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Golf Course Rd Development
(McMahon Blvd / Golf Course Rd)

Traffic Impact Study

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TRAFFIC IMPACT STUDY

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Golf Course Rd Development
(McMahon Blvd / Golf Course Rd)
TRAFFIC IMPACT STUDY

STUDY PURPOSE

The study is being conducted in conjunction with a request for approval of a multi-use development plan such as the one shown in the Appendix (Page A-3) of this report. The purpose of this study is to identify the impact of the proposed 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 proposed plan. This report is being prepared to meet the requirements of the City of Albuquerque Transportation Development Division in association with the development of the Golf Course Rd Development located on Golf Course Rd between Irving Blvd and McMahon Blvd.

STUDY PROCEDURES

The basic procedure to be followed is to evaluate the NO BUILD and BUILD traffic conditions for the implementation year (2015) for the signalized intersections of Irving Blvd / Golf Course Rd., McMahon Blvd. / Golf Course Rd., and McMahon Blvd. / Bandelier Dr. and for the access driveways associated with this project. The procedure followed in this study is outlined as follows:

1) Calculate the generated trips for the proposed development consisting of a 140 unit assisted/independent living facility, 10 detached Senior Housing units, 3,800 S.F. of medical / dental office space, 21,980 S.F. of retail commercial space, and a 4 lane drive-in bank (See more detailed trip generation rate table in Appendix – Pages A-7 thru A-12).
2) Calculate growth rate for the area utilizing Traffic Flow Maps from the Mid-Region Council of Governments to define area traffic growth rate. (See Pages A-13 thru A-22)
3) Calculate trip distribution for the newly generated trips by this development. The new office / residential trips will be distributed based on year 2015 population citywide while the new commercial trips will be distributed based on year 2015 population within a two-mile radius of the proposed new development.
4) 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 (See Appendix Pages A-22 thru A-37 of this report).
5) Apply a 20% pass-by trip reduction to only the PM trip generation.
6) Conduct new AM and PM Peak Hour traffic counts for the intersections of Irving Blvd. / Golf Course Rd., McMahon Blvd. / Golf Course Rd., McMahon Blvd. / Bandelier Dr. and the apartment driveway across Golf Course Rd from the project.
7) Determine 2015 NO BUILD Volumes by growing the existing turning movement counts to the year 2015 utilizing the calculated annual historic growth rate for the area.
8) Add in data from Trip Assignments Maps and Tables to the 2015 NO BUILD Volumes to obtain 2015 BUILD Volumes for this project. (See Pages A-38 thru A-49)
9) Provide signalized and / or unsignalized intersection analyses for the following intersections:

INTERSECTION	TYPE CONTROL	NO BUILD	BUILD
1) Irving Blvd. / Golf Course Rd.	Traffic Signal	2015	2015
2) McMahon Blvd. / Golf Course Rd.	Traffic Signal	2015	2015
3) McMahon Blvd. / Bandelier Dr.	Traffic Signal	2015	2015
4) Driveway "A" / Golf Course Rd.	Traffic Signal	2015	2015
5) Driveway "B" / Golf Course Rd.	Unsignalized	2015	2015

GENERAL AREA CHARACTERISTICS

The proposed development plan is located on Golf Course Rd between Irving Blvd. and McMahon Blvd. as shown on the Vicinity Map on Page A-1 of the Appendix of this report. The property is bounded on the north by the Smith's shopping center, on the east by Golf Course Rd., and on the south by the Calabacillas Arroyo. The total area of land addressed in this Traffic Impact Study is approximately 13 acres.

This project is located in an area of mixed uses including retail commercial and dense residential.

AREA STREET NETWORK

McMahon Blvd. is classified as a Principal Arterial Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. McMahon Blvd. (west of Golf Course Rd.) is a Limited Access Arterial Street. Access to McMahon Blvd. is regulated by the McMahon Blvd. (Westside Blvd.) Corridor Plan.

Golf Course Rd. is classified as a Urban Minor Arterial Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is a four lane paved street with curbs and gutters. The posted speed limit on Golf Course Rd. near McMahon Blvd. is 40 MPH.

Irving Blvd. is classified as a Urban Collector Street on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is a four lane paved street with curbs and gutters. The posted speed limit on Irving Blvd near Golf Course Rd. is 35 MPH.

Bandelier Dr. is not classified on the Long Range Roadway System Plan for the Albuquerque Urban Area. It is considered a local street for the purpose of this report.

EXISTING TRAFFIC VOLUMES

2009 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 intersections of Irving Blvd. / Golf Course Rd., McMahon Blvd. / Golf Course Rd., McMahon Blvd. / Bandelier Dr. and the apartment drive / Golf Course Rd. were obtained by the consultant for this study.

The counts and volume data are included in the Appendix (Pages A-97 thru A-99).

EXISTING (2011) LEVELS OF SERVICE

The existing (2011) analyses of the intersections targeted for analysis in this study are summarized in the following tables:

Irving Blvd. / Golf Course Rd.	LOS – Delay (Sec.)	
2011	A.M.	P.M.
Existing Geometry	C – 30.4	***D – 49.3***

McMahon Blvd. / Golf Course Rd.	LOS – Delay (Sec.)	
2011	A.M.	P.M.
Existing Geometry	***D – 46.7***	***D – 39.6***

McMahon Blvd. / Bandelier Rd.	LOS – Delay (Sec.)	
2011	A.M.	P.M.
Existing Geometry	C – 30.9	B – 13.2

NOTE: Bold italicized designations of LOS / Delay indicate at least one turning movement is LOS "E" or "F".

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.

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.

Existing levels-of-service were not determined for this study.

EXISTING TRANSIT SERVICE

This area is serviced by the ABQ Ride Transit System with Routes 92, 155 and 3/157, as well as the Northwest Transit Center (NWTC) at Ellison Rd / Coors By-pass, which includes a Park & Ride.

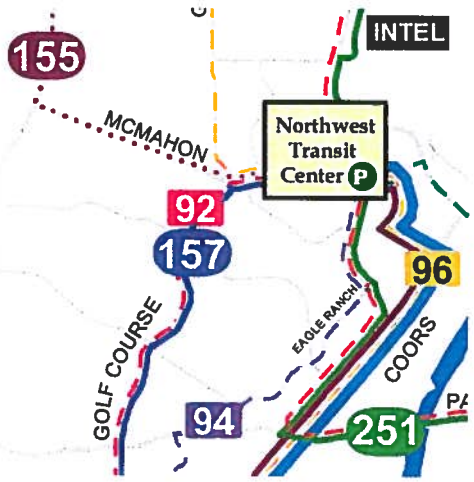
Route 92 (Taylor Ranch Express) is a weekday only route that runs from the NWTC west on McMahon Blvd, south on Golf Course Rd, west to Unser Blvd, then east to downtown &

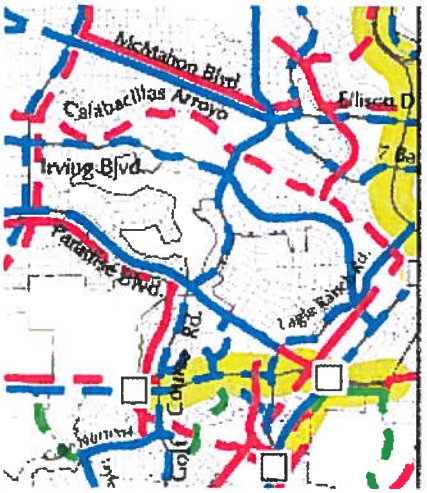
University Blvd on Interstate 40 twice a day at 6:15 & 6:45 AM southbound and 4:30 & 5:00 PM northbound. It connects with the free-of-charge D-Ride bus loop downtown.

Route 155 (Coors Blvd Line) runs from the NWTC east on Ellison Dr, and south on Coors Blvd to Gun Club Rd round trip beginning at 5:40 AM every 30 minutes. Additionally, during rush hour this route runs round trip west & north on McMahon & Unser Blvds to Southern Blvd.

Route 3/157 (Montano / Uptown / Kirkland) runs from the NWTC west on McMahon Blvd, south on Golf Course Rd, east on Montano (Montgomery), and south on Louisiana Blvd to Gibson round trip beginning at 5:30 AM every 45 minutes. (See Bus Routes on Pages A-103 thru A-106 of the Appendix.)

Following are portions of the ABQ Ride Route Map and ABQ Bike Route Map, respectively.





Existing Facilites
- Trail
- Lane
- Route
- Overcrossing/Tunnel

Proposed Facilites
- Trail
- Lane
- Route
- Overcrossing/Tunnel
- Bikeway Corridor

AMPA Boundary

PROPOSED DEVELOPMENT

The proposed project consists of a 140 unit assisted/independent living facility, 10 detached Senior Housing units, 3,800 SF of medical / dental office space, 21,980 SF of retail commercial space, and a 4 lane drive-in bank. (See Conceptual Site Plan on Page A-3 of the Appendix.)

TRIP GENERATION

Projected trips were calculated from data in the Institute of Transportation Engineers Trip Generation report (8th Edition, 2007). Trips for the development were determined based on land uses defined on the Conceptual Site Development Plan on Page A-3 in the Appendix of this report.

The resulting numbers of trips generated for the proposed development are summarized in the following table:

Golf Course Rd. Development

Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)		24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION		*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet	Units					
Assisted Living (254)	140	343	13	7	14	17
Senior Adult Housing - Detached (251)	10	76	11	21	5	3
Medical-Dental Office Building (720)	3.80	(60)	7	2	4	12
Drive-In Bank (912)	4	557	22	16	54	56
Shopping Center (820)	21.98	2,536	38	25	113	118
Subtotal		**3,452**	**91**	**71**	**190**	**206**
Subtotal Commercial Trips		**3,093**	**60**	**41**	**167**	**174**
Pass-by Credit	20%				(33)	(35)
Commercial Trips (w/Pass-by Adj.)		**3,093**	**60**	**41**	**134**	**139**
Subtotal non-Commercial Trips		**359**	**31**	**30**	**23**	**32**

A 20% adjustment was made to the trip generation rates for PM Pass-by Trips.

TRIP DISTRIBUTION

Primary and Diverted Linked Trips:

Trips were distributed as follows:

Office & Residential Land Uses

Primary and diverted linked trips for office / residential development have been distributed proportionally to the 2015 projected population of Subareas area wide. Population data for 2004 and 2030 were taken from the *2030 Socioeconomic Forecasts for Data Analysis Subzones for the MRCOG Region (S-07-01)*, supplied by the Mid-Region Council of Governments (MRCOG). Population Data was interpolated linearly to obtain 2015 values and adjusted for distance from the proposed new facility. The trip distribution worksheets and associated map of subareas are shown in the Appendix. The Trip Distribution Map for Office / Residential use can be found in the Appendix on Page A-27.

Commercial Land Uses

Primary and diverted linked trips for the commercial land use development were distributed proportionally to the 2015 projected population of Data Analysis Subzones within a two mile radius of the proposed development. Population data for the years 2004 and 2030 were taken from the 2030 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 2004 and 2030 was interpolated linearly to obtain 2015 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 is shown in the Appendix. The Trip Distribution map can be found in the Appendix on Page A-34.

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 are shown on Appendix Pages A-28 thru A-29 (Residential) and Pages A-35 thru A-36 (Commercial).

BACKGROUND TRAFFIC GROWTH

Background traffic growth rates were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2005, 2006, 2007, 2008, and 2009 Traffic Flow maps prepared by the Mid-Region Council of Governments (MRCOG). Almost all 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 growth rate for each approach if that calculated rate appeared feasible. However, there were some instances where the rate indicated a negative growth trend. In those cases, an appropriate growth rate from an adjacent segment of the same roadway was considered. Due to the potential for growth in the area, it was believed that a zero percent growth rate was inappropriate for this study. 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-13 thru A-20. A Historic Growth Map can be found on Appendix Pages A-21.

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-40 thru A-49).

PROJECTED PEAK HOUR TURNING MOVEMENTS FOR 2015 BUILDOUT

The calculated growth rates for the intersections studied in this report were applied to the most recent peak hour traffic counts to establish the 2015 background traffic volumes. To these volumes, the generated trips based on implementation of the proposed Golf Course Rd. Development Plan were added to obtain BUILD volumes for the intersection analyses. See Appendix Pages A-40 thru A-49 for further information regarding turning movement counts.

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, 2000, using Trafficware's Synchro version 7 Highway Capacity Software for signalized and unsignalized intersections. For signalized intersections, the operational method of analysis was used for 2015 conditions (BUILD).

Capacity analyses were performed for the following traffic conditions.

2015 without development of the subject property (2015 NO BUILD)
2015 with total development as per the Proposed Site Plan (2015 BUILD).

The results of the existing, 2015 NO BUILD and 2015 BUILD capacity analyses are summarized in the following sections - *Results and Discussion of Intersection Capacity Analyses*.

RESULTS OF INTERSECTION CAPACITY ANALYSES

IMPLEMENTATION YEAR (2015)

Intersection #1: Irving Blvd. / Golf Course Rd. – Appendix Pages A-50 thru A-57

The results of the 2015 implementation year analysis of the signalized intersection of Irving Blvd. / Golf Course Rd. are summarized in the following tables:

Existing Geometry (Irving Blvd. / Golf Course Rd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Irving Blvd.	2	0	1	1	0
WB Irving Blvd.	1	0	2	0	1
NB Golf Course Rd.	1	0	1	1	0
SB Golf Course Rd.	2	0	2	0	1

Intersection: **#1 - Irving Blvd. / Golf Course Rd.**

	2015 AM Peak Hour					2015 PM Peak Hour				
	BASE GEOMETRY			*MIT. GEOM.**		BASE GEOMETRY			*MIT. GEOM.**	
	NO BUILD		BUILD	*BUILD*		NO BUILD		BUILD	*BUILD*	
	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*
Eastbound - Irving Blvd.										
L	2	D - 46.8	E - 56.0	*2*	*D - 50.6*	2	F - 108	F - 203	*2*	*F - 203*
T	2	D - 52.6	D - 54.2	*2*	*D - 51.2*	2	E - 55.1	E - 58.9	*2*	*E - 58.9*
R	>	D - 52.6	D - 54.2	*>*	*D - 51.2*	>	E - 55.1	E - 58.9	*>*	*E - 58.9*
Westbound - Irving Blvd.										
L	1	D - 46.3	E - 56.8	*1*	*D - 51.6*	1	F - 103	F - 103	*1*	*F - 103*
T	2	C - 33.4	D - 39.7	*2*	*D - 36.8*	2	F - 87.0	F - 87.0	*2*	*F - 87.0*
R	1	B - 18.7	C - 22.0	*1*	*C - 20.4*	1	F - 97.5	F - 108	*1*	*F - 108*
Northbound - Golf Course Rd.										
L	1	C - 22.5	C - 25.3	*1*	*C - 24.6*	1	C - 24.0	C - 24.1	*1*	*C - 24.1*
T	2	D - 37.4	D - 39.2	*2*	*D - 40.5*	2	F - 90.3	F - 101	*2*	*F - 101*
R	>	D - 37.4	D - 39.2	*>*	*D - 40.5*	>	F - 90.3	F - 101	*>*	*F - 101*
Southbound - Golf Course Rd.										
L	2	D - 43.8	D - 52.5	*2*	*D - 52.0*	2	C - 27.8	C - 32.4	*2*	*C - 24.0*
T	2	B - 12.7	B - 13.2	*2*	*B - 14.1*	2	A - 8.7	A - 9.2	*2*	*B - 11.5*
R	1	A - 4.9	A - 5.5	*1*	*B - 16.2*	1	A - 4.9	A - 1.1	*1*	*A - 3.8*
Intersection:		**C - 33.6**	**D - 36.7**		**D - 36.2**		**E - 63.4**	**E - 72.7**		**E - 72.5**

NOTE: > denotes a shared thru/right and / or thru/left turn lane.

* - Mitigated Condition is with Driveway "A" Signalized.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project: Golf Course Rd Development

Intersection: **Irving Blvd / Golf Course Rd**

2015

Approach	Left Turns			Thru Movements			Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*2*	*127*	*125*	*2*	*431*	*Cont*	*0*	*103*	*0*
AM NO BUILD Queue	2	135	125	2	459	325	0	110	175
AM BUILD Queue	**2**	**143**	**150**	**2**	**459**	**325**	**0**	**110**	**175**
Existing Lane Length	*2*	*156*	*125*	*2*	*250*	*Cont*	*0*	*54*	*0*
PM NO BUILD Queue	2	166	175	2	266	225	0	57	125
PM BUILD Queue	**2**	**185**	**175**	**2**	**266**	**225**	**0**	**57**	**125**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*11*	*175*	*2*	*49*	*Cont*	*1*	*161*	*250*
AM NO BUILD Queue	1	11	50	2	51	75	1	167	250
AM BUILD Queue	**1**	**11**	**50**	**2**	**51**	**75**	**1**	**181**	**250**
Existing Lane Length	*1*	*51*	*175*	*2*	*396*	*Cont*	*1*	*715*	*250*
PM NO BUILD Queue	1	53	100	2	410	325	1	741	900
PM BUILD Queue	**1**	**53**	**100**	**2**	**410**	**325**	**1**	**772**	**>1,000**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*26*	*175*	*2*	*536*	*Cont*	*0*	*14*	*0*
AM NO BUILD Queue	1	30	75	2	622	425	0	16	50
AM BUILD Queue	**1**	**30**	**75**	**2**	**640**	**450**	**0**	**16**	**50**
Existing Lane Length	*1*	*135*	*175*	*2*	*995*	*Cont*	*0*	*23*	*0*
PM NO BUILD Queue	1	157	250	2	1,154	775	0	27	75
PM BUILD Queue	**1**	**157**	**250**	**2**	**1,186**	**800**	**0**	**27**	**75**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*2*	*616*	*200*	*2*	*913*	*Cont*	*1*	*45*	*125*
AM NO BUILD Queue	2	690	475	2	1,023	650	1	50	100
AM BUILD Queue	**2**	**701**	**475**	**2**	**1,038**	**650**	**1**	**56**	**100**
Existing Lane Length	*2*	*293*	*200*	*2*	*636*	*Cont*	*1*	*150*	*125*
PM NO BUILD Queue	2	328	275	2	712	525	1	168	250
PM BUILD Queue	**2**	**361**	**300**	**2**	**747**	**525**	**1**	**188**	**275**

	AM	PM
Cycle Length:	120	130

NOTE: Queue lengths are in feet.

Intersection #2: McMahon Blvd. / Golf Course Rd. – Appendix Pages A-58 thru A-65

The results of the 2015 implementation year analysis of the signalized intersection of McMahon Blvd. / Golf Course Rd. are summarized in the following tables:

Existing Geometry (McMahon Blvd. / Golf Course Rd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB McMahon Blvd.	1	0	2	0	1
WB McMahon Blvd.	2	0	2	0	1
NB Golf Course Rd.	2	0	2	0	1
SB Golf Course Rd.	2	0	2	0	1

Intersection: **#2 - McMahon Blvd. / Golf Course Rd.**

	2015 AM Peak Hour					2015 PM Peak Hour				
	BASE GEOMETRY			*MIT. GEOM.**		BASE GEOMETRY			*MIT. GEOM.**	
	NO BUILD		BUILD	*BUILD*		NO BUILD		BUILD	*BUILD*	
	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*
Eastbound - McMahon Blvd.										
L	1	D - 52.0	E - 63.6	*1*	*E - 62.3*	1	F - 115	F - 115	*1*	*F - 115*
T	2	F - 140	F - 154	*2*	*F - 157*	2	E - 58.3	F - 83.8	*2*	*F - 83.8*
R	1	F - 170	F - 168	*1*	*F - 185*	1	C - 27.3	C - 29.8	*1*	*C - 29.8*
Westbound - McMahon Blvd.										
L	2	F - 98.2	F - 176	*2*	*F - 130*	2	F - 96.5	F - 91.8	*2*	*F - 91.8*
T	2	D - 36.1	D - 44.4	*2*	*D - 39.0*	2	E - 79.1	F - 90.3	*2*	*F - 90.3*
R	1	B - 19.2	C - 26.8	*1*	*C - 22.6*	1	C - 26.3	C - 27.0	*1*	*C - 27.0*
Northbound - Golf Course Rd.										
L	2	D - 35.5	D - 36.2	*2*	*D - 51.1*	2	E - 78.1	E - 71.3	*2*	*F - 82.1*
T	2	B - 19.8	B - 15.6	*2*	*B - 13.6*	2	C - 32.4	C - 30.7	*2*	*D - 39.7*
R	1	B - 14.4	B - 12.7	*1*	*A - 7.8*	1	B - 12.8	B - 15.1	*1*	*B - 11.0*
Southbound - Golf Course Rd.										
L	2	D - 36.9	D - 49.3	*2*	*D - 43.6*	2	D - 51.1	D - 51.1	*2*	*D - 51.1*
T	2	F - 171	F - 122	*2*	*F - 154*	2	E - 63.4	E - 75.6	*2*	*E - 75.6*
R	1	B - 18.3	C - 20.2	*1*	*B - 20.0*	1	C - 23.3	C - 23.9	*1*	*C - 23.9*
Intersection:		**F - 113**	**F - 109**		**F - 117**		**E - 57.1**	**E - 62.6**		**E - 64.8**

NOTE: > denotes a shared thru/right and / or thru/left turn lane.

* - Mitigated Condition is with Driveway "A" Signalized.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project: Golf Course Rd Development

Intersection: **McMahon Blvd / Golf Course Rd**

2015

Approach	Left Turns			Thru Movements			Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*104*	*280*	*2*	*693*	*Cont*	*1*	*631*	*250*
AM NO BUILD Queue	1	141	225	2	937	600	1	853	>1,000
AM BUILD Queue	**1**	**141**	**225**	**2**	**937**	**600**	**1**	**868**	**>1,000**
Existing Lane Length	*1*	*171*	*280*	*2*	*601*	*Cont*	*1*	*323*	*250*
PM NO BUILD Queue	1	231	325	2	813	575	1	437	**575**
PM BUILD Queue	**1**	**231**	**325**	**2**	**813**	**575**	**1**	**474**	**600**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*2*	*185*	*300*	*2*	*297*	*Cont*	*1*	*57*	*230*
AM NO BUILD Queue	2	207	175	2	333	250	1	64	125
AM BUILD Queue	**2**	**237**	**200**	**2**	**333**	**250**	**1**	**64**	**125**
Existing Lane Length	*2*	*335*	*300*	*2*	*726*	*Cont*	*1*	*170*	*230*
PM NO BUILD Queue	2	375	**300**	2	813	575	1	190	275
PM BUILD Queue	**2**	**427**	**350**	**2**	**813**	**575**	**1**	**190**	**275**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*2*	*175*	*240*	*2*	*324*	*Cont*	*1*	*265*	*220*
AM NO BUILD Queue	2	196	175	2	363	275	1	297	375
AM BUILD Queue	**2**	**207**	**175**	**2**	**369**	**275**	**1**	**321**	**400**
Existing Lane Length	*2*	*514*	*240*	*2*	*883*	*Cont*	*1*	*272*	*220*
PM NO BUILD Queue	2	576	**425**	2	989	**675**	1	305	**425**
PM BUILD Queue	**2**	**616**	**450**	**2**	**1,009**	**700**	**1**	**362**	**475**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*2*	*121*	*175*	*2*	*766*	*Cont*	*1*	*59*	*140*
AM NO BUILD Queue	2	170	150	2	1,079	675	1	83	150
AM BUILD Queue	**2**	**170**	**150**	**2**	**1,087**	**700**	**1**	**83**	**150**
Existing Lane Length	*2*	*133*	*175*	*2*	*625*	*Cont*	*1*	*133*	*140*
PM NO BUILD Queue	2	187	175	2	880	625	1	187	275
PM BUILD Queue	**2**	**187**	**175**	**2**	**898**	**625**	**1**	**187**	**275**

	AM	PM
Cycle Length:	120	130

NOTE: Queue lengths are in feet.

Intersection #3: McMahon Blvd. / Bandelier Dr. – Appendix Pages A-66 thru A-71

The results of the 2015 implementation year analysis of the signalized intersection of McMahon Blvd. / Bandelier Dr. are summarized in the following tables:

Existing Geometry (McMahon Blvd. / Bandelier Dr.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB McMahon Blvd.	1	0	1	1	0
WB McMahon Blvd.	1	0	2	0	1
NB Bandelier Dr.	1	0	0	1	0
SB Bandelier Dr.	1	0	0	1	0

Intersection: **#3 - McMahon Blvd. / Bandelier Rd.**

	2015 AM Peak Hour			2015 PM Peak Hour		
	BASE GEOMETRY			BASE GEOMETRY		
		NO BUILD	BUILD		NO BUILD	BUILD
	Lanes	LOS-Delay	LOS-Delay	Lanes	LOS-Delay	LOS-Delay
Eastbound - McMahon Blvd.						
L	1	B - 12.2	B - 14.0	1	A - 8.6	A - 9.0
T	2	D - 51.2	D - 54.9	2	B - 13.0	B - 13.5
R	>	D - 51.2	D - 54.9	>	B - 13.0	B - 13.5
Westbound - McMahon Blvd.						
L	1	B - 17.8	B - 19.8	1	A - 6.6	A - 6.9
T	2	B - 17.5	B - 19.0	2	B - 14.4	B - 14.8
R	1	B - 15.2	B - 16.4	1	A - 9.2	A - 9.3
Northbound - Bandelier Rd.						
L	1	B - 16.4	B - 17.5	1	C - 22.1	C - 22.6
T	1	B - 18.6	C - 20.1	1	C - 22.5	C - 23.1
R	>	B - 18.6	C - 20.1	>	C - 22.5	C - 23.1
Southbound - Bandelier Rd.						
L	1	E - 75.1	E - 71.0	1	C - 28.1	C - 29.8
T	1	B - 16.4	B - 17.5	1	C - 22.0	C - 22.6
R	>	B - 16.4	B - 17.5	>	C - 22.0	C - 22.6
Intersection:		D - 43.0	D - 44.8		B - 14.3	B - 14.8

NOTE: > denotes a shared thru/right and / or thru/left turn lane.

