (6.6)	<b>F (101.4)</b>	A (6.1)	<b>F (102.9)</b>
	SB	<b>F (138.8)</b>	C (22.3)	<b>F (171.7)</b>	C (24.4)	F (166.7)	C (25.7)
	EB	<b>E (67.1)</b>	<b>E (68.2)</b>	<b>E (67.4)</b>	<b>E (68.3)</b>	<b>E (68)</b>	<b>E (68.8)</b>
	WB	<b>E (60)</b>	<b>E (75.8)</b>	<b>E (60.4)</b>	<b>E (79.7)</b>	<b>E (61.9)</b>	<b>E (74.5)</b>
City Park Road & RM 2222	NB	D (48.2)	<b>F (188.1)</b>	D (49.8)	<b>F (208.3)</b>	D (51.4)	<b>F (214.0)</b>
	EB	<b>F (281.7)</b>	D (40.8)	<b>F (321.1)</b>	D (52.2)	<b>F (312.7)</b>	D (51.5)
	WB	C (28.7)	C (27.0)	C (30.6)	C (32.7)	D (44.7)	D (48.9)
Champion Grand View Way & RM 2222	SB	<b>F (287.9)</b>	<b>F (224/6)</b>	<b>F (1321.2)</b>	<b>F (7126)</b>	<b>F (1518.6 )</b>	<b>F (8386)</b>
	EB	C (17.4)	<b>F (57.6)</b>	<b>E (37.9)</b>	<b>F (87.9)</b>	<b>E (39.6)</b>	<b>F (106.0)</b>
	WB	-	-	-	-	**	**
Loop 360 SB & RM 2222	SB	D (43.1)	A (9.0)	D (54.7)	D (36.0)	D (54.0)	D (47.7)
	EB	D (40.8)	<b>E (71.6)</b>	D (41.6)	<b>F (102.7)</b>	D (51.1)	<b>E (69.4)</b>
	WB	B (14.7)	A (4.4)	C (21)	A (5.5)	A (8.0)	A (9.1)
Loop 360 NB & RM 2222	NB	<b>F (337.6)</b>	<b>F (268.3)</b>	<b>F (414.7)</b>	<b>F (303.3)</b>	<b>F (304.6)</b>	<b>F (114.2)</b>
	EB	A (5.3)	A (6.4)	A (5.6)	B (11.4)	A (5.0)	B (16.2)
	WB	<b>F (149.1)</b>	D (44.1)	<b>F (195.4)</b>	<b>E (55.8)</b>	<b>F (128.2)</b>	D (48.5)

\* Traffic analysis based on 2000 Highway Capacity Manual methodology

\*\* This is a free movement at this intersection

**Table 3 (continued) – Calculation of intersection level of service (LOS) and delay**

Lakewood Drive & RM 2222	SB	<b>E (69.0)</b>	<b>E (70.1)</b>	<b>E (69.0)</b>	<b>E (71.5)</b>	<b>E (69.0)</b>	<b>E (71.5)</b>
	EB	A (1.6)	B (14.9)	A (1.5)	B (16.0)	A (1.3)	B (12.5)
	WB	A (7.1)	C (26.2)	A (7.8)	C (30.6)	A (7.8)	C (32.1)
Loop 360 & Champion	SB	-	-	-	-	-	-
	EB	<b>F (184.1)</b>	<b>F (54.0)</b>	<b>F (457)</b>	<b>F (635.4)</b>	<b>F (488.8)</b>	<b>F (714.3)</b>
Driveway #1 & RM 2222	NB	-	-	-	-	<b>F (399.6)</b>	<b>E (39.4)</b>
	EB	-	-	-	-	A (free)	
Driveway #2 & City Park Road	NB	-	-	-	-	B (12.4)	C (16.2)
	WB (left)					A (8.3)	B (10.0)

\* Traffic analysis based on 2000 Highway Capacity Manual methodology

\*\* This is a free movement at this intersection

The results of the analysis conducted within the TIA identify several locations operating at LOS E or F under current conditions as well as in future scenarios. The additional peak hour traffic related to this development is shown (under mitigated conditions) to slightly increase the average delays. The following mitigation measures were included in the study:

- Adjusted signal timing was adjusted for the signalized intersection of RM 2222/Jester Blvd
- Adjusted signal timing and phasing for the signalized intersection of RM 2222/City Park Road
- Adjusted signal timing and phasing for the signalized intersection of RM 2222/Loop 360
- Assumed installation of right in/right out channelizing concrete medians for RM 2222/Champions Grandview Way and proposed Driveway #1/RM 2222 connection.

In addition to the above recommended measures, transportation review staff identified a need to evaluate the queuing demand along City Park Road approaching the intersection of RM 2222. Additional capacity for left turn movements (both in/out of the site) may be required at the time of site plan once the site has been designed and specific driveway information is available.

**RECOMMENDATIONS**

1) Prior to 3<sup>rd</sup> reading of the zoning case, transportation review staff recommends that the applicant post fiscal for the following improvements:

<b>Table 4 – List of Improvements</b>				
<b>Location</b>	<b>Improvements</b>	<b>Total Cost</b>	<b>Pro Rata Share %</b>	<b>Pro Rata Share \$</b>
City Park Road at RM 2222	Signal equipment upgrade	\$38,102	100%	\$38,102
City Park Road approaching RM 2222 intersection*	Lengthening turn lane storage	TBD	TBD	TBD
Driveway #1 at RM 2222*	Construction of diverter island	\$25,000	100%	\$25,000
<b>Total</b>				<b>\$63,102</b>

\* Fiscal will not be collected for these improvements as they would be required at the time of site plan review.

- 2) City Park Road and RM 2222 – The applicant proposes to contribute for necessary signal improvements to permit timing and phasing changes at this intersection. However, staff from the Austin Transportation Department, in coordination with TxDOT, have identified additional equipment needed to improve operations as a result of the additional traffic due to this proposed development:
  - a) Traffic Signal detection equipment and installation;
  - b) Modifications for signage and pavement markings;
  - c) Implementation of new signal timing plans to optimize traffic operations
- 3) Prior to site plan approval, a revised TIA may be required by staff to identify the need for additional capacity and/or channelization on City Park Road to serve the anticipated volumes of entering and exiting vehicles. Specifically, the widening of the approach to Driveway #2 on City Park Road may be required in order to provide for southbound left turning vehicles accessing the site.
- 4) Per the Texas Department of Transportation (TxDOT), direct driveway access onto RM 2222 shall be restricted as Right-in/Right-out only.
- 5) Development of this property should not vary from the approved uses, nor exceed the approved intensities and estimated traffic generation assumptions within the TIA document, including land uses, trip generation, trip distribution, traffic controls and other identified conditions.

If you should have any questions or require additional information, please do not hesitate to contact me at (512) 974 – 2208. Thank you.

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