The queuing analysis for this intersection are summarized in the following table:

Queueing Analysis Summary Sheet

Project: Golf Course Rd Development

Intersection: **McMahon Blvd / Bandelier Dr**

2015

Approach	Left Turns			Thru Movements			Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*5*	*110*	*2*	*1,007*	*Cont*	*0*	*4*	*0*
AM NO BUILD Queue	1	5	25	2	1,092	700	0	4	25
AM BUILD Queue	**1**	**5**	**25**	**2**	**1,101**	**700**	**0**	**4**	**25**
Existing Lane Length	*1*	*15*	*110*	*2*	*606*	*Cont*	*0*	*24*	*0*
PM NO BUILD Queue	1	16	50	2	657	475	0	26	75
PM BUILD Queue	**1**	**16**	**50**	**2**	**681**	**500**	**0**	**26**	**75**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*39*	*115*	*2*	*372*	*Cont*	*1*	*28*	*150*
AM NO BUILD Queue	1	44	100	2	417	300	1	31	75
AM BUILD Queue	**1**	**46**	**100**	**2**	**424**	**325**	**1**	**32**	**75**
Existing Lane Length	*1*	*138*	*115*	*2*	*1,058*	*Cont*	*1*	*194*	*150*
PM NO BUILD Queue	1	155	250	2	1,185	800	1	217	325
PM BUILD Queue	**1**	**163**	**250**	**2**	**1,210**	**800**	**1**	**223**	**325**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*7*	*90*	*1*	*1*	*Cont*	*0*	*183*	*0*
AM NO BUILD Queue	1	8	25	1	1	0	0	205	275
AM BUILD Queue	**1**	**8**	**25**	**1**	**1**	**0**	**0**	**208**	**300**
Existing Lane Length	*1*	*5*	*90*	*1*	*1*	*Cont*	*0*	*100*	*0*
PM NO BUILD Queue	1	6	25	1	1	0	0	112	200
PM BUILD Queue	**1**	**6**	**25**	**1**	**1**	**0**	**0**	**120**	**200**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
Existing Lane Length	*1*	*261*	*100*	*1*	*5*	*Cont*	*0*	*14*	*0*
AM NO BUILD Queue	1	292	375	1	6	25	0	16	50
AM BUILD Queue	**1**	**294**	**375**	**1**	**6**	**25**	**0**	**16**	**50**
Existing Lane Length	*1*	*115*	*100*	*1*	*3*	*Cont*	*0*	*11*	*0*
PM NO BUILD Queue	1	129	200	1	3	25	0	12	50
PM BUILD Queue	**1**	**135**	**225**	**1**	**3**	**25**	**0**	**12**	**50**

	AM	PM
Cycle Length:	120	130

NOTE: Queue lengths are in feet.

Intersection #4: Driveway 'A' / Golf Course Rd. – Appendix Pages A-72 thru A-79

The results of the 2015 implementation year analysis of the unsignalized intersection of Driveway 'A' / Golf Course Rd. are summarized in the following tables:

Base Geometry (Driveway 'A' / Golf Course Rd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Driveway 'A'	1	0	0	1	0
WB Driveway 'A'	0	0	1+	0	0
NB Golf Course Rd.	1*	0	1	1	0
SB Golf Course Rd.	1	0	2	0	1*

1+ denotes a single approach used by all turning movements.
*Although the project site has never been developed, these turn lanes currently exist at a length of 125'±.

Intersection: **#4 - Driveway "A" / Golf Course Rd.**

	2015 AM Peak Hour					2015 PM Peak Hour				
	BASE GEOMETRY			*MIT. GEOM.**		BASE GEOMETRY			*MIT. GEOM.**	
	NO BUILD		BUILD	*BUILD*		NO BUILD		BUILD	*BUILD*	
	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*	Lanes	LOS-Delay	LOS-Delay	*Lanes*	*LOS-Delay*
Eastbound - Driveway "A"										
L	1	A - 0.0	F - 999	*1*	*E - 60.4*	1	A - 0.0	F - 999	*1*	*E - 79.7*
T	1	A - 0.0	F - 999	*1*	*E - 60.4*	1	A - 0.0	F - 999	*1*	*E - 79.7*
R	>	A - 0.0	F - 999	*>*	*E - 60.4*	>	A - 0.0	F - 999	*>*	*E - 79.7*
Westbound - Driveway "A"										
L	>	F - 109	F - 700	*>*	*E - 58.8*	>	F - 675	F - 999	*>*	*D - 45.3*
T	1	F - 109	F - 700	*1*	*E - 58.8*	1	F - 675	F - 999	*1*	*D - 45.3*
R	>	F - 109	F - 700	*>*	*E - 58.8*	>	F - 675	F - 999	*>*	*D - 45.3*
Northbound - Golf Course Rd.										
L	1	A - 0.0	C - 21.7	*1*	*B - 11.0*	1	A - 0.0	C - 16.2	*1*	*A - 4.3*
T	2	A - 0.0	A - 0.0	*2*	*A - 1.3*	2	A - 0.0	A - 0.0	*2*	*A - 4.1*
R	>	A - 0.0	A - 0.0	*>*	*A - 1.3*	>	A - 0.0	A - 0.0	*>*	*A - 4.1*
Southbound - Golf Course Rd.										
L	1	B - 10.3	B - 10.3	*1*	*A - 0.6*	1	C - 21.3	C - 20.9	*1*	*B - 14.8*
T	2	A - 0.0	A - 0.0	*2*	*A - 1.6*	2	A - 0.0	A - 0.0	*2*	*A - 5.9*
R	1	A - 0.0	A - 0.0	*1*	*A - 0.5*	1	A - 0.0	A - 0.0	*1*	*A - 6.7*
Intersection:					**A - 4.4**					**A - 9.2**

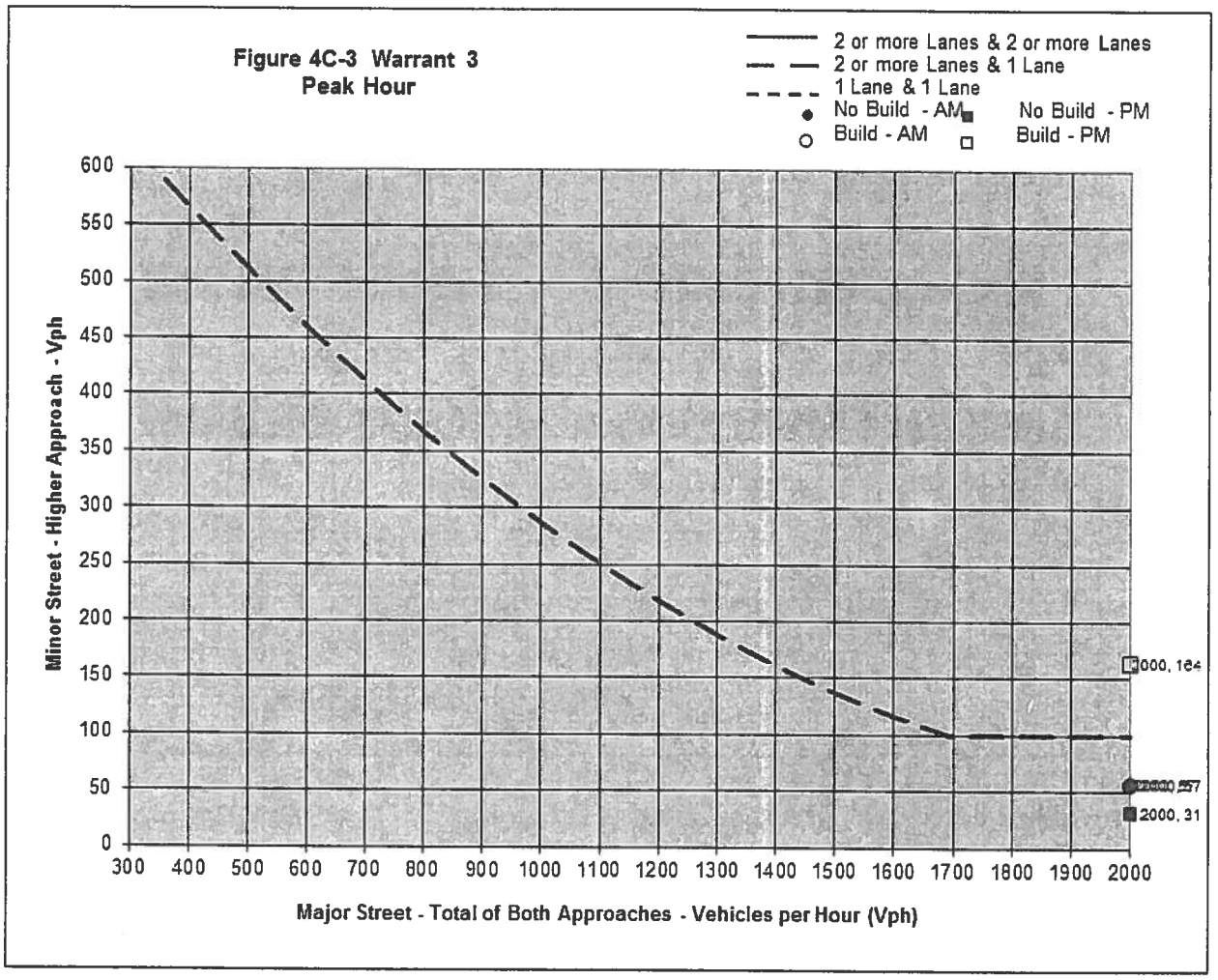
NOTE: > denotes a shared thru/right and / or thru/left turn lane.
* - Mitigated Condition is signalized.

It was noted during the AM Traffic Count that the northbound City bus stop also operates as a middle school bus stop at about 7:30 AM.

The intersection of Driveway 'A' / Golf Course Rd. is projected to operate with excessive delays as an unsignalized intersection. Due to the poor performance, the 2015 projected peak hour volumes were applied to Warrant #3 in the Manual on Uniform Traffic Control

Devices (2003 Edition) to determine if the Peak Hour Warrant for a Traffic Signal was satisfied.

The Peak Hour Warrant Graph below demonstrates that the 2015 PM BUILD Volumes for this intersection meet the warrant for a traffic signal:



In addition to the Peak Hour Signal Warrant analysis, the Measure of Effectiveness (MOE) was calculated for each case (without and with Driveway "A" signalized). See Appendix Pages A-85 thru A-96 for MOE reports. The long delays projected at the unsignalized intersection of Driveway "A" / Golf Course Rd. for the BUILD condition results in a higher MOE value associated with unsignalized Driveway "A" than with the new signal. Therefore, it has been demonstrated that the implementation of the new signal at Driveway "A" will result in an MOE reduced from 403.9 to 238.7 during the 2015 AM Peak Hour and from 906.5 to 251.2 during the 2015 PM Peak Hour. A significant benefit to the system is realized by constructing a new traffic signal at Driveway "A". However, it should be emphasized that the signal should be operated as a two phase signal with preference of green time on the major street (Golf Course Rd.). Side street green times should be calibrated so that the side street traffic experiences LOS "E" (greater than 55 seconds but less than 80 seconds average delay).

Finally, the progression of traffic on Golf Course Rd. was considered for the two conditions considered in this study (without and with the signal at Driveway "A"). Time-space diagrams

for Golf Course Rd. from Irving Blvd. to McMahon Blvd. are on Appendix Pages A-83 and A-84 demonstrating that there is sufficient green time on Golf Course Rd. at Driveway "A" such that there is minimal impact to the corridor during the 2015 AM Peak Hour period and reasonable impact tot the corridor during the 2015 PM Peak Hour period. It appears that there will be up to 10 or 11 vehicle (per lane) queuing for southbound traffic and up to 8 to 9 vehicle (per lane) queuing for northbound traffic during the 2015 PM Peak Hour. The AM Peak Hour queuing is less than 5 vehicles (per lane).

Intersection #5: Driveway 'B' / Golf Course Rd. – Appendix Pages A-80 thru A-81

Driveway 'B' is proposed as a right-in, right-out only driveway. The results of the 2015 implementation year analysis of the signalized intersection of Driveway 'B' / Golf Course Rd. are summarized in the following tables:

Assumed Geometry (Driveway 'B' / Golf Course Rd.)

Approach	Left Turn Lanes	Thru/Lefts	Thru Lanes	Thru/Rights	Right Turn Lanes
EB Driveway 'B'	0	0	1+	0	0
WB N/A	0	0	0	0	0
NB Golf Course Rd.	0	0	2	0	0
SB Golf Course Rd.	0	0	1	1	0

Driveway 'B' / Golf Course Rd.	2015 BUILD	
	A.M.	P.M.
Major Street (Golf Course Rd.)		
NB Left Turns	N/A	N/A
Major Street (Driveway 'B')		
EB Right Turns	C – 22.0	C – 18.2

The intersection of Driveway 'B' / Golf Course Rd. is projected to operate at a satisfactory level-of-service for the projected 2015 AM and PM Peak Hour NO BUILD and BUILD Conditions.

CONCLUSIONS

This analysis was conducted using the following methodology: Trip Generation was established using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual (8th Edition). Generated commercial trips were distributed proportionately based on the population data within a two-mile radius of the project; residential / office trips were distributed based on citywide employment data; growth rate of background traffic volumes was established from Traffic Flow Map data from 2005 through 2009; and the intersection analyses were generally performed in accordance with the 2000 Highway Capacity Manual (Synchro 7 software). The Traffic Impact Study showed a minor increase in traffic congestion for the adjacent transportation network based on 100% buildout of the proposed project.

The impact of this project on the existing signalized intersections of Irving Blvd. / Golf Course Rd., McMahon Blvd. / Golf Course Rd., and McMahon Blvd. / Bandelier Rd. are minimal. Implementation of an unsignalized driveway to access this project will result in extremely excessive delays on the side street (driveway). As a result, consideration was given to constructing a two phase traffic signal at Driveway "A" to assist side street traffic in exiting the

project. The signal will also remedy long delays for the existing driveway across the street on the east side of Golf Course Rd. Since this report has demonstrated the excessive failure of the operation of Driveway "A" as an unsignalized intersections, and since signalization of Driveway "A" as recommended in this report will result in improved Measures of Effectiveness (MOE's) and the progression of traffic on Golf Course Rd. will be reasonably unimpeded, then this study recommends construction of a new two-phase traffic signal to control traffic at the intersection of Driveway "A" / Golf Course Rd. Since the new signal will be located near the bottom of a relatively steep hill, it is recommended that signal warning flashers be constructed upstream of Driveway "A" to the north and to the south to alert approaching traffic that they are approaching a red light.

In summary, the proposed development plan for mixed use development presents no significant adverse impact to the adjacent transportation system provided that the following recommendations are followed:

RECOMMENDATIONS

FROM IMPLEMENTATION YEAR (2015) ANALYSIS

- Construct two driveways to access the project. Driveway "A" should be a new full access signalized driveway to align with the existing driveway located approximately 1,140 feet south of McMahon Blvd. (centerline to centerline along the curvature of Golf Course Rd.). Driveway "B" should be constructed as a new right-in, right-out only driveway located approximately 350 feet south of Driveway "A" (centerline to centerline).
- Construct a new two phase traffic signal at Driveway "A" / Golf Course Rd. The signal should be timed to minimize the green time on the side street (Driveway "A") so the level-of-service for traffic on Driveway "A" will experience delays of at least 55 seconds but less than 80 seconds (LOS "E"). The new traffic signal shall be interconnected to the two existing signals to the north and to the south (Irving Blvd. / Golf Course Rd. and McMahon Blvd. / Golf Course Rd.).
- Construct "Signal Ahead" flashers to the north and south of Driveway "A" to alert approaching traffic on Golf Course Rd. of an impending red light.
- Construct Driveway "A" with one entering lane and two exiting lanes (one exclusive left turn lane and a thru/right turn lane).
- Construct Driveway "B" with one entering lane and one exiting lane.
- Driveways shall be constructed using a minimum of 25-foot radius curb returns or larger is required to accommodate delivery trucks.
- All design and construction for this project shall insure that adequate site distances at the proposed access points and any offsite intersection for which improvements are constructed.

Golf Course Rd. Development

Golf Course Rd. South of McMahon Blvd.

LOS / Volume Analysis Map

Appendix

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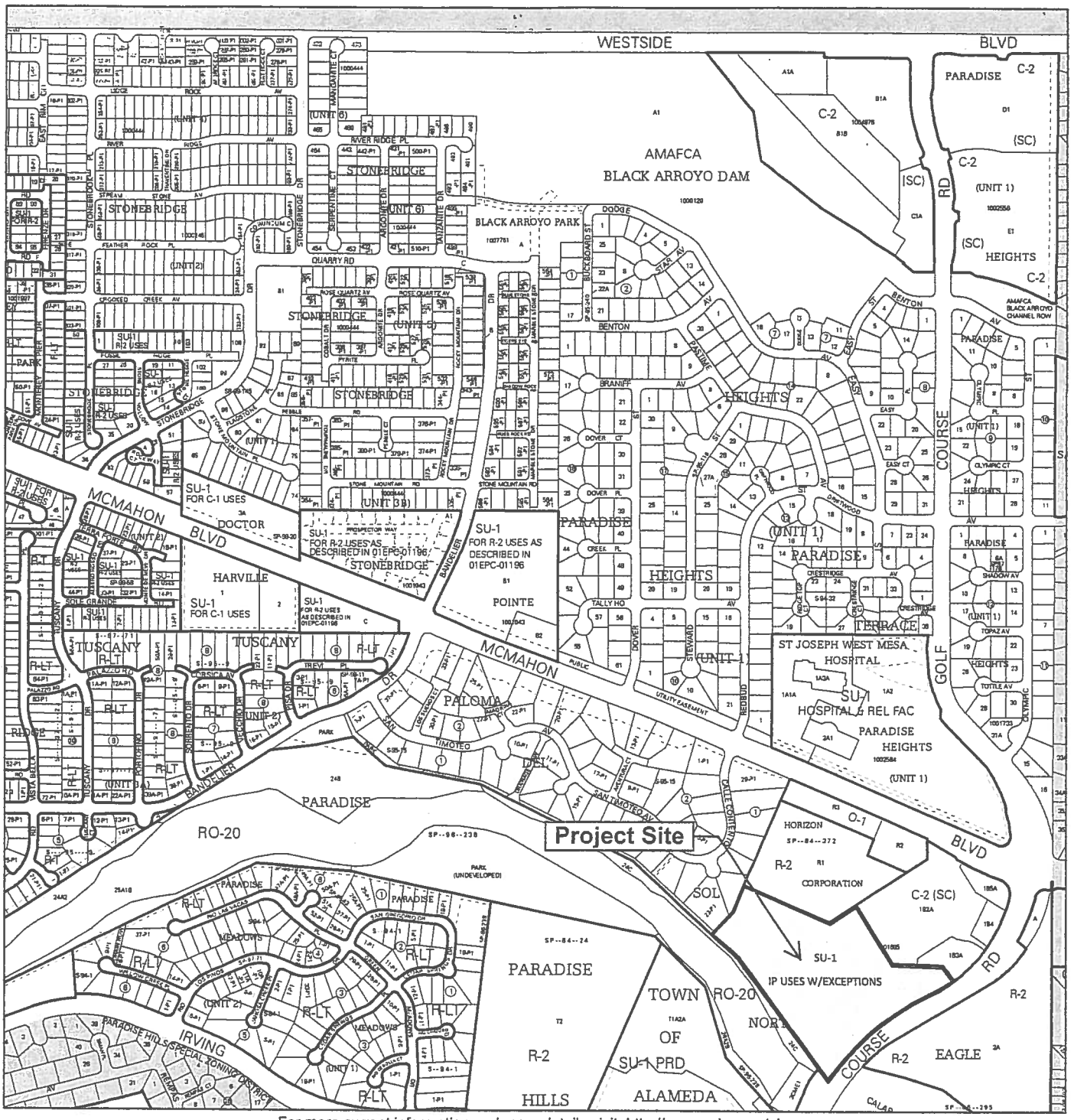
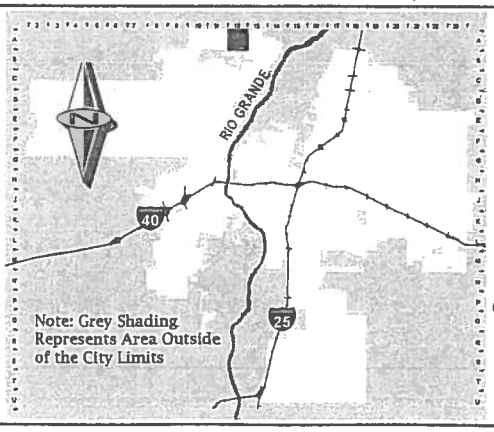
Appendix



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

City of Albuquerque AGIS
Albuquerque Geographic Information System

Map amended through: 1/24/2011



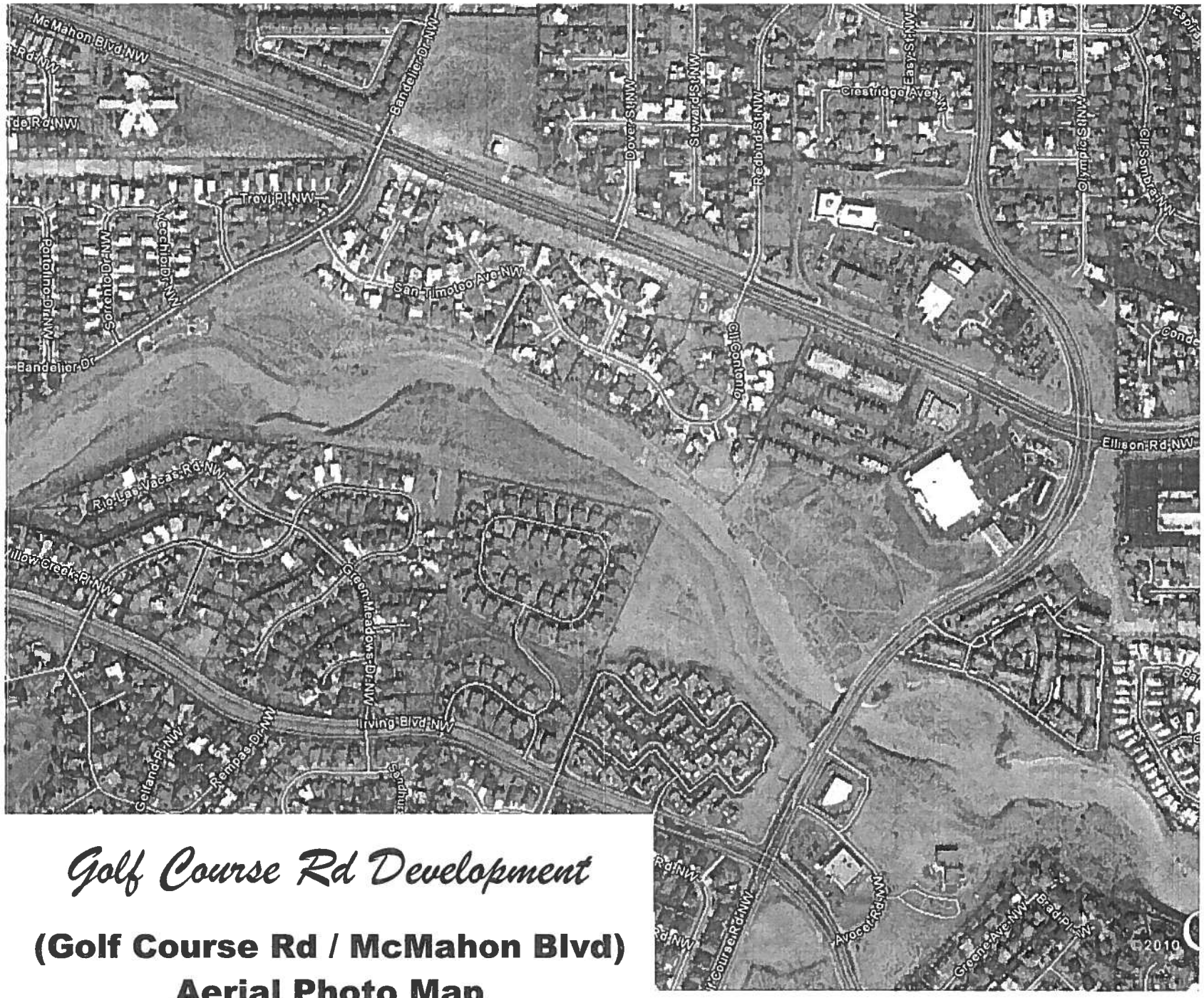
Zone Atlas Page:

A-12-Z

Selected Symbols

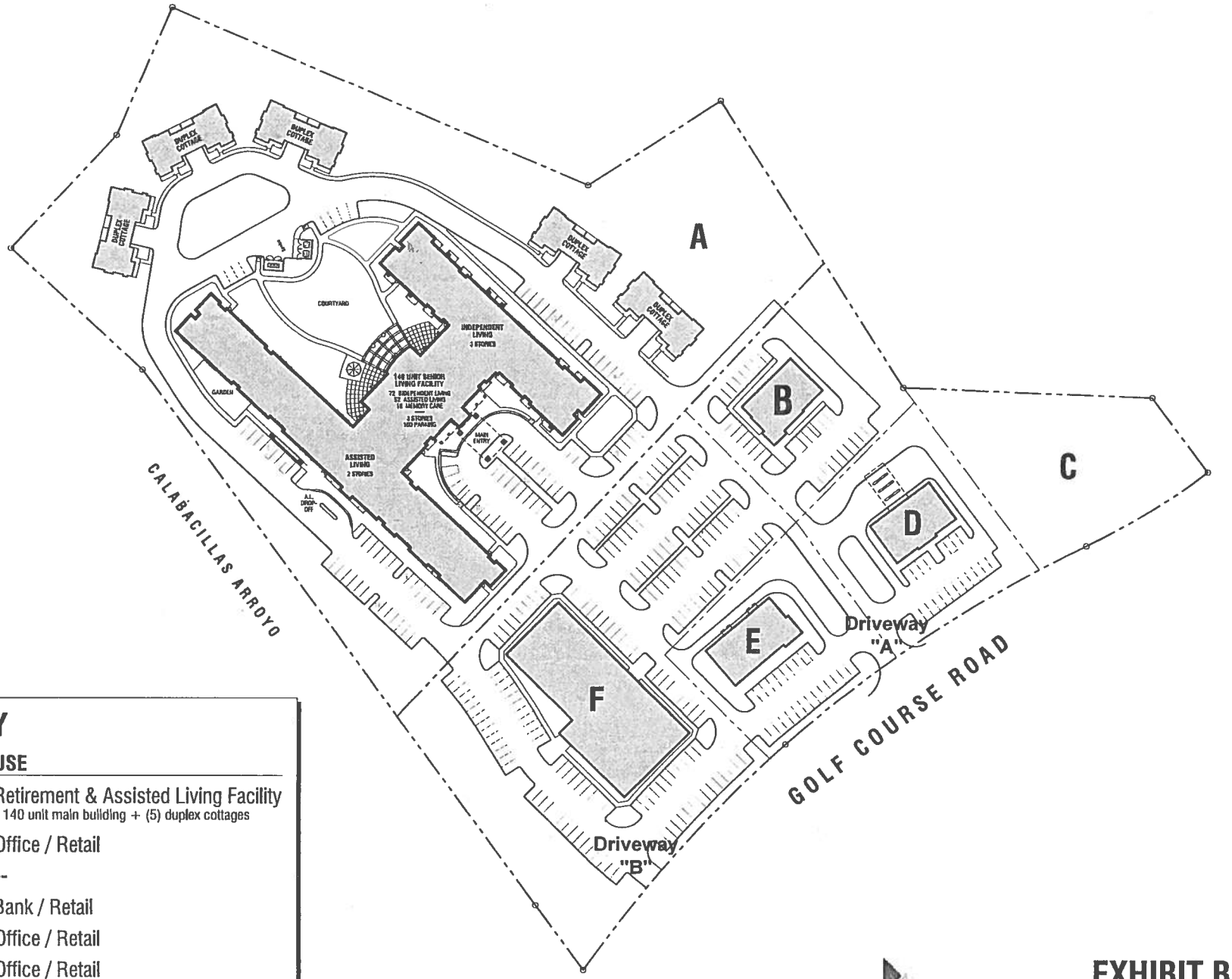
- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet



Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)
Aerial Photo Map



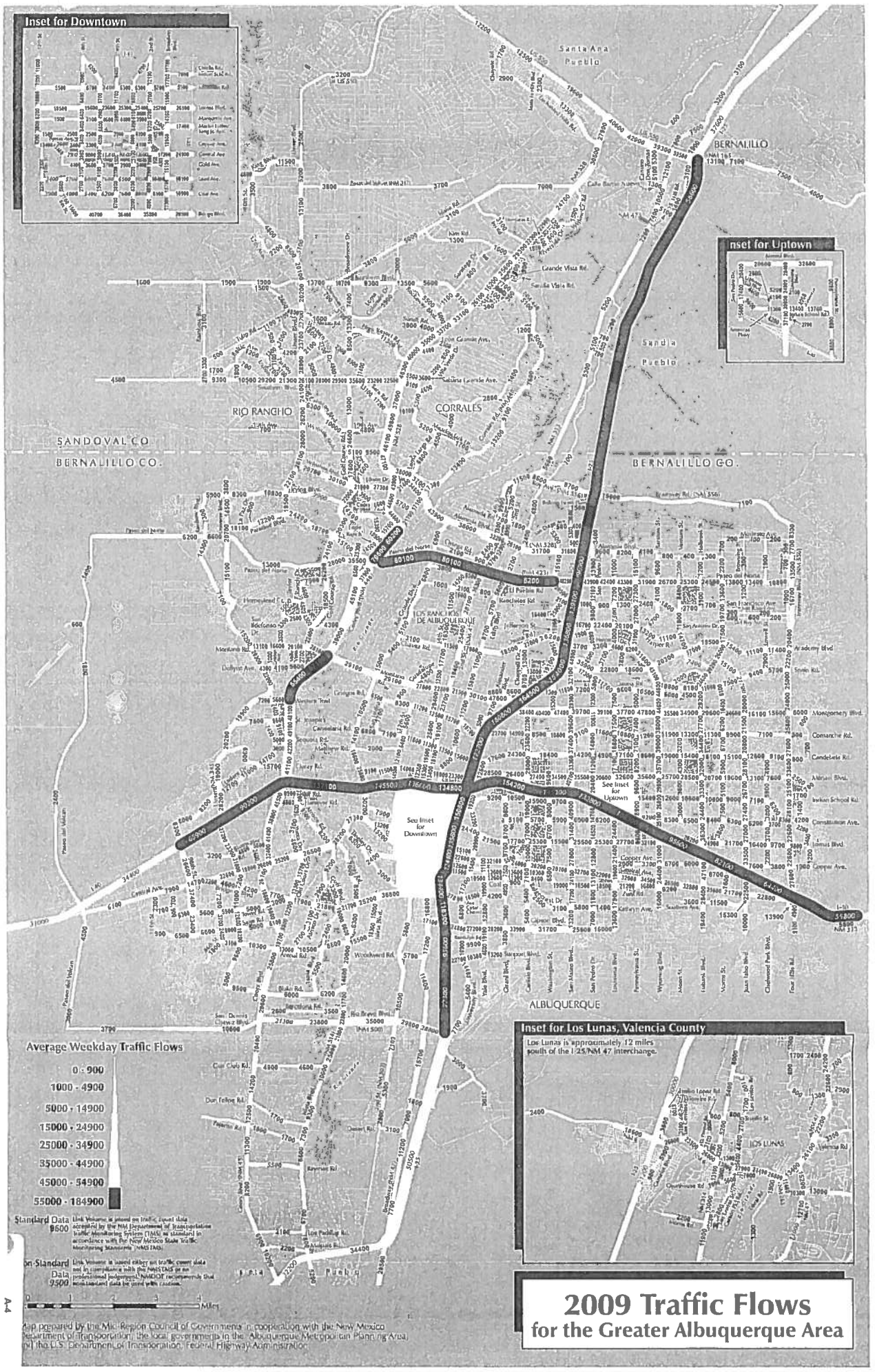
SUMMARY

LOT	SIZE	USE
A	7.58 ac	Retirement & Assisted Living Facility - 140 unit main building + (5) duplex cottages
B	0.78 ac	Office / Retail
C	0.83 ac	--
D	0.83 ac	Bank / Retail
E	0.72 ac	Office / Retail
F	2.81 ac	Office / Retail
	13.55 TOTAL ACRES	

SPECTRUM
RETIREMENT COMMUNITIES, LLC

EXHIBIT B
PRELIMINARY SITE PLAN

APRIL 5 2011

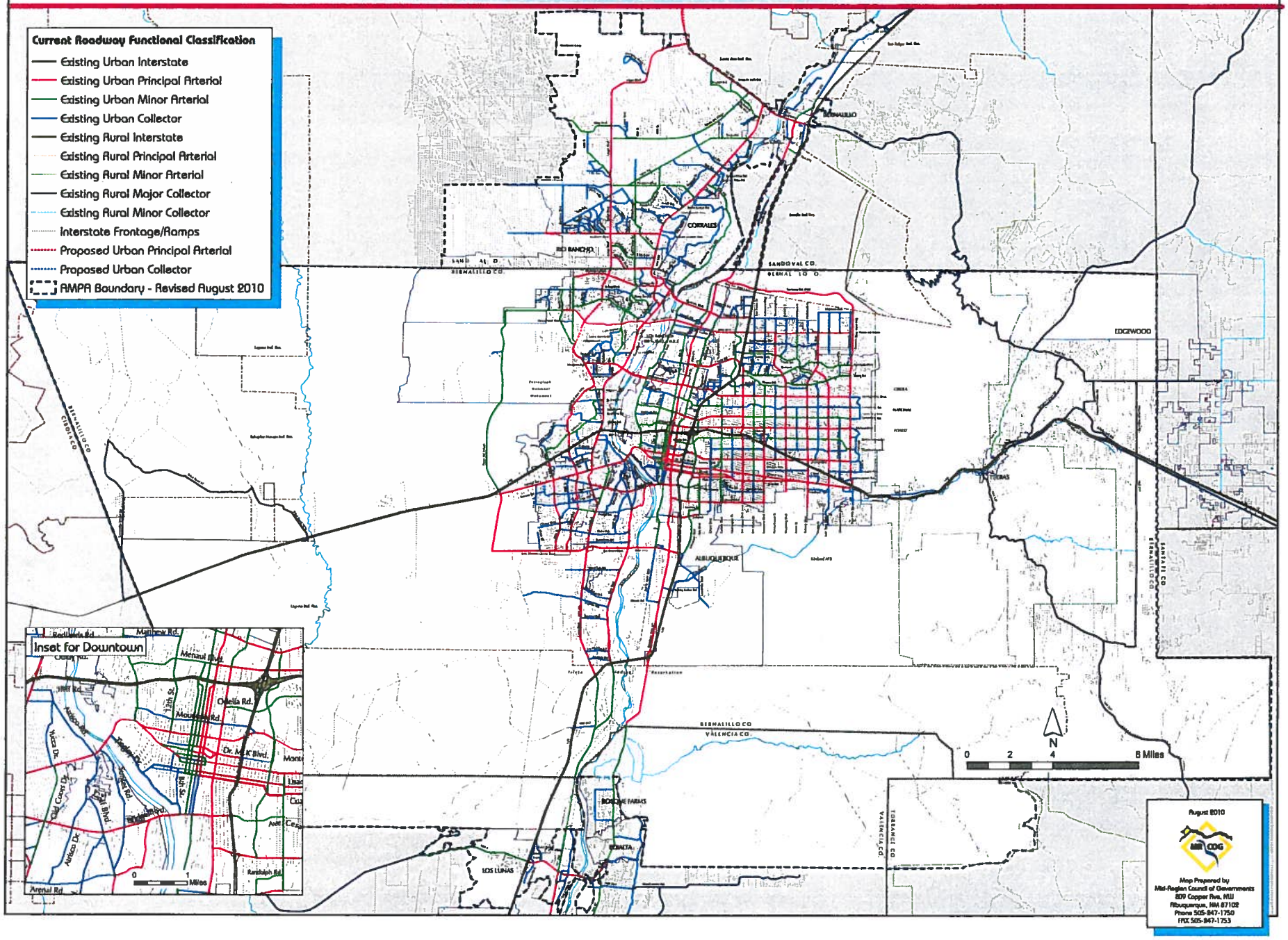


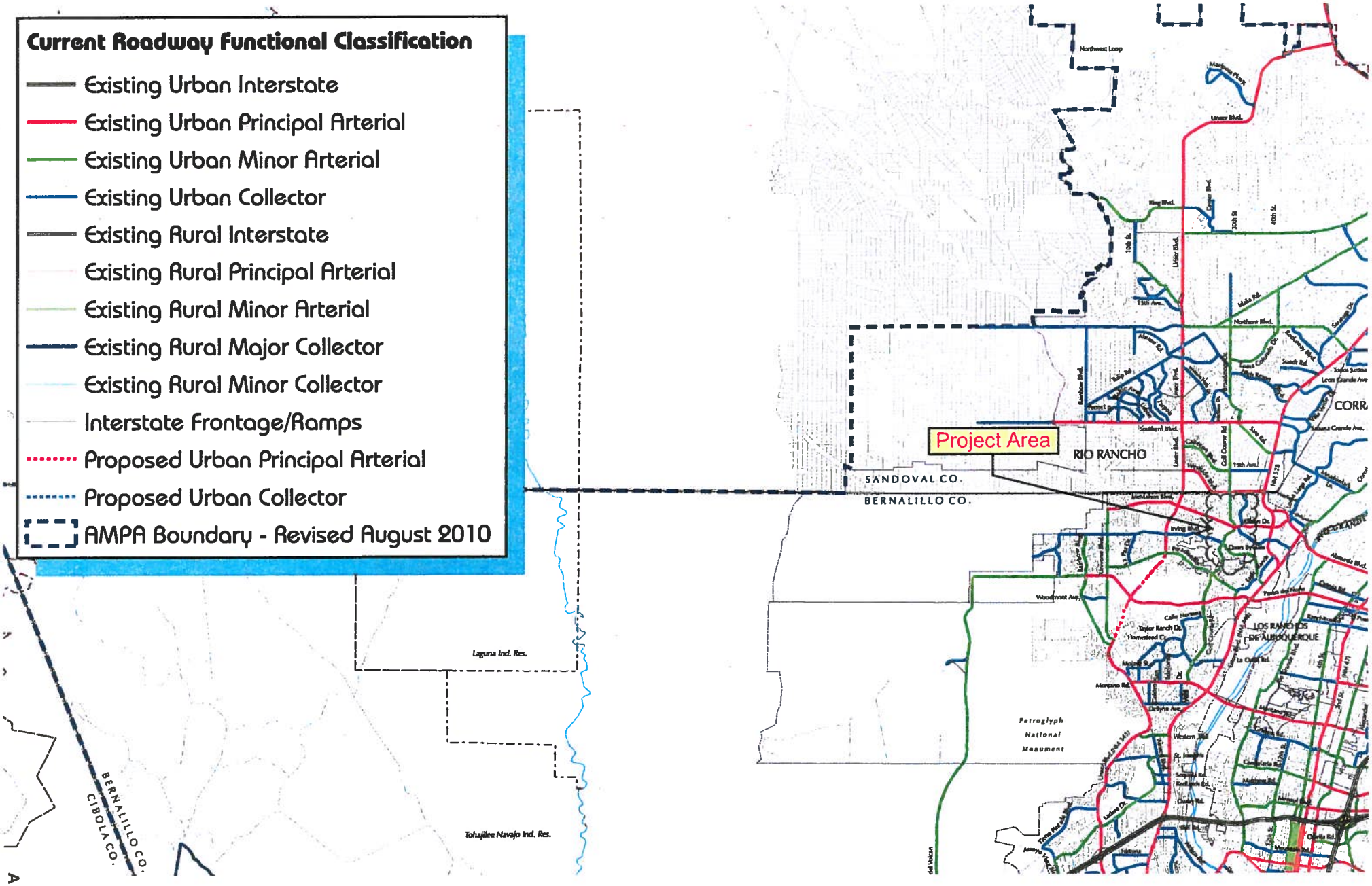
2009 Traffic Flows
for the Greater Albuquerque Area

Current Roadway Functional Classification System

for the Albuquerque Metropolitan Planning Area

Adopted by Resolution R-10-03, Metropolitan Transportation Board
March 25, 2010





Portion of Current Roadway Functional Classification System Map
for the Albuquerque Metropolitan Planning Area (Adopted March 25, 2010)

Golf Course Rd. Development

Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)		24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION		*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet	Units					
Assisted Living (254)	140	343	13	7	14	17
Senior Adult Housing - Detached (251)	10	76	11	21	5	3
Medical-Dental Office Building (720)	3.80	(60)	7	2	4	12
Drive-In Bank (912)	4	557	22	16	54	56
Shopping Center (820)	21.98	2,536	38	25	113	118
Subtotal		**3,452**	**91**	**71**	**190**	**206**
Subtotal Commercial Trips		**3,093**	**60**	**41**	**167**	**174**
Pass-by Credit	20%				(33)	(35)
Commercial Trips (w/Pass-by Adj.)		**3,093**	**60**	**41**	**134**	**139**
Subtotal non-Commercial Trips		**359**	**31**	**30**	**23**	**32**

Golf Course Rd. Development
Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)		24 HOUR TWO-WAY VOLUME	A. M. PEAK HOUR		P. M. PEAK HOUR	
		GROSS	ENTER	EXIT	ENTER	EXIT
	Units					
Assisted Living (254)	*140.00* Beds	343	13	7	14	17

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

Ln(T) = *0.56* Ln(X) + *3.07*
50% Enter, *50%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

T = *0.14* (X) + *0*
65% Enter, *35%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

T = *0.22* (X) + *0*
44% Enter, *56%* Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 8th Edition

Golf Course Rd. Development
Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)	Units	24 HOUR TWO-WAY VOLUME	A. M. PEAK HOUR		P. M. PEAK HOUR	
		GROSS	ENTER	EXIT	ENTER	EXIT
Senior Adult Housing - Detached (251)	***10.00*** Dwelling Units	76	11	21	5	3

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

Ln(T) = ***0.85*** **Ln(X) +** ***2.38***
50% Enter, ***50%*** Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

T = ***0.17*** **(X) +** ***29.95***
35% Enter, ***65%*** Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

Ln(T) = ***0.75*** **Ln(X) +** ***0.35***
61% Enter, ***39%*** Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 8th Edition

Golf Course Rd. Development
Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)	Units	24 HOUR TWO-WAY VOLUME	A. M. PEAK HOUR		P. M. PEAK HOUR	
		GROSS	ENTER	EXIT	ENTER	EXIT
Medical-Dental Office Building (720)	***3.80*** **1,000 S.F.**	(60)	7	2	4	12

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

T = *40.89* (X) + *-214.97*

50% Enter, *50%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

T = *2.3* (X) + *0*

79% Enter, *21%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

Ln(T) = *0.88* Ln(X) + *1.59*

27% Enter, *73%* Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 8th Edition

Golf Course Rd. Development
Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)	Units	24 HOUR TWO-WAY VOLUME	A. M. PEAK HOUR		P. M. PEAK HOUR	
		GROSS	ENTER	EXIT	ENTER	EXIT
Drive-In Bank (912)	*4.00* Drive-In Lanes	557	22	16	54	56

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

T = *139.25* (X) + *0*
50% Enter, *50%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

T = *9.44* (X) + *0*
58% Enter, *42%* Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

T = *27.41* (X) + *0*
49% Enter, *51%* Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 8th Edition

Golf Course Rd. Development
Trip Generation Data (ITE Trip Generation Manual - 8th Edition)

USE (ITE CODE)	Units	24 HOUR TWO-WAY VOLUME	A. M. PEAK HOUR		P. M. PEAK HOUR	
		GROSS	ENTER	EXIT	ENTER	EXIT
Shopping Center (820)	***21.98*** **1,000 S.F.**	2,536	38	25	113	118

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

Ln(T) = ***0.65*** **Ln(X) +** ***5.83***
50% Enter, ***50%*** Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

Ln(T) = ***0.59*** **Ln(X) +** ***2.32***
61% Enter, ***39%*** Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

Ln(T) = ***0.67*** **Ln(X) +** ***3.37***
49% Enter, ***51%*** Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 8th Edition

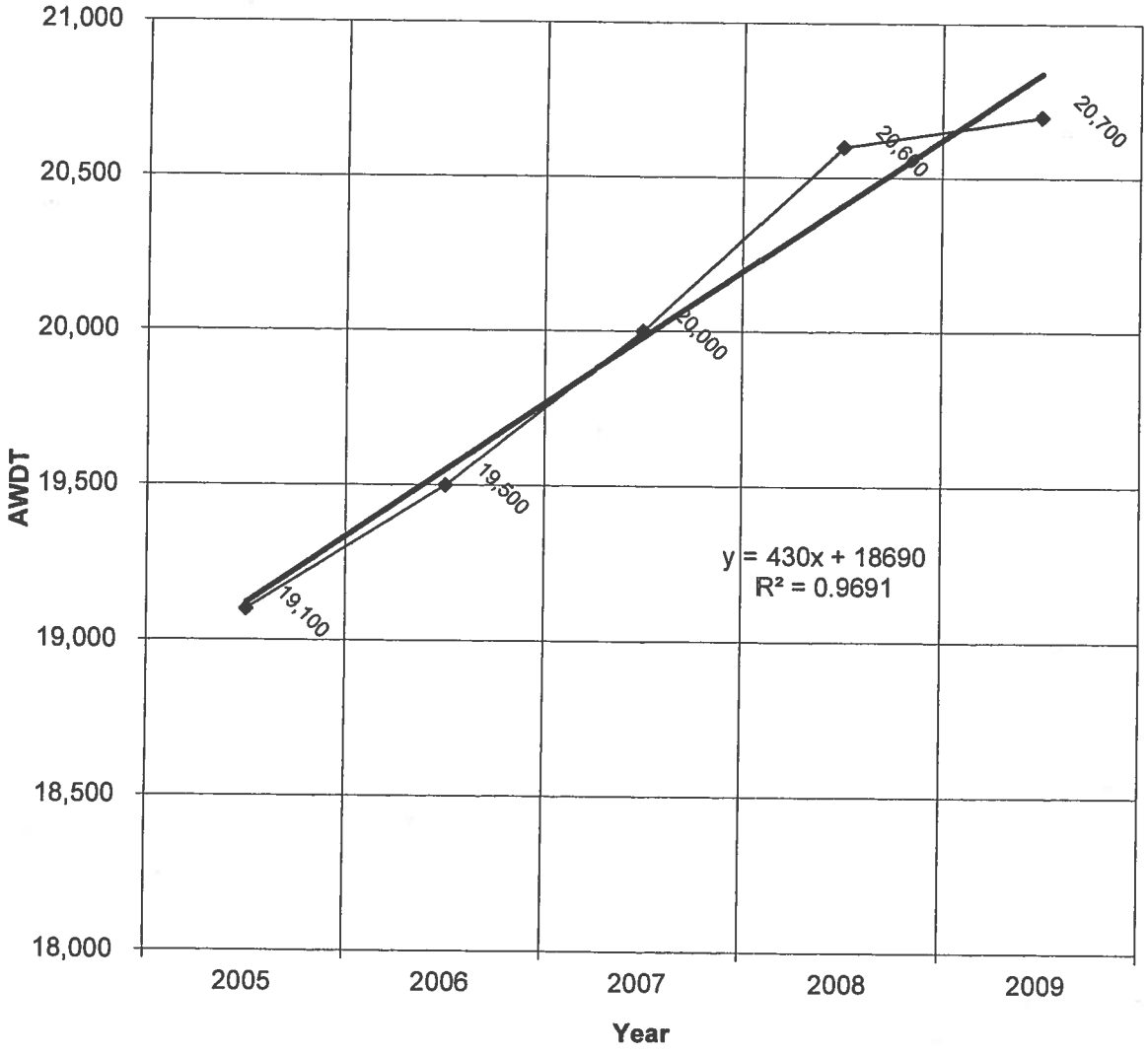
Golf Course Rd Development (between Irving & McMahon)

Historic Growth Rate Table

Traffic Flows from MRCOG Map

	2005	2006	2007	2008	2009
McMahon Blvd west of Bandelier Dr	19,100	19,500	20,000	20,600	20,700
McMahon Blvd east of Bandelier Dr	19,100	19,500	20,000	24,000	30,100
Golf Course Rd north of McMahon Blvd	11,500	11,800	12,000	17,500	17,600
McMahon Blvd east of Golf Course Rd	22,500	23,000	23,500	21,700	21,000
Golf Course Rd btwn McMahon & Irving	23,000	23,500	24,100	21,900	22,000
Irving Blvd east of Golf Course Rd	14,100	15,100	15,400	15,600	14,500
Golf Course Rd south of Irving Blvd	17,400	17,800	18,200	20,200	20,300
Irving Blvd west of Golf Course Rd	9,300	9,500	9,800	9,900	9,900

Historic Growth Chart McMahon Blvd west of Bandelier Dr (2005-2009)



Annual Increase (Trendline) = 430 veh./day

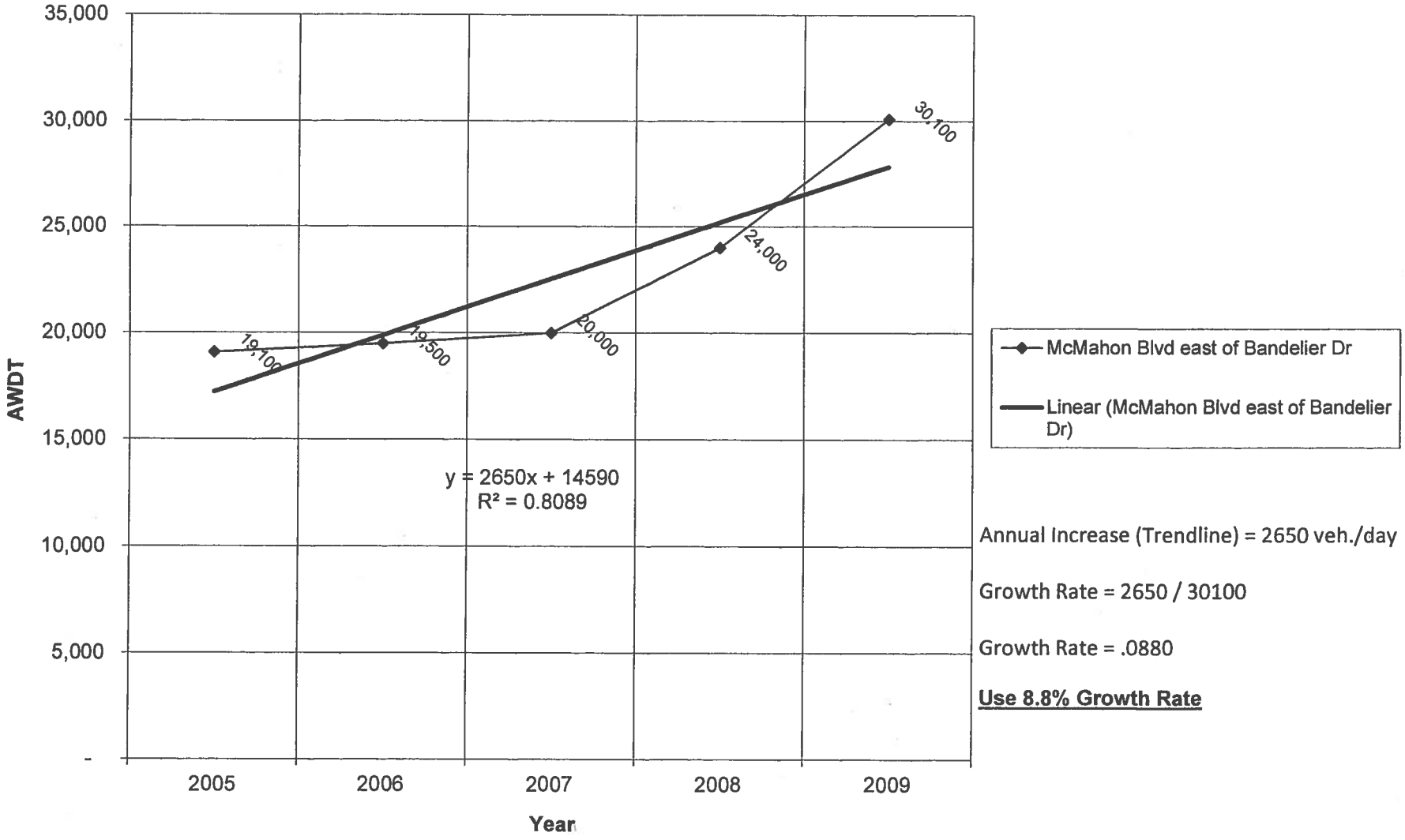
Growth Rate = 430 / 20700

Growth Rate = .0207

Use 2.1% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart McMahon Blvd east of Bandelier Dr (2005-2009)



Annual Increase (Trendline) = 2650 veh./day

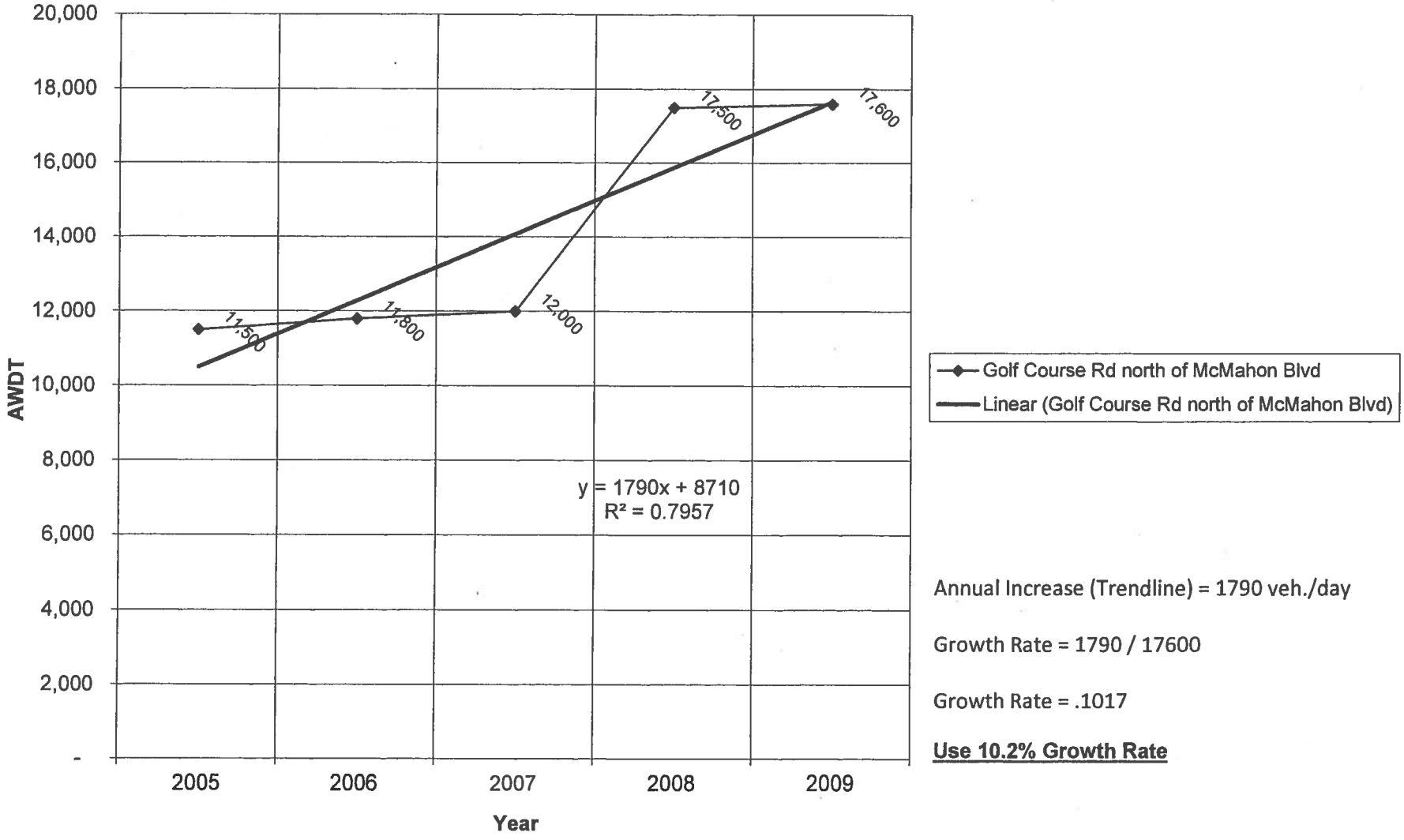
Growth Rate = 2650 / 30100

Growth Rate = .0880

Use 8.8% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart Golf Course Rd north of McMahon Blvd (2005-2009)



Annual Increase (Trendline) = 1790 veh./day

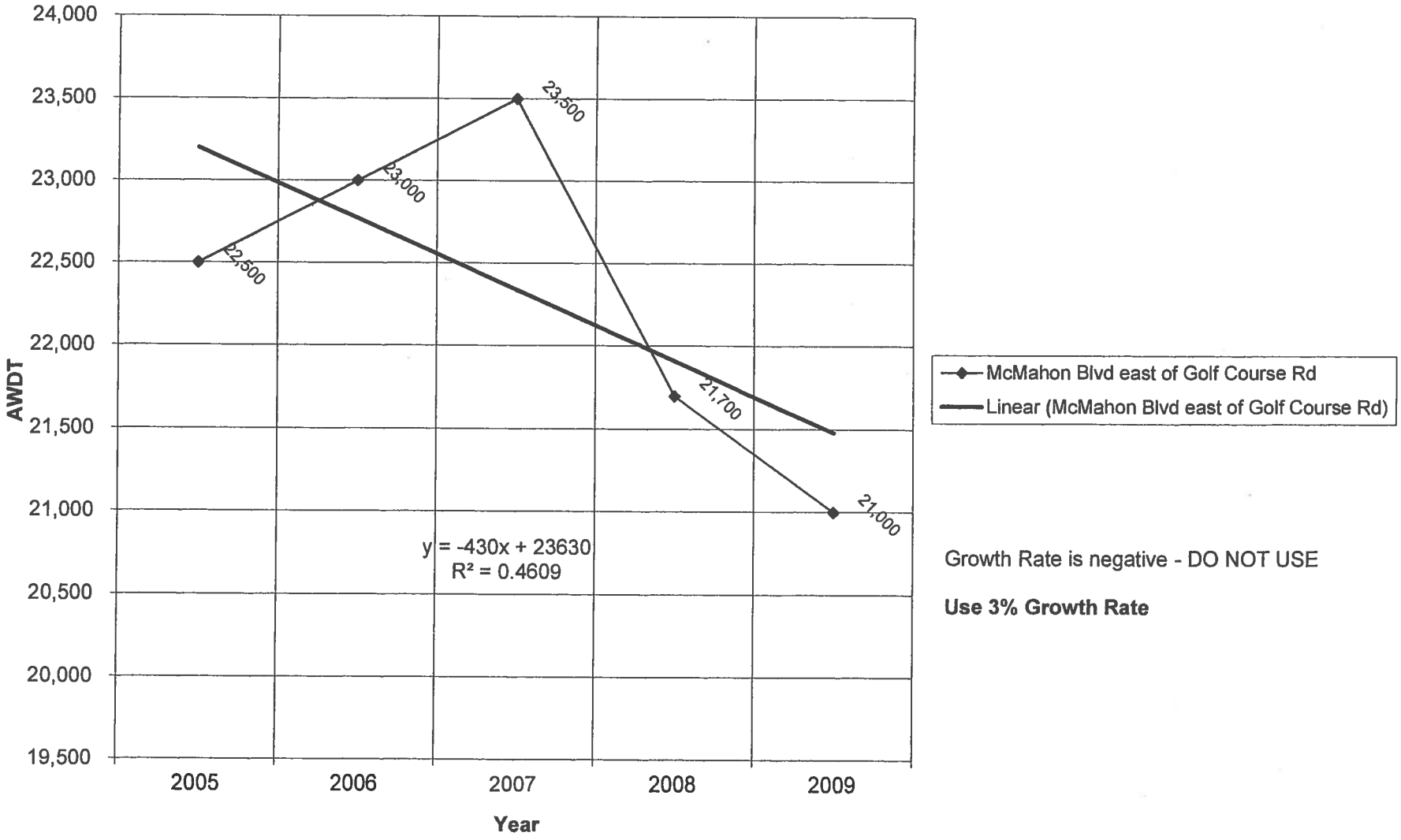
Growth Rate = 1790 / 17600

Growth Rate = .1017

Use 10.2% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart McMahon Blvd east of Golf Course Rd (2005-2009

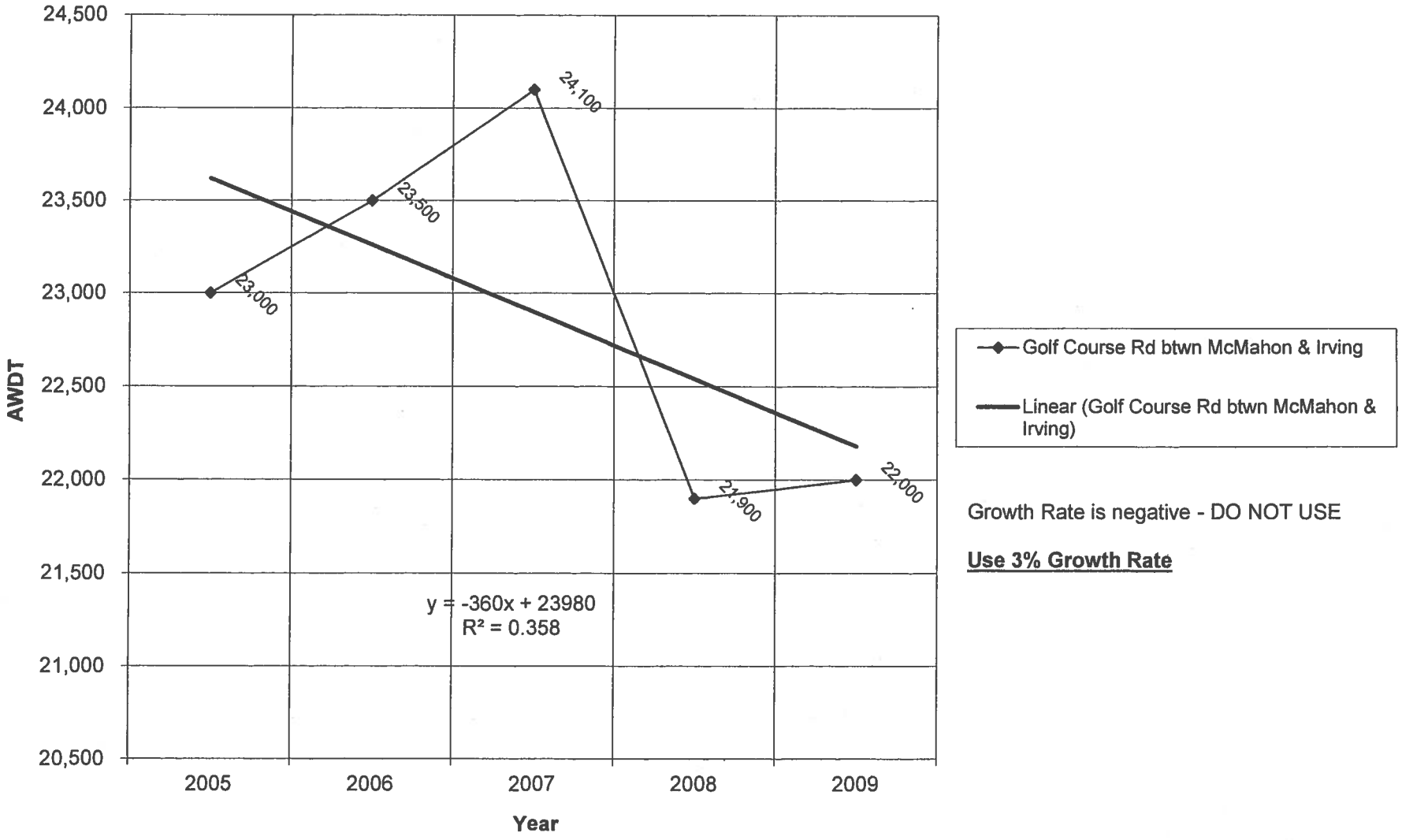


Growth Rate is negative - DO NOT USE

Use 3% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart Golf Course Rd btwn McMahon & Irving (2005-2009)

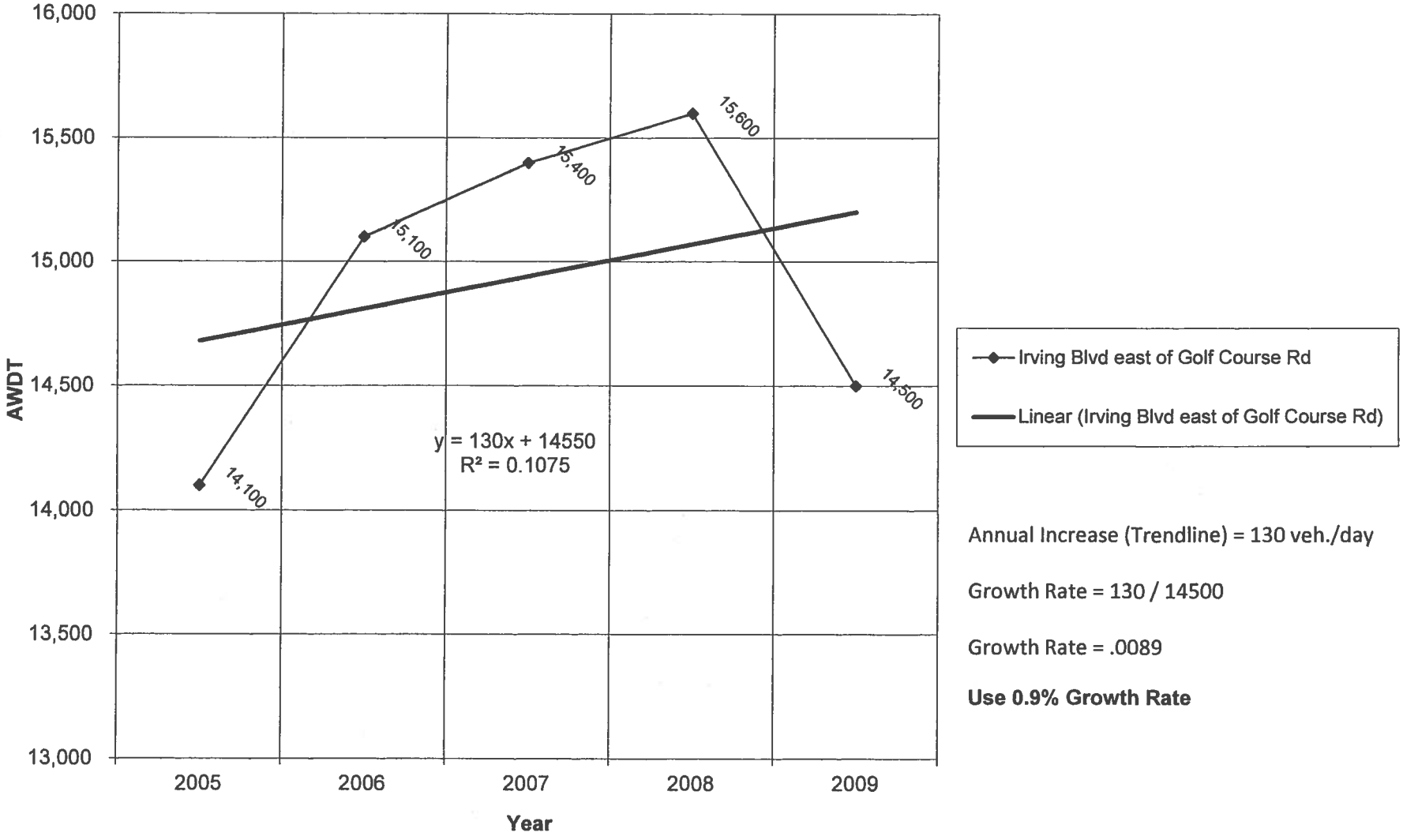


Growth Rate is negative - DO NOT USE

Use 3% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart Irving Blvd east of Golf Course Rd (2005-2009)



Annual Increase (Trendline) = 130 veh./day

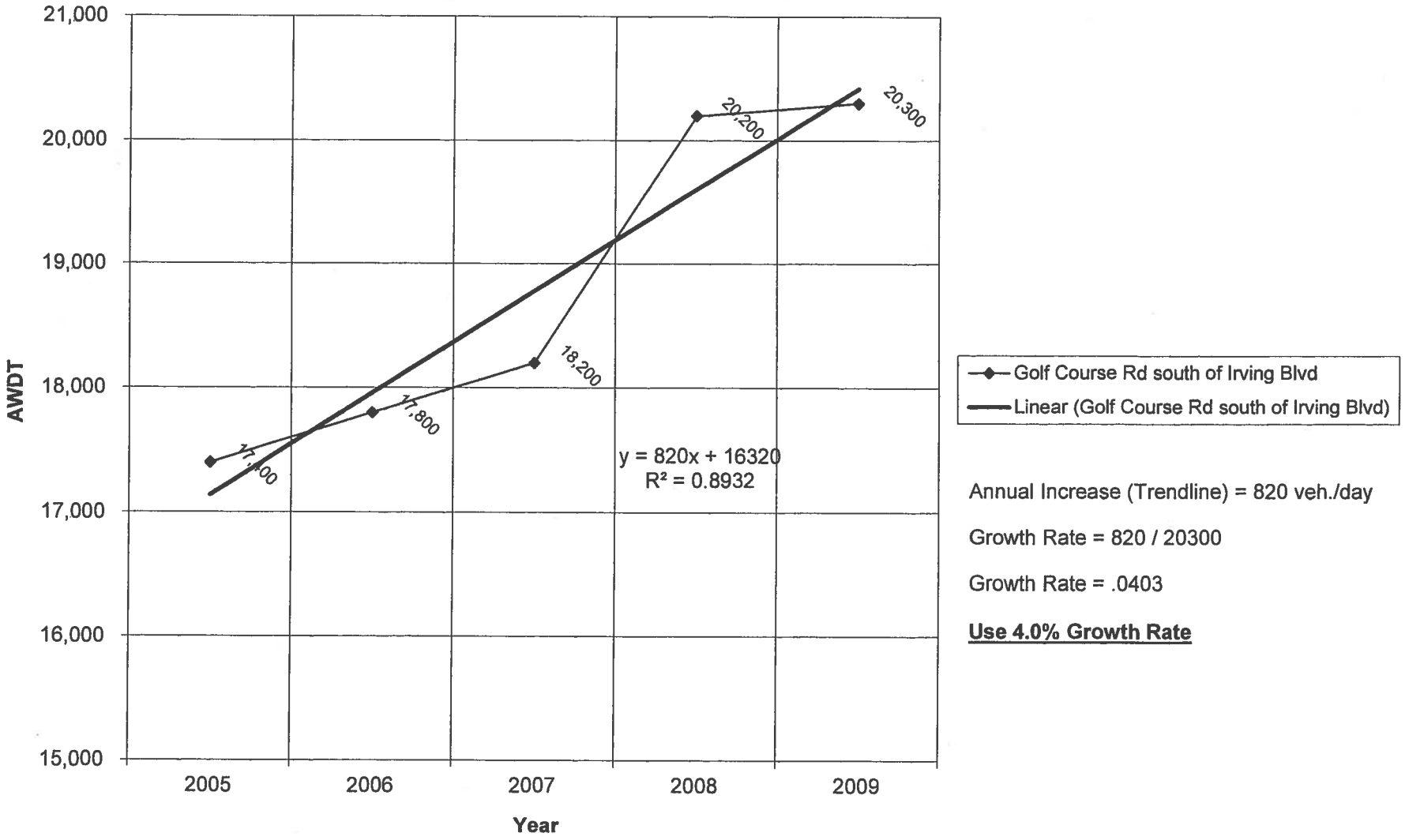
Growth Rate = 130 / 14500

Growth Rate = .0089

Use 0.9% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart Golf Course Rd south of Irving Blvd (2005-2009)



Annual Increase (Trendline) = 820 veh./day

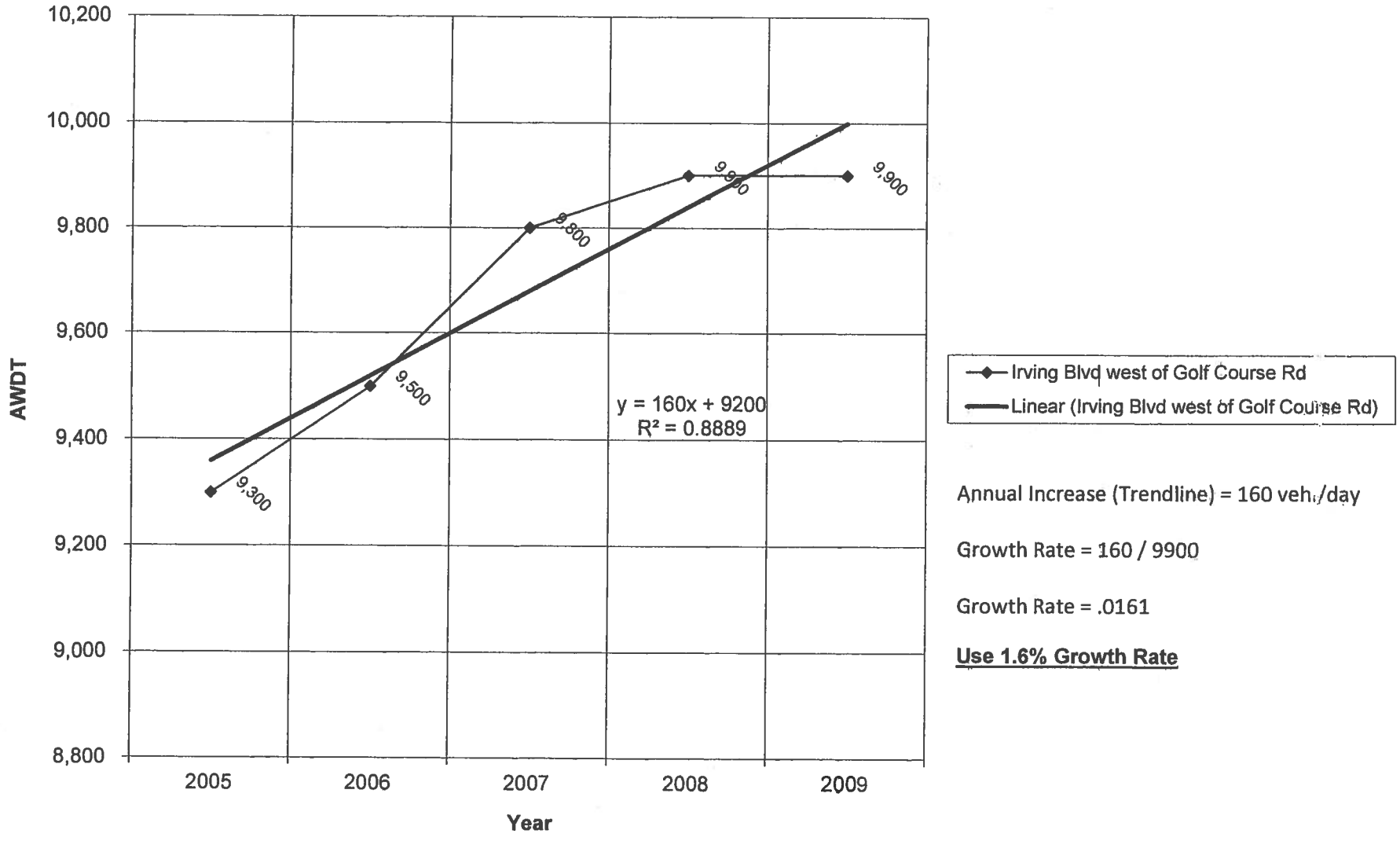
Growth Rate = 820 / 20300

Growth Rate = .0403

Use 4.0% Growth Rate

GolfCourseDev_Growth.xls

Historic Growth Chart Irving Blvd west of Golf Course Rd (2005-2009)



Annual Increase (Trendline) = 160 veh./day

Growth Rate = 160 / 9900

Growth Rate = .0161

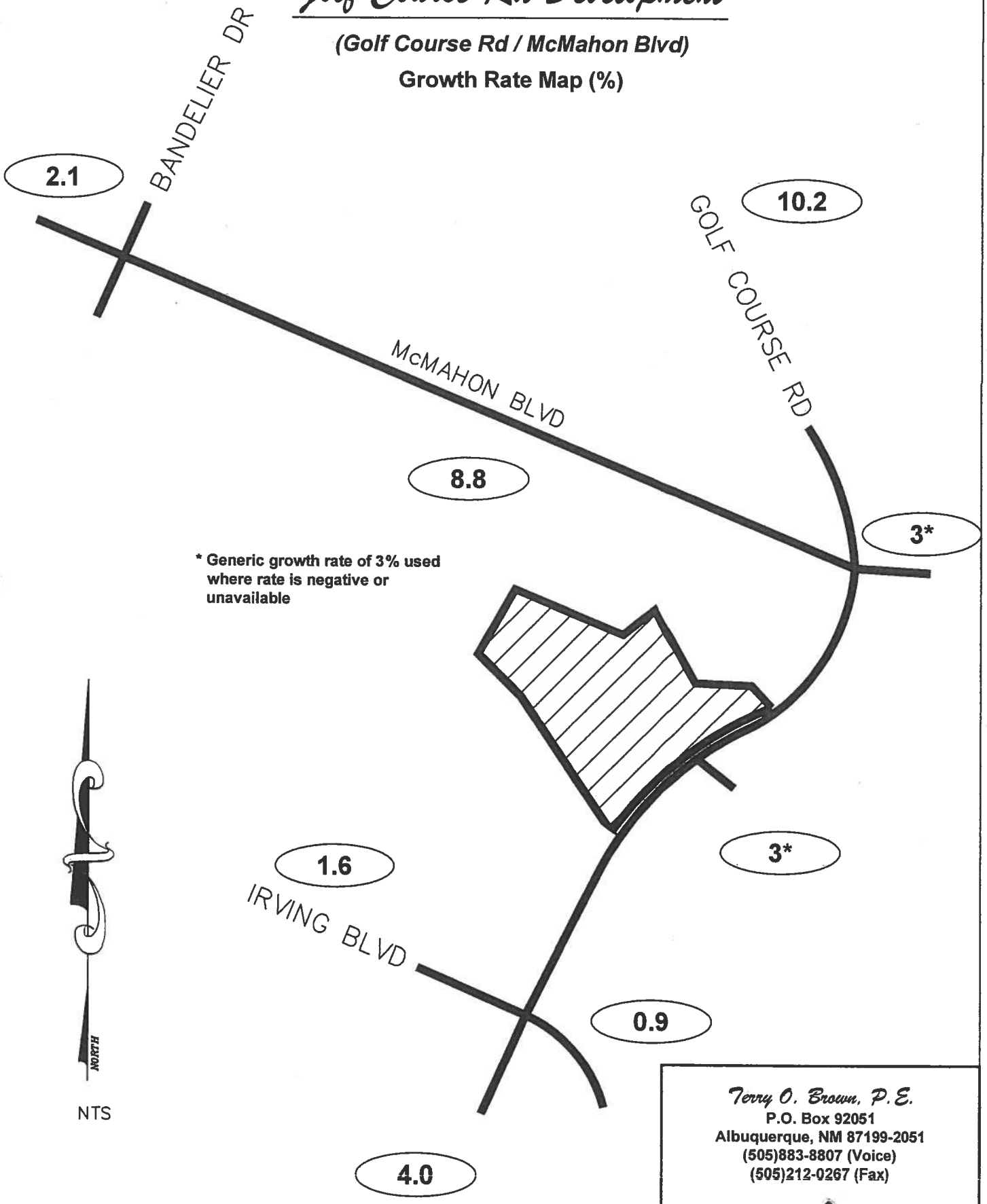
Use 1.6% Growth Rate

GolfCourseDev_Growth.xls

Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Growth Rate Map (%)



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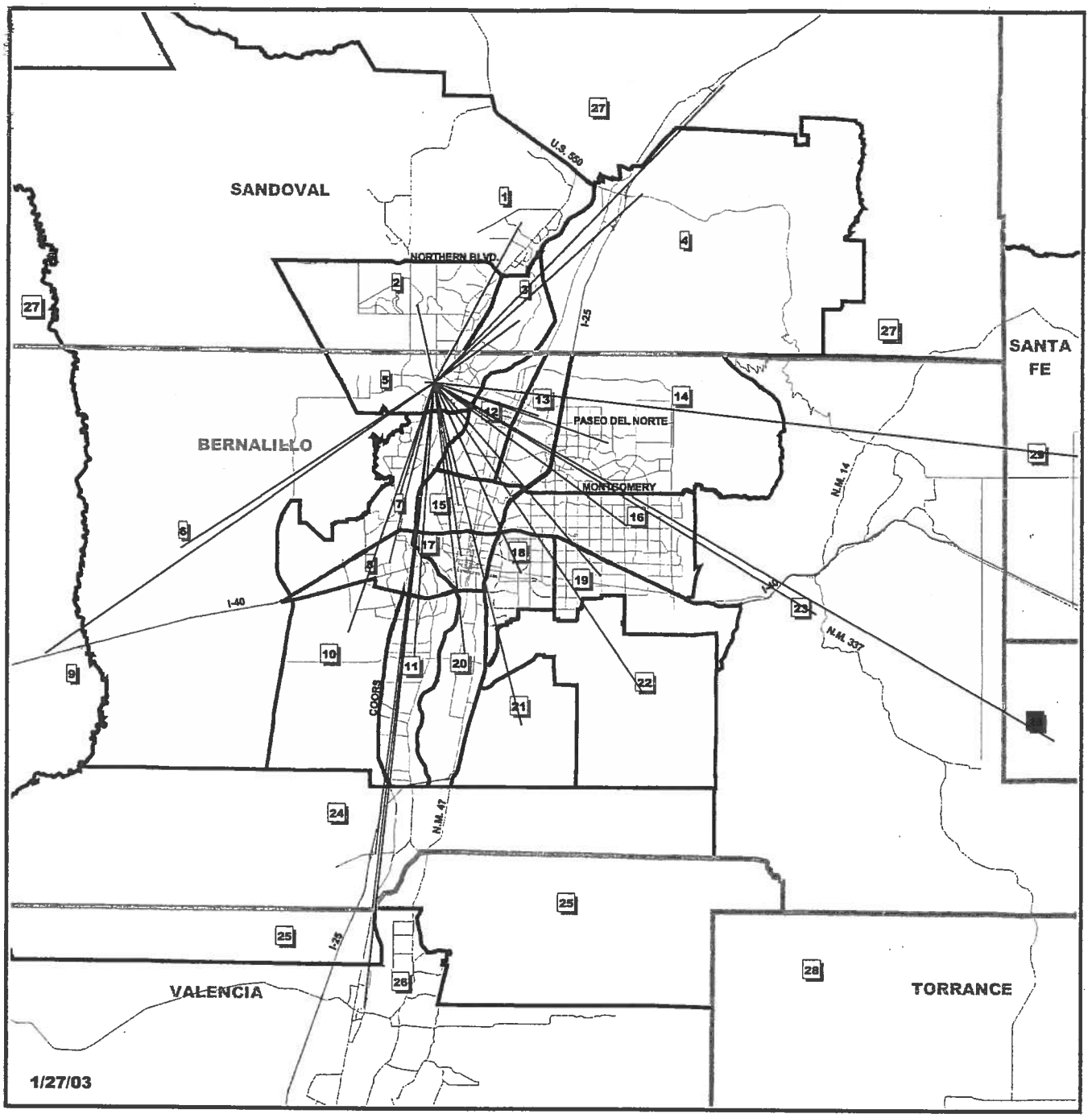


22 Subarea Identification Number

Figure 6

Subareas of the MRCOG Region

Mid-Region
Council of Governments
317 Commercial NE, Suite 104
Albuquerque, NM 87102
505-247-1750

Subarea boundaries extend to county boundary where full extent of subarea not shown except for Subarea 29 which only includes southern Santa Fe County.

Golf Course Rd Development (Golf Course Rd / McMahon Blvd) Trip Distribution Subarea Map

Trip Distribution Table

Golf Course Rd Development

Sub Area Employment Data:

For determination of Trip Distribution for Proposed **Residential Development Trips**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

									(MW) McMahon Blvd West			(BN) Bandelier Dr North			(GN) Golf Course Rd North		
Sub Area I.D.#	% Sub Area in Study	2004 Employment	2030 Employment	Interpolated Employment for the Year	Employment in Study	Dist. (Mi.)	Employment / Distance	% Employment / Distance	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment
		2004	2030	2015													
1	100%	4,903	21,902	12,095	12,095	7.8	1,551	2.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
2	100%	16,736	23,706	19,685	19,685	3.4	5,790	7.50%	25%	1.88%	1,447	0%	0.00%	0	25%	1.88%	1,447
3	100%	1,267	1,648	1,428	1,428	4.5	317	0.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
4	100%	2,935	4,943	3,785	3,785	12	315	0.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5*	100%	13,877	28,079	19,886	19,886	1	19,886	25.77%	10%	2.48%	1,915	3%	0.76%	585	1%	0.13%	99
6	100%	712	11,759	5,386	5,386	13	414	0.54%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7	100%	8,372	19,146	12,930	12,930	5	2,586	3.35%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
8	100%	8,058	15,002	10,996	10,996	7.9	1,392	1.80%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
9	100%	781	1,498	1,084	1,084	20.4	53	0.07%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
10	100%	3,342	8,902	5,694	5,694	11.3	504	0.65%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
11	100%	5,555	7,264	6,278	6,278	11.7	537	0.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
12	100%	6,929	7,741	7,273	7,273	3	2,424	3.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
13	100%	38,326	49,804	43,182	43,182	4.7	9,188	11.91%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
14	100%	35,837	44,920	39,680	39,680	7.9	5,023	6.51%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
15	100%	18,228	22,077	19,856	19,856	5.3	3,746	4.86%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
16	100%	60,444	63,459	61,720	61,720	10.2	6,051	7.84%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
17	100%	33,936	37,420	35,410	35,410	7.5	4,721	6.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
18	100%	44,662	51,256	47,452	47,452	8.9	5,332	6.91%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
19	100%	27,971	31,533	29,478	29,478	10.9	2,704	3.50%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
20	100%	7,090	11,147	8,806	8,806	11.6	759	0.98%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
21	100%	49	10,028	4,271	4,271	15.1	283	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
22	100%	29,284	30,169	29,658	29,658	16	1,854	2.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
23	100%	2,651	5,057	3,669	3,669	19.1	192	0.25%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
24	100%	1,727	2,244	1,946	1,946	20.3	96	0.12%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
25	100%	161	215	184	184	22.6	8	0.01%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
26	100%	17,290	32,326	23,651	23,651	26.9	879	1.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
27	100%	4,520	6,134	5,203	5,203	17.7	294	0.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
28	100%	4,545	6,685	5,450	5,450	30.6	178	0.23%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
29	100%	1,451	3,796	2,443	2,443	27.7	88	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
		401,639	559,860	468,579	468,579		77,165	100.00%		4.38%	3,362		0.76%	585		2.00%	1,547
											4.36%			0.76%			2.00%

* - Subarea in which the site it located.

Trip Distribution Table

Golf Course Rd Development

Sub Area Employment Data:
For determination of Trip Distribution for Proposed **Residential Development Trips**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

								(ME) McMahon Blvd East			(AE) Apartment Dr East			(IE) Irving Blvd East		
Sub Area I.D.#	% Sub Area in Study	2004 Employment	2030 Employment	Interpolated Employment for the Year	Employment in Study	Dist. (Mi.)	Employment / Distance	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment
		2004	2030	2015												
1	100%	4,903	21,902	12,095	12,095	7.8	1,551	100%	2.01%	1,551	0%	0.00%	0	0%	0.00%	0
2	100%	16,736	23,706	19,685	19,685	3.4	5,790	50%	3.75%	2,895	0%	0.00%	0	0%	0.00%	0
3	100%	1,267	1,648	1,428	1,428	4.5	317	100%	0.41%	317	0%	0.00%	0	0%	0.00%	0
4	100%	2,935	4,943	3,785	3,785	12	315	100%	0.41%	315	0%	0.00%	0	0%	0.00%	0
5*	100%	13,877	28,079	19,888	19,886	1	19,886	51%	13.04%	10,062	0%	0.02%	12	11%	2.85%	2,201
6	100%	712	11,759	5,386	5,386	13	414	100%	0.54%	414	0%	0.00%	0	0%	0.00%	0
7	100%	8,372	19,146	12,930	12,930	5	2,586	0%	0.00%	0	0%	0.00%	0	50%	1.68%	1,293
8	100%	8,058	15,002	10,996	10,996	7.9	1,392	0%	0.00%	0	0%	0.00%	0	75%	1.35%	1,044
9	100%	781	1,498	1,084	1,084	20.4	53	0%	0.00%	0	0%	0.00%	0	75%	0.05%	40
10	100%	3,342	8,902	5,694	5,694	11.3	504	0%	0.00%	0	0%	0.00%	0	75%	0.49%	378
11	100%	5,555	7,264	6,278	6,278	11.7	537	0%	0.00%	0	0%	0.00%	0	75%	0.52%	402
12	100%	6,929	7,741	7,273	7,273	3	2,424	0%	0.00%	0	0%	0.00%	0	25%	0.79%	606
13	100%	38,326	49,804	43,182	43,182	4.7	9,188	50%	5.95%	4,594	0%	0.00%	0	25%	2.98%	2,297
14	100%	35,837	44,920	39,680	39,680	7.9	5,023	50%	3.25%	2,511	0%	0.00%	0	25%	1.63%	1,256
15	100%	18,228	22,077	19,856	19,856	5.3	3,746	50%	2.43%	1,873	0%	0.00%	0	0%	0.00%	0
16	100%	60,444	63,459	61,720	61,720	10.2	6,051	50%	3.92%	3,025	0%	0.00%	0	0%	0.00%	0
17	100%	33,936	37,420	35,410	35,410	7.5	4,721	50%	3.06%	2,361	0%	0.00%	0	0%	0.00%	0
18	100%	44,662	51,256	47,452	47,452	8.9	5,332	50%	3.45%	2,666	0%	0.00%	0	0%	0.00%	0
19	100%	27,971	31,533	29,478	29,478	10.9	2,704	50%	1.75%	1,352	0%	0.00%	0	0%	0.00%	0
20	100%	7,090	11,147	8,806	8,806	11.6	759	50%	0.49%	380	0%	0.00%	0	0%	0.00%	0
21	100%	49	10,028	4,271	4,271	15.1	283	50%	0.18%	141	0%	0.00%	0	0%	0.00%	0
22	100%	29,284	30,169	29,658	29,658	16	1,854	50%	1.20%	927	0%	0.00%	0	0%	0.00%	0
23	100%	2,651	5,057	3,669	3,669	19.1	192	50%	0.12%	96	0%	0.00%	0	0%	0.00%	0
24	100%	1,727	2,244	1,946	1,946	20.3	96	50%	0.06%	48	0%	0.00%	0	0%	0.00%	0
25	100%	161	215	184	184	22.6	8	50%	0.01%	4	0%	0.00%	0	0%	0.00%	0
26	100%	17,290	32,326	23,651	23,651	26.9	879	50%	0.57%	440	0%	0.00%	0	0%	0.00%	0
27	100%	4,520	6,134	5,203	5,203	17.7	294	100%	0.38%	294	0%	0.00%	0	0%	0.00%	0
28	100%	4,545	6,685	5,450	5,450	30.6	178	50%	0.12%	89	0%	0.00%	0	0%	0.00%	0
29	100%	1,451	3,796	2,443	2,443	27.7	88	50%	0.06%	44	0%	0.00%	0	0%	0.00%	0
		401,639	559,860	468,579	468,579		77,165		47.17%	36,400		0.02%	12		12.33%	9,517
										47.17%			0.02%			12.33%

* - Subarea in which the site it located.

Trip Distribution Table

Golf Course Rd Development

Sub Area Employment Data:
For determination of Trip Distribution for Proposed **Residential Development Trips**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

								(GS) Golf Course Rd South			(IW) Irving Blvd West			(BS) Bandelier Dr South		
Sub Area I.D.#	% Sub Area in Study	2004 Employment	2030 Employment	Interpolated Employment for the Year	Employment in Study	Dist. (Mi.)	Employment / Distance	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment	% Utilizing	% Employment / Dist. Utilizing	Employment
		2004	2030	2015												
1	100%	4,903	21,902	12,095	12,095	7.8	1,551	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
2	100%	16,736	23,706	19,685	19,685	3.4	5,790	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
3	100%	1,267	1,648	1,428	1,428	4.5	317	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
4	100%	2,935	4,943	3,785	3,785	12	315	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5*	100%	13,877	28,079	19,886	19,886	1	19,886	11%	2.77%	2,134	13%	3.28%	2,531	2%	0.45%	350
6	100%	712	11,759	5,386	5,386	13	414	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
7	100%	8,372	19,146	12,930	12,930	5	2,586	50%	1.68%	1,293	0%	0.00%	0	0%	0.00%	0
8	100%	8,058	15,002	10,996	10,996	7.9	1,392	25%	0.45%	348	0%	0.00%	0	0%	0.00%	0
9	100%	781	1,498	1,084	1,084	20.4	53	25%	0.02%	13	0%	0.00%	0	0%	0.00%	0
10	100%	3,342	8,902	5,694	5,694	11.3	504	25%	0.16%	126	0%	0.00%	0	0%	0.00%	0
11	100%	5,555	7,264	6,278	6,278	11.7	537	25%	0.17%	134	0%	0.00%	0	0%	0.00%	0
12	100%	6,929	7,741	7,273	7,273	3	2,424	75%	2.36%	1,818	0%	0.00%	0	0%	0.00%	0
13	100%	38,326	49,804	43,182	43,182	4.7	9,188	25%	2.98%	2,297	0%	0.00%	0	0%	0.00%	0
14	100%	35,837	44,920	39,680	39,680	7.9	5,023	25%	1.63%	1,256	0%	0.00%	0	0%	0.00%	0
15	100%	18,228	22,077	19,856	19,856	5.3	3,746	50%	2.43%	1,873	0%	0.00%	0	0%	0.00%	0
16	100%	60,444	63,459	61,720	61,720	10.2	6,051	50%	3.92%	3,025	0%	0.00%	0	0%	0.00%	0
17	100%	33,936	37,420	35,410	35,410	7.5	4,721	50%	3.06%	2,361	0%	0.00%	0	0%	0.00%	0
18	100%	44,662	51,256	47,452	47,452	8.9	5,332	50%	3.45%	2,666	0%	0.00%	0	0%	0.00%	0
19	100%	27,971	31,533	29,478	29,478	10.9	2,704	50%	1.75%	1,352	0%	0.00%	0	0%	0.00%	0
20	100%	7,090	11,147	8,806	8,806	11.6	759	50%	0.49%	380	0%	0.00%	0	0%	0.00%	0
21	100%	49	10,028	4,271	4,271	15.1	283	50%	0.18%	141	0%	0.00%	0	0%	0.00%	0
22	100%	29,284	30,169	29,658	29,658	16	1,854	50%	1.20%	927	0%	0.00%	0	0%	0.00%	0
23	100%	2,651	5,057	3,669	3,669	19.1	192	50%	0.12%	96	0%	0.00%	0	0%	0.00%	0
24	100%	1,727	2,244	1,946	1,946	20.3	96	50%	0.06%	48	0%	0.00%	0	0%	0.00%	0
25	100%	161	215	184	184	22.6	8	50%	0.01%	4	0%	0.00%	0	0%	0.00%	0
26	100%	17,290	32,326	23,651	23,651	26.9	879	50%	0.57%	440	0%	0.00%	0	0%	0.00%	0
27	100%	4,520	6,134	5,203	5,203	17.7	294	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
28	100%	4,545	6,685	5,450	5,450	30.6	178	50%	0.12%	89	0%	0.00%	0	0%	0.00%	0
29	100%	1,451	3,796	2,443	2,443	27.7	88	50%	0.06%	44	0%	0.00%	0	0%	0.00%	0
		401,639	559,860	468,579	468,579		77,165		29.63%	22,865		3.28%	2,531		0.45%	350
										29.63%			3.28%			0.45%

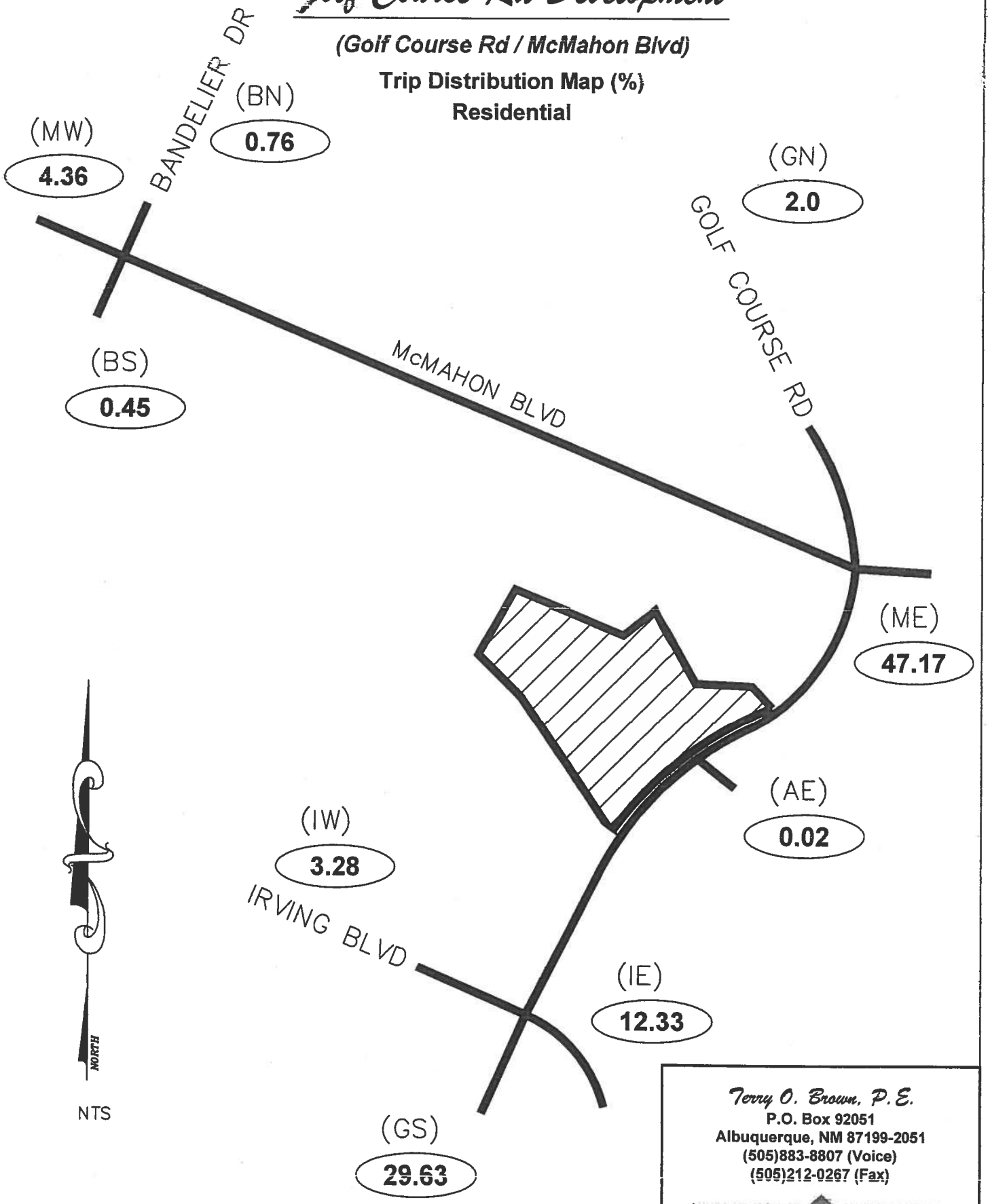
* - Subarea in which the site it located.

Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Distribution Map (%)

Residential



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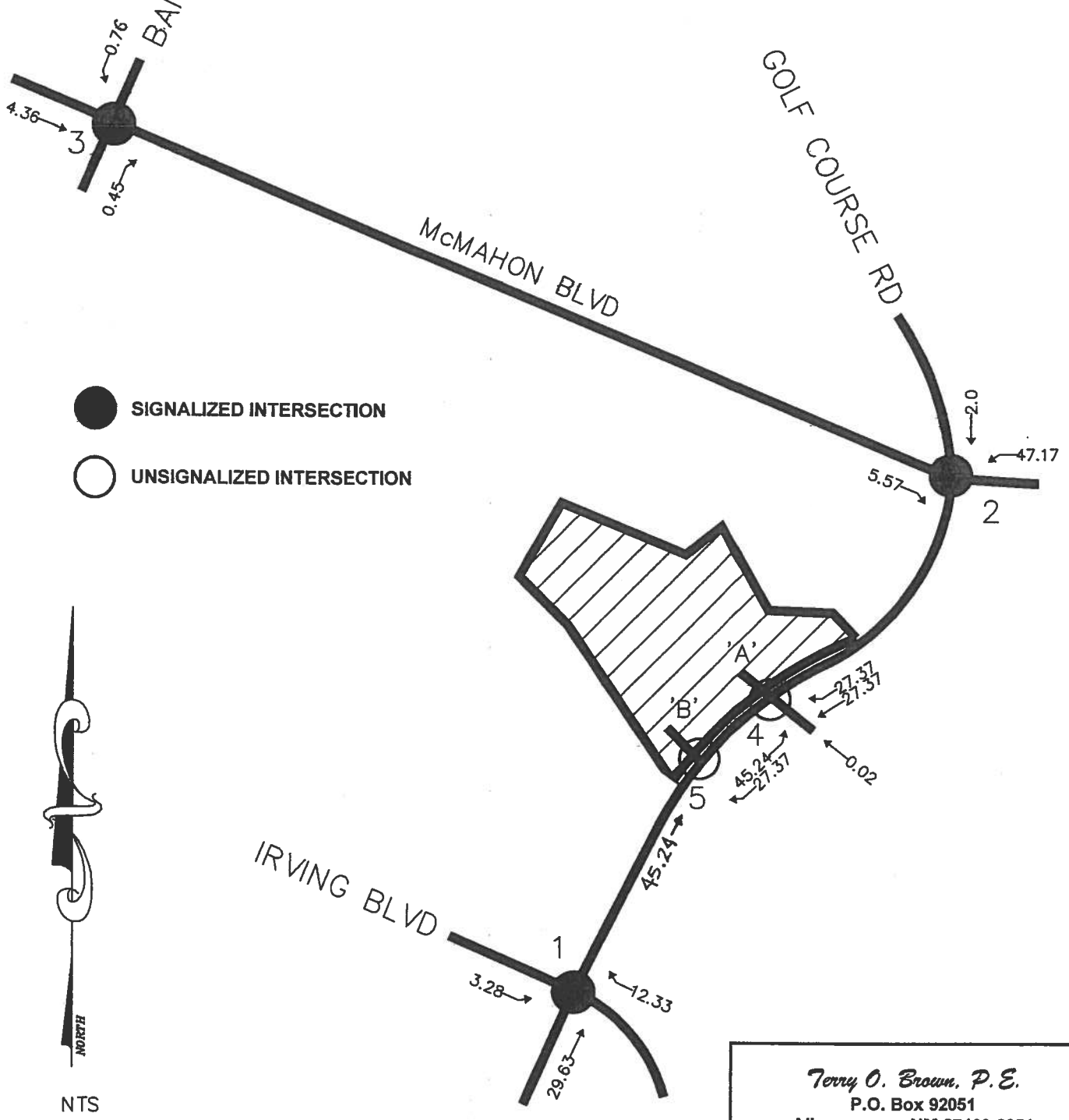
Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Assignments (% Entering)

Residential



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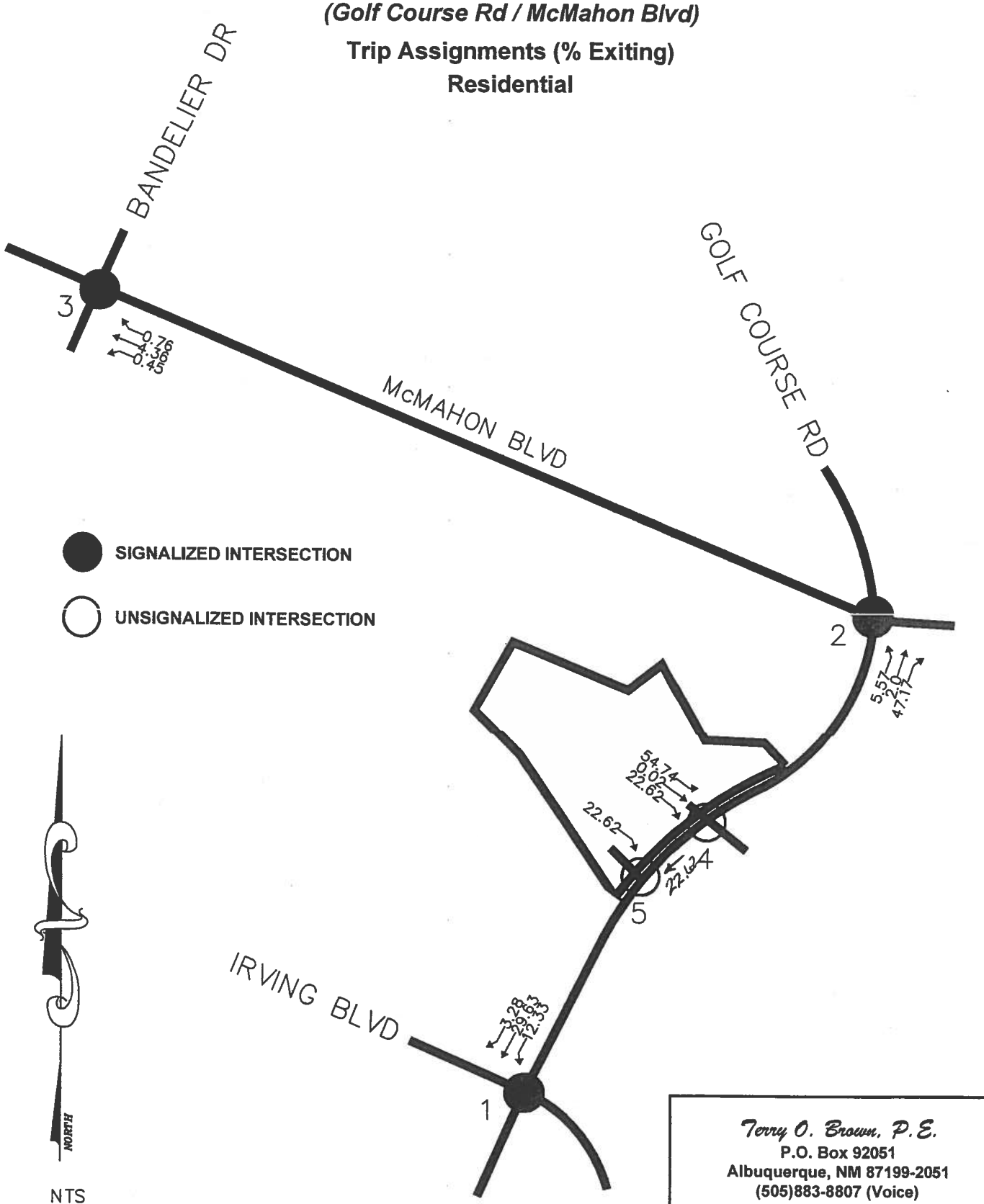
Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Assignments (% Exiting)

Residential



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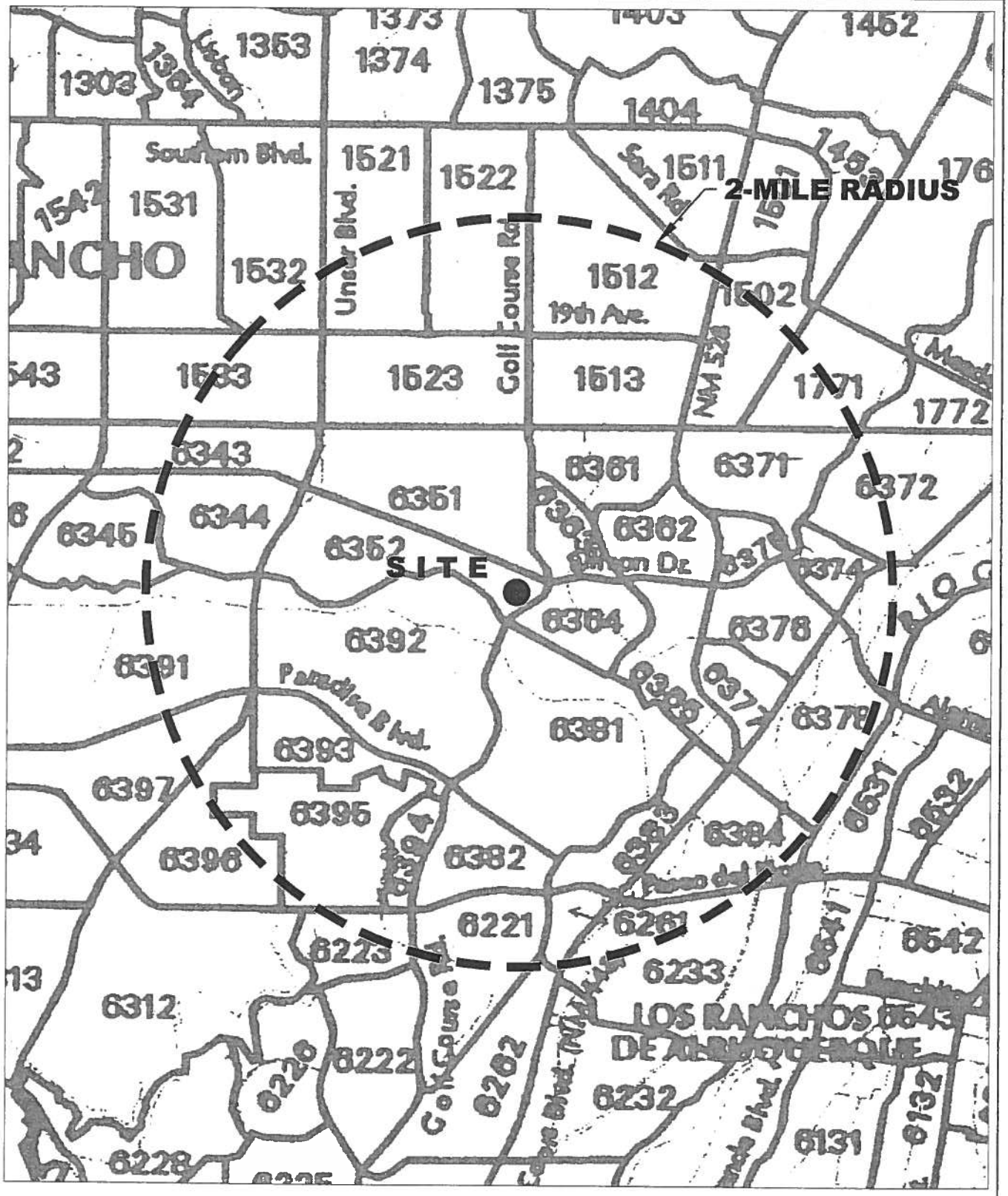


DATA ANALYSIS SUBZONE (DASZ) MAP

Golf Course Rd Development (Golf Course Rd / McMahon Blvd)

Trip Distribution Table

Golf Course Rd Development

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercial Trips**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

							(MW) McMahon Blvd West			(BN) Bandelier Dr North			(GN) Golf Course Rd North		
DASZ #	% Sub Area in Study	2004 Population	2030 Population	Interpolated Population for the Year	Population in Study	Percent Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2004	2030	2015											
Boundary Specified on DASZ Map															
1502	75%	0	448	190	143	0.37%	0%	0.00%	0	0%	0.00%	0	50%	0.19%	72
1512	65%	2037	1969	2,008	1,305	3.39%	0%	0.00%	0	0%	0.00%	0	75%	2.54%	979
1513	100%	995	985	991	991	2.58%	0%	0.00%	0	0%	0.00%	0	75%	1.93%	743
1521	45%	0	3465	1,466	660	1.72%	25%	0.43%	165	0%	0.00%	0	75%	1.29%	495
1522	55%	46	2384	1,035	569	1.48%	0%	0.00%	0	0%	0.00%	0	100%	1.48%	569
1523	100%	9	1072	459	459	1.19%	25%	0.30%	115	0%	0.00%	0	75%	0.89%	344
1532	10%	220	406	299	30	0.08%	50%	0.04%	15	0%	0.00%	0	50%	0.04%	15
1533	50%	0	324	137	69	0.18%	100%	0.18%	69	0%	0.00%	0	0%	0.00%	0
1771	45%	571	536	556	250	0.65%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6221	40%	2669	2549	2,618	1,047	2.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6223	35%	929	932	930	326	0.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6233	15%	941	972	954	143	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6261	100%	143	333	223	223	0.58%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6343	65%	1184	2122	1,581	1,028	2.67%	100%	2.67%	1,028	0%	0.00%	0	0%	0.00%	0
6344	90%	2098	2065	2,084	1,876	4.88%	100%	4.88%	1,876	0%	0.00%	0	0%	0.00%	0
6345	5%	968	1745	1,297	65	0.17%	100%	0.17%	65	0%	0.00%	0	0%	0.00%	0
6351	100%	2475	3009	2,701	2,701	7.02%	50%	3.51%	1,351	50%	3.51%	1,351	0%	0.00%	0
6352	100%	2310	2326	2,317	2,317	6.02%	25%	1.51%	579	0%	0.00%	0	0%	0.00%	0
6361	100%	1355	1255	1,313	1,313	3.41%	0%	0.00%	0	0%	0.00%	0	50%	1.71%	657
6362	100%	1984	3354	2,564	2,564	6.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6363	100%	767	760	764	764	1.99%	0%	0.00%	0	0%	0.00%	0	50%	0.99%	382
6364	100%	1446	1389	1,422	1,422	3.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6365	100%	1350	1253	1,309	1,309	3.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6371	100%	406	386	398	398	1.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6372	90%	351	475	403	363	0.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6373	5%	332	347	338	17	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6374	100%	1085	1020	1,058	1,058	2.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6375	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6376	100%	2	432	184	184	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6377	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6378	100%	244	257	250	250	0.65%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6381	100%	5299	6017	5,603	5,603	14.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6382	100%	757	910	822	822	2.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6383	100%	636	647	641	641	1.67%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6384	95%	97	190	136	129	0.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6391	35%	3639	5783	4,546	1,591	4.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6392	100%	3664	3717	3,686	3,686	9.58%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6393	100%	998	1394	1,166	1,166	3.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6394	100%	391	447	415	415	1.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6395	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6396	20%	0	3510	1,485	297	0.77%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6397	25%	201	2374	1,120	280	0.73%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
				51,469	38,474	100.00%			5,263			1,351			4,255
									13.68%			3.51%			11.06%

Trip Distribution Table

Golf Course Rd Development

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercia**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

							(ME) McMahon Blvd East			(AE) Apartment Dr East			(IE) Irving Blvd East		
DASZ #	% Sub Area in Study	2004 Population	2030 Population	Interpolated Population for the Year	Population in Study	Percent Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2004	2030	2015											
Boundary Specified on DASZ Map															
1502	75%	0	448	190	143	0.37%	50%	0.19%	72	0%	0.00%	0	0%	0.00%	0
1512	65%	2037	1969	2,008	1,305	3.39%	25%	0.85%	326	0%	0.00%	0	0%	0.00%	0
1513	100%	995	985	991	991	2.58%	25%	0.64%	248	0%	0.00%	0	0%	0.00%	0
1521	45%	0	3465	1,466	660	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1522	55%	46	2384	1,035	569	1.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1523	100%	9	1072	459	459	1.19%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1532	10%	220	406	299	30	0.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1533	50%	0	324	137	69	0.18%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1771	45%	571	536	556	250	0.65%	100%	0.85%	250	0%	0.00%	0	0%	0.00%	0
6221	40%	2669	2549	2,618	1,047	2.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6223	35%	929	932	930	326	0.85%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6233	15%	941	972	954	143	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6261	100%	143	333	223	223	0.58%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6343	65%	1184	2122	1,581	1,028	2.67%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6344	90%	2098	2065	2,084	1,876	4.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6345	5%	968	1745	1,297	65	0.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6351	100%	2475	3009	2,701	2,701	7.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6352	100%	2310	2326	2,317	2,317	6.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6361	100%	1355	1255	1,313	1,313	3.41%	50%	1.71%	657	0%	0.00%	0	0%	0.00%	0
6362	100%	1984	3354	2,564	2,564	6.66%	100%	6.66%	2,564	0%	0.00%	0	0%	0.00%	0
6363	100%	767	760	764	764	1.99%	50%	0.99%	382	0%	0.00%	0	0%	0.00%	0
6364	100%	1446	1389	1,422	1,422	3.70%	90%	3.33%	1,280	10%	0.37%	142	0%	0.00%	0
6365	100%	1350	1253	1,309	1,309	3.40%	100%	3.40%	1,309	0%	0.00%	0	0%	0.00%	0
6371	100%	406	386	398	398	1.03%	100%	1.03%	398	0%	0.00%	0	0%	0.00%	0
6372	90%	351	475	403	363	0.94%	100%	0.94%	363	0%	0.00%	0	0%	0.00%	0
6373	5%	332	347	338	17	0.04%	100%	0.04%	17	0%	0.00%	0	0%	0.00%	0
6374	100%	1085	1020	1,058	1,058	2.75%	100%	2.75%	1,058	0%	0.00%	0	0%	0.00%	0
6375	100%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6376	100%	2	432	164	184	0.48%	100%	0.48%	184	0%	0.00%	0	0%	0.00%	0
6377	100%	0	0	0	0	0.00%	100%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6378	100%	244	257	250	250	0.65%	100%	0.65%	250	0%	0.00%	0	0%	0.00%	0
6381	100%	5299	6017	5,603	5,603	14.56%	0%	0.00%	0	0%	0.00%	0	100%	14.56%	5,603
6382	100%	757	910	822	822	2.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6383	100%	636	647	641	641	1.67%	0%	0.00%	0	0%	0.00%	0	100%	1.67%	841
6384	95%	97	190	136	129	0.34%	0%	0.00%	0	0%	0.00%	0	100%	0.34%	129
6391	35%	3639	5783	4,546	1,591	4.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6392	100%	3664	3717	3,686	3,686	9.58%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6393	100%	998	1394	1,166	1,166	3.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6394	100%	391	447	415	415	1.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6395	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6396	20%	0	3510	1,485	297	0.77%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6397	25%	201	2374	1,120	280	0.73%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
				51,469	38,474	100.00%			9,357			142			6,373
									24.32%			0.37%			16.56%

Trip Distribution Table

Golf Course Rd Development

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed **Retail Commercia**

2004 and 2030 Data Taken from Mid-Region Council of Governments' 2030 Socioeconomic
2030 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

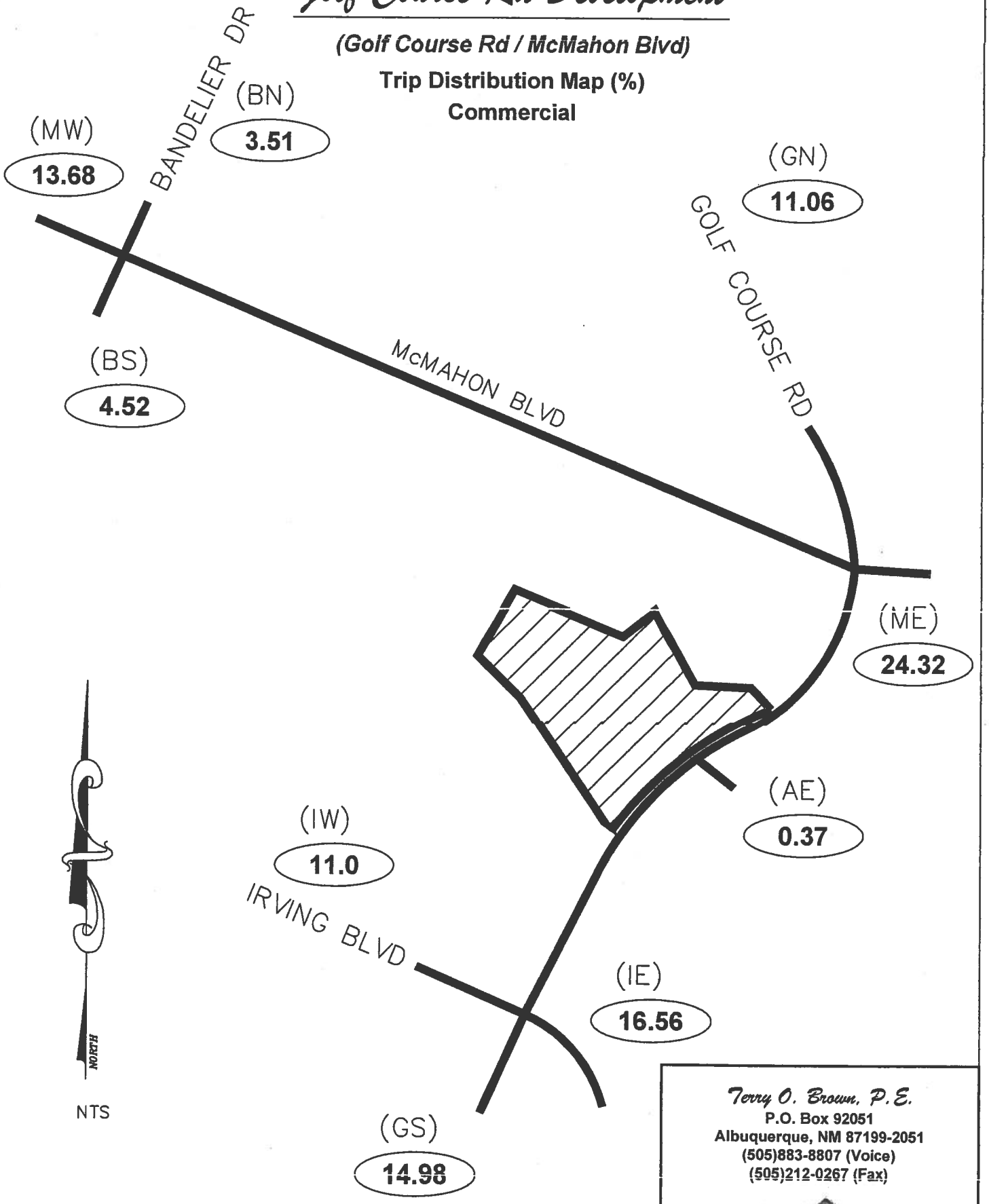
							(GS) Golf Course Rd South			(IW) Irving Blvd West			(BS) Bandelier Dr South		
DASZ #	% Sub Area in Study	2004 Population	2030 Population	Interpolated Population for the Year	Population in Study	Percent Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
		2004	2030	2015											
Boundary Specified on DASZ Map															
1502	75%	0	448	190	143	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1512	65%	2037	1969	2,008	1,305	3.39%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1513	100%	995	985	991	991	2.58%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1521	45%	0	3465	1,466	660	1.72%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1522	55%	46	2384	1,035	569	1.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1523	100%	9	1072	459	459	1.19%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1532	10%	220	406	299	30	0.08%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1533	50%	0	324	137	69	0.18%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
1771	45%	571	536	556	250	0.65%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6221	40%	2669	2549	2,618	1,047	2.72%	100%	2.72%	1,047	0%	0.00%	0	0%	0.00%	0
6223	35%	929	932	930	326	0.85%	100%	0.85%	326	0%	0.00%	0	0%	0.00%	0
6233	15%	941	972	954	143	0.37%	100%	0.37%	143	0%	0.00%	0	0%	0.00%	0
6261	100%	143	333	223	223	0.58%	100%	0.58%	223	0%	0.00%	0	0%	0.00%	0
6343	65%	1184	2122	1,581	1,028	2.67%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6344	90%	2098	2065	2,084	1,876	4.88%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6345	5%	968	1745	1,297	65	0.17%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6351	100%	2475	3009	2,701	2,701	7.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6352	100%	2310	2326	2,317	2,317	6.02%	0%	0.00%	0	0%	0.00%	0	75%	4.52%	1,738
6361	100%	1355	1255	1,313	1,313	3.41%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6362	100%	1984	3354	2,564	2,564	6.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6363	100%	767	760	764	764	1.99%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6364	100%	1446	1389	1,422	1,422	3.70%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6365	100%	1350	1253	1,309	1,309	3.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6371	100%	406	386	398	398	1.03%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6372	90%	351	475	403	363	0.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6373	5%	332	347	338	17	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6374	100%	1085	1020	1,058	1,058	2.75%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6375	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6376	100%	2	432	184	184	0.48%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6377	100%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6378	100%	244	257	250	250	0.65%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6381	100%	5299	6017	5,603	5,603	14.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6382	100%	757	910	822	822	2.14%	100%	2.14%	822	0%	0.00%	0	0%	0.00%	0
6383	100%	636	647	641	641	1.67%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6384	95%	97	190	136	129	0.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6391	35%	3639	5783	4,546	1,591	4.14%	0%	0.00%	0	100%	4.14%	1,591	0%	0.00%	0
6392	100%	3664	3717	3,686	3,686	9.58%	50%	4.79%	1,843	50%	4.79%	1,843	0%	0.00%	0
6393	100%	998	1394	1,166	1,166	3.03%	75%	2.27%	875	25%	0.76%	292	0%	0.00%	0
6394	100%	391	447	415	415	1.08%	100%	1.08%	415	0%	0.00%	0	0%	0.00%	0
6395	100%	0	0	0	0	0.00%	75%	0.00%	0	25%	0.00%	0	0%	0.00%	0
6396	20%	0	3510	1,485	297	0.77%	0%	0.00%	0	100%	0.77%	297	0%	0.00%	0
6397	25%	201	2374	1,120	280	0.73%	25%	0.18%	70	75%	0.55%	210	0%	0.00%	0
				51,469	38,474	100.00%			5,764			4,233			1,738
									14.98%			11.00%			4.52%

Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Distribution Map (%)

Commercial



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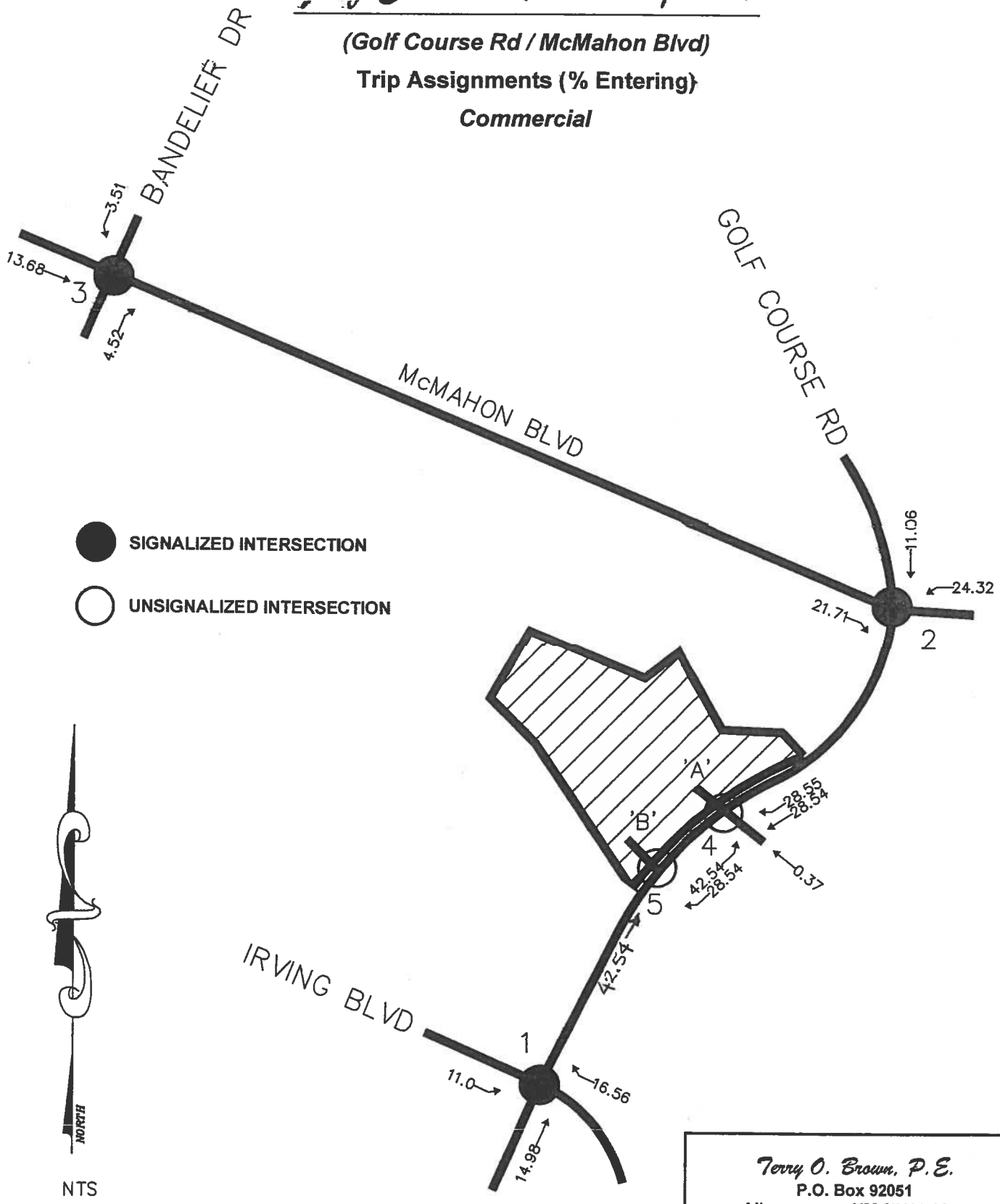
Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Assignments (% Entering)

Commercial



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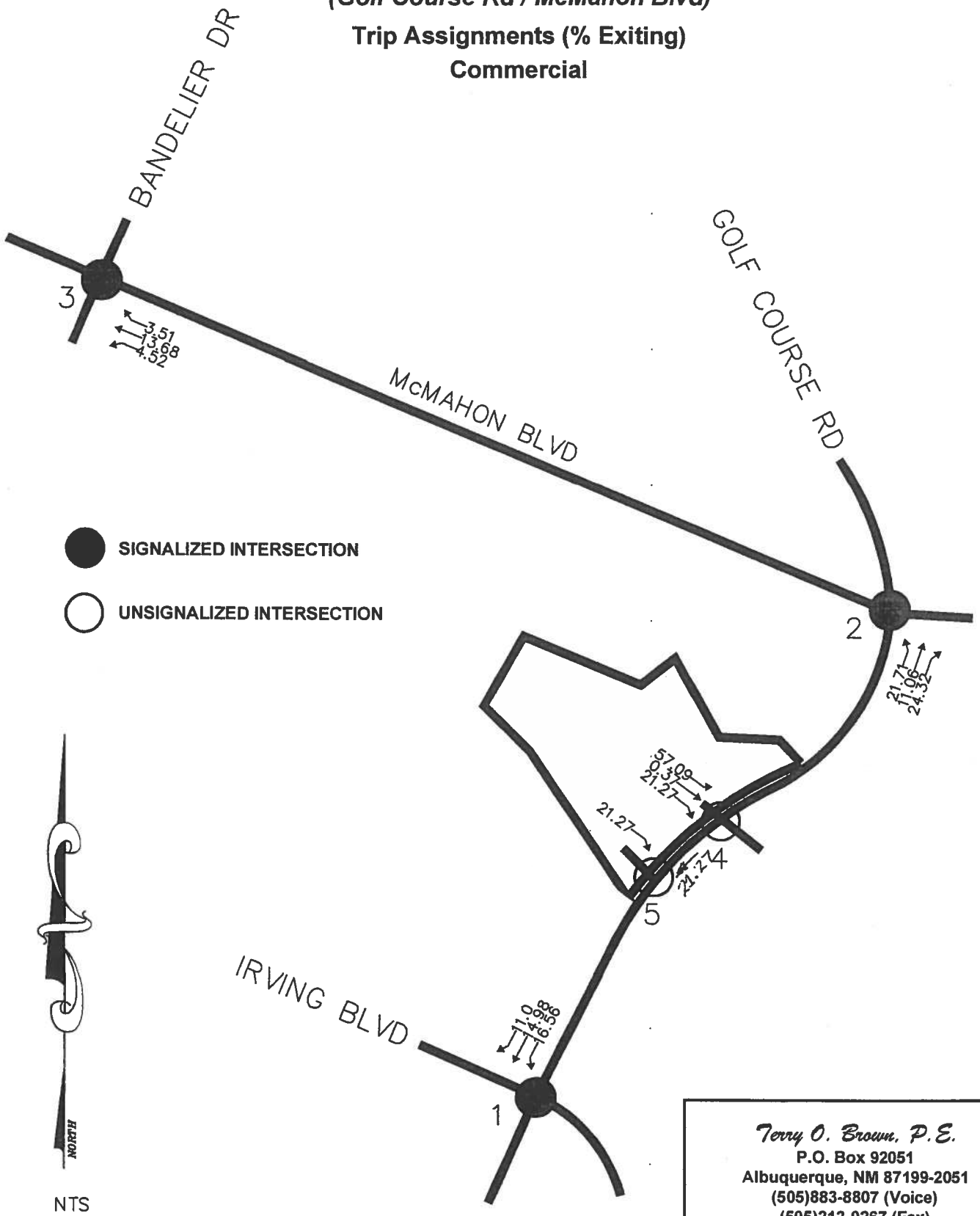
Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

Trip Assignments (% Exiting)

Commercial



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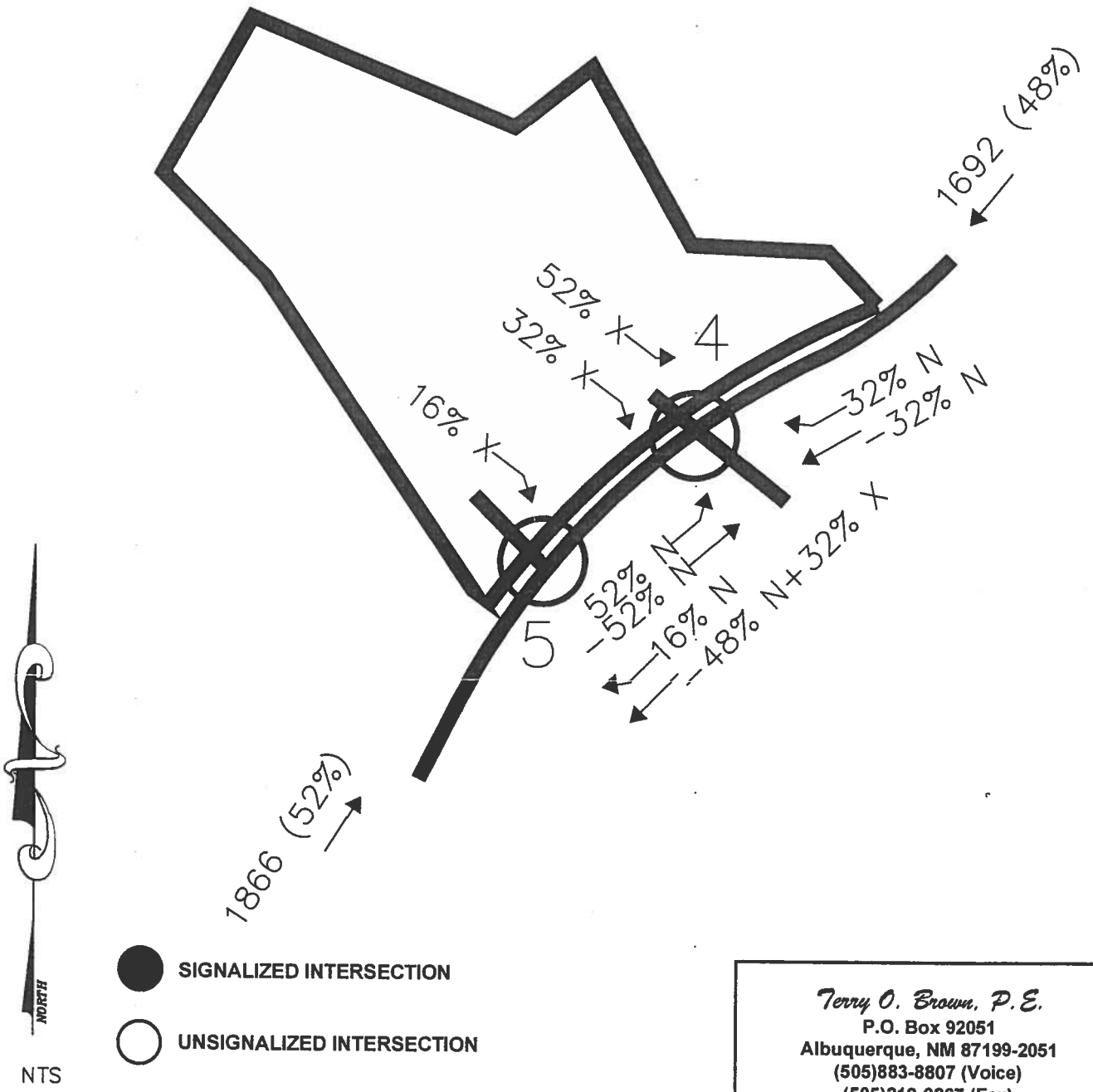
Golf Course Rd Development

(Golf Course Rd / McMahon Blvd)

PM Passby Trips



NTS

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Golf Course Rd Development

Projected Turning Movements SUMMARY

PROPOSED DEVELOPMENT (2015) - 100% Development

INTERSECTION: **Summary**

Irving Blvd / Golf Course Rd

(1)

3.0% Truck

	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	0.78			*0.80*			*0.84*			*0.99*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	127	431	103	11	49	161	26	536	14	616	913	45
2015 (NO BUILD - A.M.)	*135*	*459*	*110*	*11*	*51*	*167*	*30*	*622*	*16*	*690*	*1,023*	*50*
2015 (BUILD - A.M.)	***143***	***459***	***110***	***11***	***51***	***181***	***30***	***640***	***16***	***701***	***1,038***	***56***
	0.75			*0.90*			*0.94*			*0.81*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	156	250	54	51	396	715	135	995	23	293	636	150
2015 (NO BUILD - P.M.)	*166*	*266*	*57*	*53*	*410*	*741*	*157*	*1,154*	*27*	*328*	*712*	*168*
2015 (BUILD - P.M.)	***185***	***266***	***57***	***53***	***410***	***772***	***157***	***1,186***	***27***	***361***	***747***	***188***

McMahon Blvd / Golf Course Rd

(2)

3.0% Truck

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	0.82			*0.89*			*0.88*			*0.89*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	104	693	631	185	297	57	175	324	265	121	766	59
2015 (NO BUILD - A.M.)	*141*	*937*	*853*	*207*	*333*	*64*	*196*	*363*	*297*	*170*	*1,079*	*83*
2015 (BUILD - A.M.)	***141***	***937***	***868***	***237***	***333***	***64***	***207***	***369***	***321***	***170***	***1,087***	***83***
	0.97			*0.95*			*0.94*			*0.92*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	171	601	323	335	726	170	514	883	272	133	625	133
2015 (NO BUILD - P.M.)	*231*	*813*	*437*	*375*	*813*	*190*	*576*	*989*	*305*	*187*	*880*	*187*
2015 (BUILD - P.M.)	***231***	***813***	***474***	***427***	***813***	***190***	***616***	***1,009***	***362***	***187***	***898***	***187***

McMahon Blvd / Bandelier Dr

(3)

3.0% Truck

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
	0.80			*0.88*			*0.75*			*0.86*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	5	1,007	4	39	372	28	7	1	183	261	5	14
2015 (NO BUILD - A.M.)	*5*	*1,092*	*4*	*44*	*417*	*31*	*8*	*1*	*205*	*292*	*6*	*16*
2015 (BUILD - A.M.)	***5***	***1,101***	***4***	***46***	***424***	***32***	***8***	***1***	***208***	***294***	***6***	***16***
	0.89			*0.95*			*0.80*			*0.90*		*PHF*
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	15	606	24	138	1,058	194	5	1	100	115	3	11
2015 (NO BUILD - P.M.)	*16*	*657*	*26*	*155*	*1,185*	*217*	*6*	*1*	*112*	*129*	*3*	*12*
2015 (BUILD - P.M.)	***16***	***681***	***26***	***163***	***1,210***	***223***	***6***	***1***	***120***	***135***	***3***	***12***

Golf Course Rd Development

Projected Turning Movements SUMMARY

PROPOSED DEVELOPMENT (2015) - 100% Development

INTERSECTION: Summary

Driveway 'A' / Golf Course Rd

(4)

3.0% Truck

	0.85			0.85			0.88			0.88		PHF
	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	0	0	0	35	0	32	0	764	7	6	1,582	0
2015 (NO BUILD - A.M.)	*0*	*0*	*0*	*39*	*0*	*36*	*0*	*856*	*8*	*7*	*1,772*	*0*
2015 (BUILD - A.M.)	***39***	***0***	***16***	***39***	***0***	***36***	***40***	***856***	***8***	***7***	***1,797***	***25***

	0.85			0.85			0.94			0.94		PHF
	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	0	0	0	11	0	33	0	1,669	37	42	1,283	0
2015 (NO BUILD - P.M.)	*0*	*0*	*0*	*12*	*0*	*37*	*0*	*1,869*	*41*	*47*	*1,437*	*0*
2015 (BUILD - P.M.)	***135***	***1***	***55***	***12***	***1***	***37***	***98***	***1,852***	***41***	***47***	***1,480***	***65***

Driveway 'B' / Golf Course Rd

(5)

3.0% Truck

	0.85			0.85			0.88			0.88		PHF
	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	0	0	0	0	0	0	0	764	0	0	1,582	0
2015 (NO BUILD - A.M.)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*856*	*0*	*0*	*1,772*	*0*
2015 (BUILD - A.M.)	***0***	***0***	***16***	***0***	***0***	***0***	***0***	***896***	***0***	***0***	***1,779***	***25***

	0.85			0.85			0.94			0.94		PHF
	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing (2011)	0	0	0	0	0	0	0	1,669	0	0	1,283	0
2015 (NO BUILD - P.M.)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,869*	*0*	*0*	*1,437*	*0*
2015 (BUILD - P.M.)	***0***	***0***	***50***	***0***	***0***	***0***	***0***	***1,950***	***0***	***0***	***1,428***	***59***

Golf Course Rd Development

Projected Turning Movements Worksheet

Irving Blvd / Golf Course Rd

INTERSECTION: E-W Street: **Irving Blvd** (1)

N-S Street: **Golf Course Rd**

Year of Existing Counts 2011

Horizon Year **2015**

	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Growth Rates	1.60%			0.90%			4.00%			3.00%		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	127	431	103	11	49	161	26	536	14	616	913	45
Background Traffic Growth	8	28	7	0	2	6	4	86	2	74	110	5
Subtotal (NO BUILD - A.M.)	***135***	***459***	***110***	***11***	***51***	***167***	***30***	***622***	***16***	***690***	***1,023***	***50***
Percent Residential Trips Generated(Entering)	*3.28%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*12.33%*	*0.00%*	*29.63%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*12.33%*	*29.63%*	*3.28%*
Percent Commercial Trips Generated(Entering)	*11.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*16.56%*	*0.00%*	*14.98%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*16.56%*	*14.98%*	*11.00%*
Total Trips Generated	8	0	0	0	0	14	0	18	0	11	15	6
Total AM Peak Hour BUILD Volumes	**143**	**459**	**110**	**11**	**51**	**181**	**30**	**640**	**16**	**701**	**1,038**	**56**

	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	156	250	54	51	396	715	135	995	23	293	636	150
Background Traffic Growth	10	16	3	2	14	26	22	159	4	35	76	18
Subtotal (NO BUILD - P.M.)	***166***	***266***	***57***	***53***	***410***	***741***	***157***	***1,154***	***27***	***328***	***712***	***168***
Percent Residential Trips Generated(Entering)	*3.28%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*12.33%*	*0.00%*	*29.63%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*12.33%*	*29.63%*	*3.28%*
Percent Commercial Trips Generated(Entering)	*11.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*16.56%*	*0.00%*	*14.98%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*16.56%*	*14.98%*	*11.00%*
Total Trips Generated	19	0	0	0	0	31	0	32	0	33	35	20
Total PM Peak Hour BUILD Volumes	**185**	**266**	**57**	**53**	**410**	**772**	**157**	**1,186**	**27**	**361**	**747**	**188**

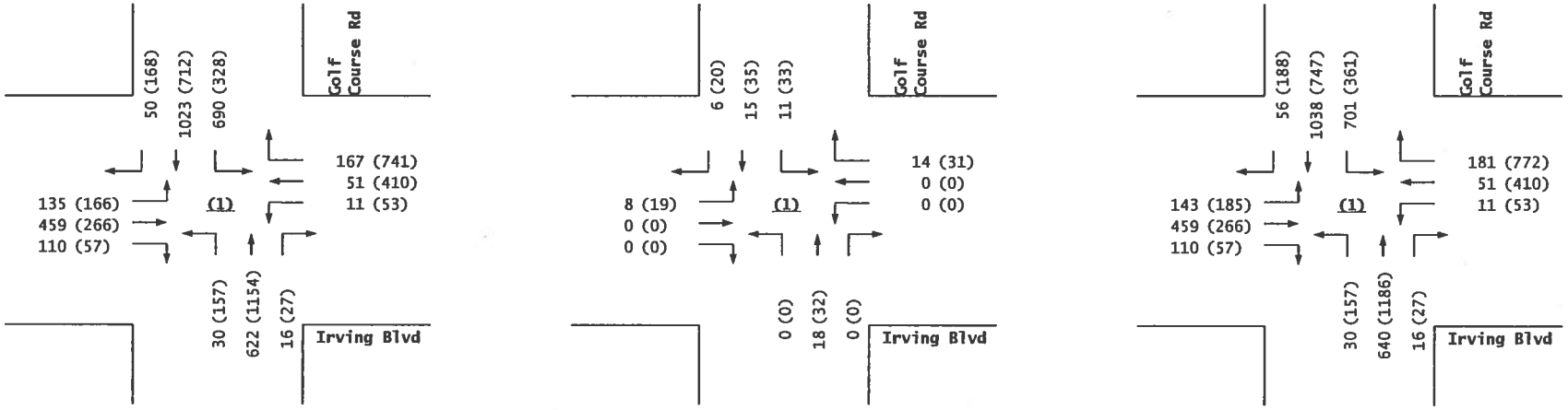
	Entering	Exiting		
Number of Residential Trips Generated	31	30	A.M.	100% Residential Development
	23	32	P.M.	
Number of Commercial Trips Generated	60	41	A.M.	100% Commercial Development
	167	174	P.M.	

	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
2011 AM Peak Hr. Volumes	127	431	103	11	49	161	26	536	14	616	913	45
2011 PM Peak Hr. Volumes	156	250	54	51	396	715	135	995	23	293	636	150

2015
NO BUILD

Trips

2015
BUILD



Irving Blvd / Golf Course Rd

Golf Course Rd Development

Projected Turning Movements Worksheet

McMahon Blvd / Golf Course Rd

INTERSECTION: E-W Street: **McMahon Blvd** (2)

N-S Street: **Golf Course Rd**

Year of Existing Counts 2011

Horizon Year **2015**

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Growth Rates	8.80%			3.00%			3.00%			10.20%		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	104	693	631	185	297	57	175	324	265	121	766	59
Background Traffic Growth	37	244	222	22	36	7	21	39	32	49	313	24
Subtotal (NO BUILD - A.M.)	***141***	***937***	***853***	***207***	***333***	***64***	***196***	***363***	***297***	***170***	***1,079***	***83***
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*5.57%*	*47.17%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*2.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*5.57%*	*2.00%*	*47.17%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*21.71%*	*24.32%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*11.06%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*21.71%*	*11.06%*	*24.32%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	0	15	30	0	0	11	6	24	0	8	0
Total AM Peak Hour BUILD Volumes	**141**	**937**	**868**	**237**	**333**	**64**	**207**	**369**	**321**	**170**	**1,087**	**83**

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	171	601	323	335	726	170	514	883	272	133	625	133
Background Traffic Growth	60	212	114	40	87	20	62	106	33	54	255	54
Subtotal (NO BUILD - P.M.)	***231***	***813***	***437***	***375***	***813***	***190***	***576***	***989***	***305***	***187***	***880***	***187***
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*5.57%*	*47.17%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*2.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*5.57%*	*2.00%*	*47.17%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*21.71%*	*24.32%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*11.06%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*21.71%*	*11.06%*	*24.32%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	0	37	52	0	0	40	20	57	0	18	0
Total PM Peak Hour BUILD Volumes	**231**	**813**	**474**	**427**	**813**	**190**	**616**	**1,009**	**362**	**187**	**898**	**187**

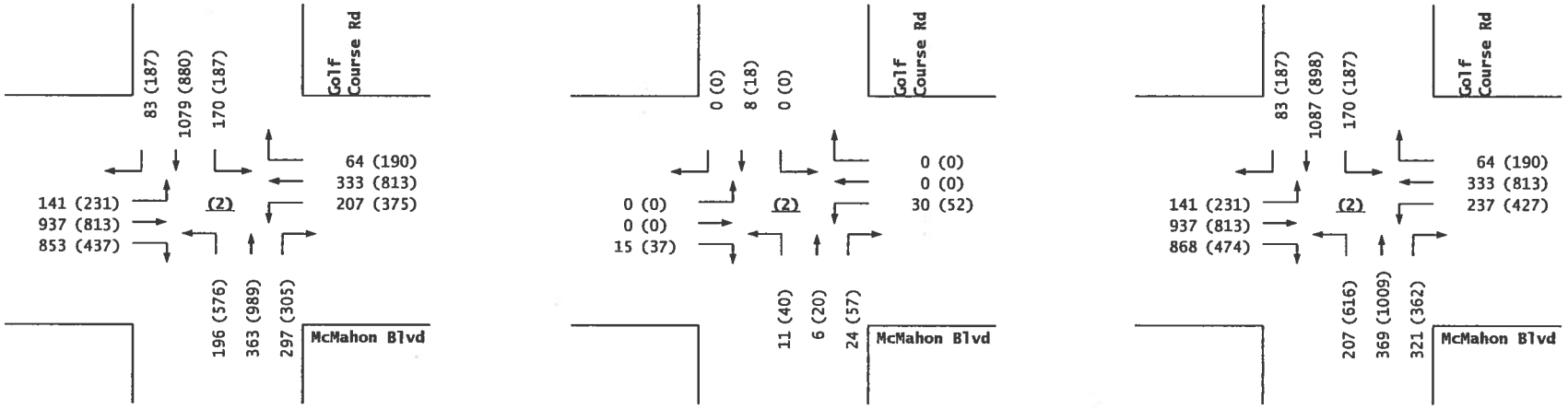
	Entering	Exiting		
Number of Residential Trips Generated	31	30	A.M.	100% Residential Development
	23	32	P.M.	
Number of Commercial Trips Generated	60	41	A.M.	100% Commercial Development
	167	174	P.M.	

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
2011 AM Peak Hr. Volumes	104	693	631	185	297	57	175	324	265	121	766	59
2011 PM Peak Hr. Volumes	171	601	323	335	726	170	514	883	272	133	625	133

2015
NO BUILD

Trips

2015
BUILD



McMahon Blvd / Golf Course Rd

Golf Course Rd Development

Projected Turning Movements Worksheet

McMahon Blvd / Bandelier Dr

INTERSECTION: E-W Street: **McMahon Blvd** (3)

N-S Street: **Bandelier Dr**

Year of Existing Counts 2011

Horizon Year **2015**

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
Growth Rates	2.10%			3.00%			3.00%			3.00%		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	5	1,007	4	39	372	28	7	1	183	261	5	14
Background Traffic Growth	0	85	0	5	45	3	1	0	22	31	1	2
Subtotal (NO BUILD - A.M.)	***5***	***1,092***	***4***	***44***	***417***	***31***	***8***	***1***	***205***	***292***	***6***	***16***
Percent Residential Trips Generated(Entering)	*0.00%*	*4.36%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.46%*	*0.76%*	*0.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.45%*	*4.36%*	*0.76%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*13.68%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*4.52%*	*3.51%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*4.52%*	*13.68%*	*3.51%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	9	0	2	7	1	0	0	3	2	0	0
Total AM Peak Hour BUILD Volumes	**5**	**1,101**	**4**	**46**	**424**	**32**	**8**	**1**	**208**	**294**	**6**	**16**

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	15	606	24	138	1,058	194	5	1	100	115	3	11
Background Traffic Growth	1	51	2	17	127	23	1	0	12	14	0	1
Subtotal (NO BUILD - P.M.)	***16***	***657***	***26***	***155***	***1,185***	***217***	***6***	***1***	***112***	***129***	***3***	***12***
Percent Residential Trips Generated(Entering)	*0.00%*	*4.36%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.46%*	*0.76%*	*0.00%*	*0.00%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*0.45%*	*4.36%*	*0.76%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*13.68%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*4.52%*	*3.51%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*0.00%*	*4.52%*	*13.68%*	*3.51%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	24	0	8	25	6	0	0	8	6	0	0
Total PM Peak Hour BUILD Volumes	**16**	**681**	**26**	**163**	**1,210**	**223**	**6**	**1**	**120**	**135**	**3**	**12**

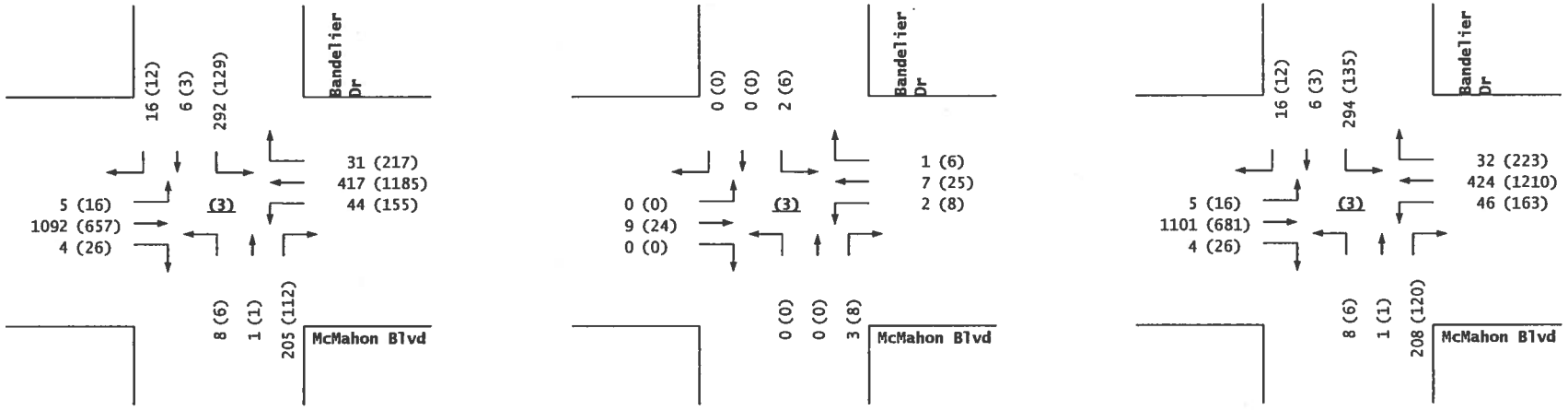
	Entering	Exiting		
Number of Residential Trips Generated	31	30	A.M.	100% Residential Development
	23	32	P.M.	
Number of Commercial Trips Generated	60	41	A.M.	100% Commercial Development
	167	174	P.M.	

	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
2011 AM Peak Hr. Volumes	5	1007	4	39	372	28	7	1	183	261	5	14
2011 PM Peak Hr. Volumes	15	606	24	138	1,058	194	5	1	100	115	3	11

2015
NO BUILD

Trips

2015
BUILD



McMahon Blvd / Bandelier Dr

Golf Course Rd Development

Projected Turning Movements Worksheet

Driveway 'A' / Golf Course Rd

INTERSECTION: E-W Street: **Driveway 'A'** (4)

N-S Street: **Golf Course Rd**

Year of Existing Counts 2011

Horizon Year **2015**

	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Growth Rates	3.00%			3.00%			3.00%			3.00%		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	35	0	32	0	764	7	6	1,582	0
Background Traffic Growth	0	0	0	4	0	4	0	92	1	1	190	0
Subtotal (NO BUILD - A.M.)	*0*	*0*	*0*	*39*	*0*	*36*	*0*	*856*	*8*	*7*	*1,772*	*0*
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.02%*	*0.00%*	*45.24%*	*0.00%*	*0.00%*	*0.00%*	*27.37%*	*27.37%*
Percent Residential Trips Generated(Exiting)	*54.74%*	*0.02%*	*22.62%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.37%*	*0.00%*	*42.54%*	*0.00%*	*0.00%*	*0.00%*	*28.54%*	*28.55%*
Percent Commercial Trips Generated(Exiting)	*57.09%*	*0.37%*	*21.27%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	39	0	16	0	0	0	40	0	0	0	25	25
Total AM Peak Hour BUILD Volumes	**39**	**0**	**16**	**39**	**0**	**36**	**40**	**856**	**8**	**7**	**1,797**	**25**

	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	11	0	33	0	1,669	37	42	1,283	0
Background Traffic Growth	0	0	0	1	0	4	0	200	4	5	154	0
Subtotal (NO BUILD - P.M.)	*0*	*0*	*0*	*12*	*0*	*37*	*0*	*1,869*	*41*	*47*	*1,437*	*0*
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.02%*	*0.00%*	*45.24%*	*0.00%*	*0.00%*	*0.00%*	*27.37%*	*27.37%*
Percent Residential Trips Generated(Exiting)	*54.74%*	*0.02%*	*22.62%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.37%*	*0.00%*	*42.54%*	*0.00%*	*0.00%*	*0.00%*	*28.54%*	*28.55%*
Percent Commercial Trips Generated(Exiting)	*57.09%*	*0.37%*	*21.27%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	117	1	44	0	1	0	81	0	0	0	54	54
Subtotal PM Pk Hr. BUILD Volumes	**117**	**1**	**44**	**12**	**1**	**37**	**81**	**1,869**	**41**	**47**	**1,491**	**54**
Pass-by Trip Adjustments	*18*	*0*	*11*	*0*	*0*	*0*	*17*	*-17*	*0*	*0*	*-11*	*11*
Total PM Peak Hour BUILD Volumes	**135**	**1**	**55**	**12**	**1**	**37**	**98**	**1,852**	**41**	**47**	**1,480**	**65**

	Entering	Exiting		
Number of Residential Trips Generated	31	30	A.M.	100% Residential Development
	23	32	P.M.	
Number of Commercial Trips Generated	60	41	A.M.	100% Commercial Development
	167	174	P.M.	

	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
2011 AM Peak Hr. Volumes	0	0	0	35	0	32	0	764	7	6	1,582	0
2011 PM Peak Hr. Volumes	0	0	0	11	0	33	0	1,669	37	42	1,283	0

Pass-by Trip Calculations:

AM Pass-by Trips	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Percent Entering	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Entering	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Percent Exiting	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Exiting	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Net AM Passby Trips	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

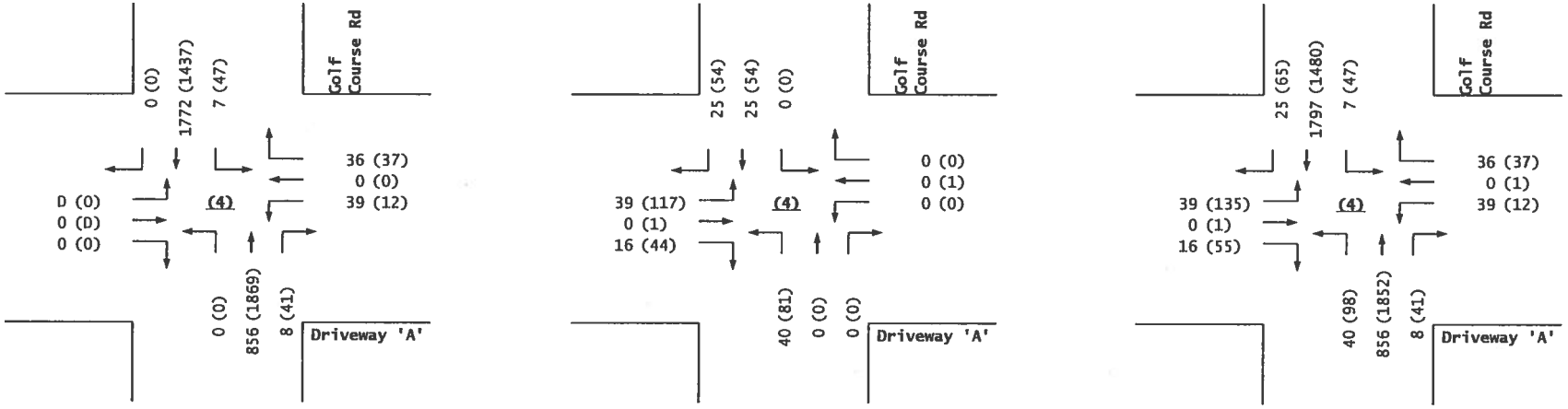
PM Pass-by Trips	Eastbound (Driveway 'A')			Westbound (Driveway 'A')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Percent Entering	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*52.00%*	*-52.00%*	*0.00%*	*0.00%*	*-32.00%*	*32.00%*
Volume Entering	*0*	*0*	*0*	*0*	*0*	*0*	*17*	*-17*	*0*	*0*	*-11*	*11*
Percent Exiting	*52.00%*	*0.00%*	*32.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Exiting	*18*	*0*	*11*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Net PM Passby Trips	*18*	*0*	*11*	*0*	*0*	*0*	*17*	*-17*	*0*	*0*	*-11*	*11*

	Entering	*Exiting*	
Pass-by Trips	*0*	*0*	*AM*
	33	*35*	*PM*

2015
NO BUILD

Trips

2015
BUILD



Driveway 'A' / Golf Course Rd

Golf Course Rd Development

Projected Turning Movements Worksheet

Driveway 'B' / Golf Course Rd

INTERSECTION: E-W Street: **Driveway 'B'** (5)

N-S Street: **Golf Course Rd**

Year of Existing Counts 2011

Horizon Year **2015**

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
Growth Rates	3.00%			3.00%			3.00%			3.00%		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	764	0	0	1,582	0
Background Traffic Growth	0	0	0	0	0	0	0	92	0	0	190	0
Subtotal (NO BUILD - A.M.)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*856*	*0*	*0*	*1,772*	*0*
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*45.24%*	*0.00%*	*0.00%*	*0.00%*	*27.37%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*22.62%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*22.62%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*42.54%*	*0.00%*	*0.00%*	*0.00%*	*28.54%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*21.27%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	0	16	0	0	0	0	40	0	0	7	25
Total AM Peak Hour BUILD Volumes	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**896**	**0**	**0**	**1,779**	**25**

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	0	0	0	0	1,669	0	0	1,283	0
Background Traffic Growth	0	0	0	0	0	0	0	200	0	0	154	0
Subtotal (NO BUILD - P.M.)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1,869*	*0*	*0*	*1,437*	*0*
Percent Residential Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*45.24%*	*0.00%*	*0.00%*	*0.00%*	*27.37%*
Percent Residential Trips Generated(Exiting)	*0.00%*	*0.00%*	*22.62%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*22.62%*	*0.00%*
Percent Commercial Trips Generated(Entering)	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*42.54%*	*0.00%*	*0.00%*	*0.00%*	*28.54%*
Percent Commercial Trips Generated(Exiting)	*0.00%*	*0.00%*	*21.27%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Total Trips Generated	0	0	44	0	0	0	0	81	0	0	7	54
Subtotal PM Pk Hr. BUILD Volumes	**0**	**0**	**44**	**0**	**0**	**0**	**0**	**1,950**	**0**	**0**	**1,444**	**54**
Pass-by Trip Adjustments	*0*	*0*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-16*	*5*
Total PM Peak Hour BUILD Volumes	**0**	**0**	**50**	**0**	**0**	**0**	**0**	**1,950**	**0**	**0**	**1,428**	**59**

	Entering	Exiting		
Number of Residential Trips Generated	31	30	A.M.	100% Residential Development
	23	32	P.M.	
Number of Commercial Trips Generated	60	41	A.M.	100% Commercial Development
	167	174	P.M.	

	Eastbound (Driveway 'B')			Westbound (Driveway 'B')			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
2011 AM Peak Hr. Volumes	0	0	0	0	0	0	0	764	0	0	1,582	0
2011 PM Peak Hr. Volumes	0	0	0	0	0	0	0	1,669	0	0	1,283	0

Pass-by Trip Calculations:

AM Pass-by Trips	*Eastbound (Driveway 'B')*			*Westbound (Driveway 'B')*			*Northbound (Golf Course Rd)*			*Southbound (Golf Course Rd)*		
Percent Entering	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Entering	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Percent Exiting	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Exiting	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Net AM Passby Trips	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

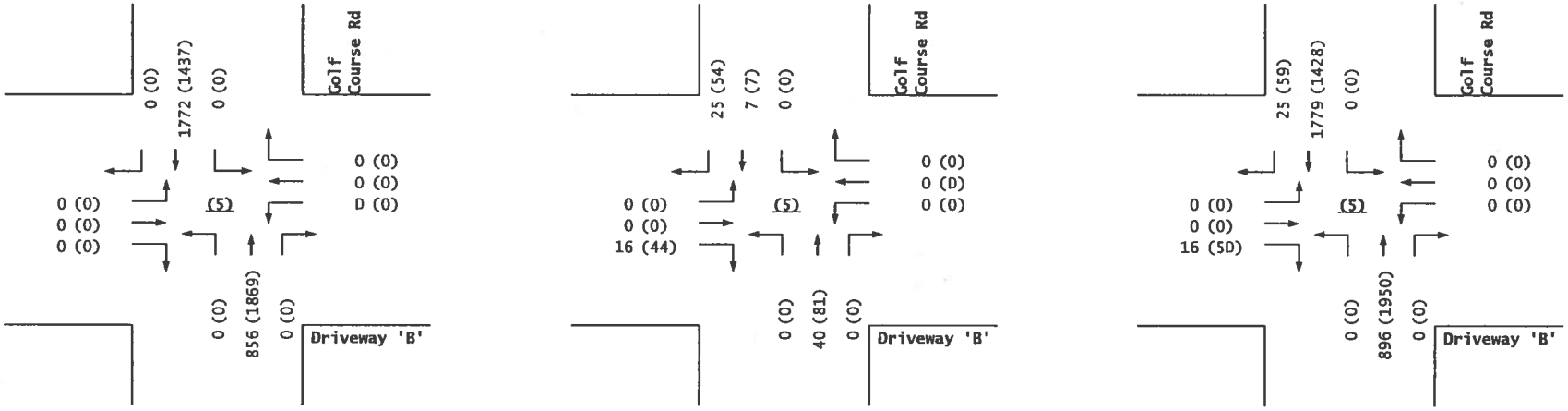
PM Pass-by Trips	*Eastbound (Driveway 'B')*			*Westbound (Driveway 'B')*			*Northbound (Golf Course Rd)*			*Southbound (Golf Course Rd)*		
Percent Entering	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*-48.00%*	*16.00%*
Volume Entering	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-16*	*5*
Percent Exiting	*0.00%*	*0.00%*	*16.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Volume Exiting	*0*	*0*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Net PM Passby Trips	*0*	*0*	*6*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-16*	*5*

	Entering	*Exiting*	
Pass-by Trips	*0*	*0*	*AM*
	33	*35*	*PM*

2015
NO BUILD

Trips

2015
BUILD



Driveway 'B' / Golf Course Rd

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	127	431	11	49	161	26	536	616	913	45
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	13.0	27.0	10.0	24.0	26.0	10.0	27.0	26.0	43.0	13.0
Total Split (%)	14.4%	30.0%	11.1%	26.7%	28.9%	11.1%	30.0%	28.9%	47.8%	14.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	7.8	20.9	5.0	18.1	42.9	29.6	24.3	19.8	38.8	51.6
Actuated g/C Ratio	0.09	0.23	0.06	0.20	0.48	0.33	0.27	0.22	0.43	0.57
v/c Ratio	0.55	0.84	0.14	0.09	0.26	0.12	0.69	0.83	0.61	0.05
Control Delay	47.0	42.0	44.0	29.1	11.3	13.7	34.7	42.6	15.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	42.0	44.0	29.1	11.3	13.7	34.7	42.6	15.7	1.3
LOS	D	D	D	C	B	B	C	D	B	A
Approach Delay		42.9		18.9			33.8		25.8	
Approach LOS		D		B			C		C	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 40 (44%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 31.0 — Intersection LOS: C
Intersection Capacity Utilization 60.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	431	103	11	49	161	26	536	14	616	913	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3404		1752	3505	1568	1752	3491		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.31	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3404		1752	3505	1568	571	3491		3400	3505	1568
Peak-hour factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.84	0.84	0.84	0.99	0.99	0.99
Adj. Flow (vph)	163	553	132	14	61	201	31	638	17	622	922	45
RTOR Reduction (vph)	0	24	0	0	0	25	0	2	0	0	0	22
Lane Group Flow (vph)	163	661	0	14	61	176	31	653	0	622	922	23
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	7.8	20.9		5.0	18.1	37.9	29.6	24.3		19.8	38.8	46.6
Effective Green, g (s)	7.8	20.9		5.0	18.1	37.9	29.6	24.3		19.8	38.8	46.6
Actuated g/C Ratio	0.09	0.23		0.06	0.20	0.42	0.33	0.27		0.22	0.43	0.52
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	295	790		97	705	747	257	943		748	1511	899
v/s Ratio Prot	c0.05	c0.19		0.01	0.02	0.05	0.01	c0.19		c0.18	0.26	0.00
v/s Ratio Perm						0.06	0.03					0.01
v/c Ratio	0.55	0.84		0.14	0.09	0.23	0.12	0.69		0.83	0.61	0.03
Uniform Delay, d1	39.4	32.9		40.5	29.2	16.7	20.6	29.5		33.5	19.8	10.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.15	0.74	0.45
Incremental Delay, d2	2.2	7.7		0.7	0.1	0.2	0.2	4.2		3.0	0.7	0.0
Delay (s)	41.7	40.6		41.2	29.3	16.9	20.8	33.7		41.4	15.3	4.8
Level of Service	D	D		D	C	B	C	C		D	B	A
Approach Delay (s)		40.8			20.9			33.1			25.2	
Approach LOS		D			C			C			C	

Intersection Summary

HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	135	459	11	51	167	30	822	690	1023	50
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	14.0	28.0	10.0	24.0	29.0	10.0	33.0	29.0	52.0	14.0
Total Split (%)	14.0%	28.0%	10.0%	24.0%	29.0%	10.0%	33.0%	29.0%	52.0%	14.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	8.7	22.8	5.0	19.1	47.4	34.0	28.9	23.3	47.1	60.8
Actuated g/C Ratio	0.09	0.23	0.05	0.19	0.47	0.34	0.29	0.23	0.47	0.61
v/c Ratio	0.58	0.92	0.16	0.10	0.27	0.15	0.75	0.88	0.63	0.05
Control Delay	52.3	53.9	49.7	34.0	13.7	14.2	38.0	44.4	12.9	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	53.9	49.7	34.0	13.7	14.2	38.0	44.4	12.9	1.2
LOS	D	D	D	C	B	B	D	D	B	A
Approach Delay		53.6		20.0			36.9		24.9	
Approach LOS		D		B			D		C	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 66.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	459	110	11	51	167	30	622	16	890	1023	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3403		1752	3505	1568	1752	3492		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.28	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3403		1752	3505	1568	612	3492		3400	3505	1568
Peak-hour factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.84	0.84	0.84	0.99	0.99	0.99
Adj. Flow (vph)	173	588	141	14	64	209	36	740	19	697	1033	51
RTOR Reduction (vph)	0	21	0	0	0	22	0	1	0	0	0	23
Lane Group Flow (vph)	173	708	0	14	64	187	36	758	0	697	1033	28
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	8.7	22.8		5.0	19.1	42.4	34.0	28.9		23.3	47.1	55.8
Effective Green, g (s)	8.7	22.8		5.0	19.1	42.4	34.0	28.9		23.3	47.1	55.8
Actuated g/C Ratio	0.09	0.23		0.05	0.19	0.42	0.34	0.29		0.23	0.47	0.56
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	296	776		88	669	743	237	1009		792	1651	953
v/s Ratio Prot	c0.05	c0.21		0.01	0.02	0.06	0.01	c0.22		c0.21	0.29	0.00
v/s Ratio Perm						0.06	0.04					0.02
v/c Ratio	0.58	0.91		0.16	0.10	0.25	0.15	0.75		0.88	0.63	0.03
Uniform Delay, d1	43.9	37.6		45.5	33.3	18.6	22.2	32.3		37.0	19.8	9.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.15	0.83	0.50
Incremental Delay, d2	2.9	15.0		0.8	0.1	0.2	0.3	5.1		1.2	0.2	0.0
Delay (s)	46.8	52.6		46.3	33.4	18.7	22.5	37.4		43.8	12.7	4.9
Level of Service	D	D		D	C	B	C	D		D	B	A
Approach Delay (s)		51.5			23.4			36.7			24.7	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	33.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

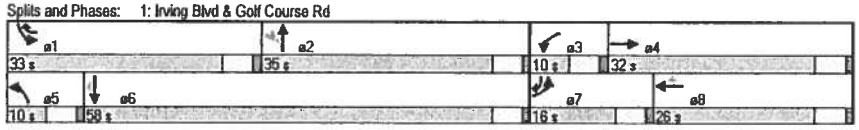
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	143	459	11	51	181	30	640	701	1038	56
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	16.0	32.0	10.0	26.0	33.0	10.0	35.0	33.0	58.0	16.0
Total Split (%)	14.5%	29.1%	9.1%	23.6%	30.0%	9.1%	31.8%	30.0%	52.7%	14.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	10.2	26.1	5.0	20.9	52.4	37.5	32.4	26.5	53.7	68.9
Actuated g/C Ratio	0.09	0.24	0.05	0.19	0.48	0.34	0.29	0.24	0.49	0.63
v/c Ratio	0.58	0.88	0.17	0.10	0.29	0.16	0.76	0.86	0.61	0.06
Control Delay	55.5	52.2	55.7	37.2	15.3	15.8	41.8	47.3	13.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	52.2	55.7	37.2	15.3	15.8	41.6	47.3	13.6	1.2
LOS	E	D	E	D	B	B	D	D	B	A
Approach Delay		52.9		21.7			40.5		26.4	
Approach LOS		D		C			D		C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 55 (50%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 35.3 — Intersection LOS: D
Intersection Capacity Utilization 66.9% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	459	110	11	51	181	30	640	16	701	1038	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3403		1752	3505	1568	1752	3492		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.27	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3403		1752	3505	1568	504	3492		3400	3505	1568
Peak-hour factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.84	0.84	0.84	0.99	0.99	0.99
Adj. Flow (vph)	183	588	141	14	64	226	36	762	19	708	1048	57
RTOR Reduction (vph)	0	19	0	0	0	21	0	1	0	0	0	24
Lane Group Flow (vph)	183	710	0	14	64	205	36	780	0	708	1048	33
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	10.2	26.1		5.0	20.9	47.4	37.6	32.4		26.5	53.7	63.9
Effective Green, g (s)	10.2	26.1		5.0	20.9	47.4	37.6	32.4		26.5	53.7	63.9
Actuated g/C Ratio	0.09	0.24		0.05	0.19	0.43	0.34	0.29		0.24	0.49	0.58
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	315	807		80	666	747	231	1029		819	1711	982
v/s Ratio Prot	c0.05	c0.21		0.01	0.02	0.07	0.01	c0.22		c0.21	0.30	0.00
v/s Ratio Perm						0.06	0.05					0.02
v/c Ratio	0.58	0.88		0.17	0.10	0.27	0.16	0.76		0.86	0.61	0.03
Uniform Delay, d1	47.9	40.4		50.5	36.8	20.2	24.3	35.2		40.0	20.6	9.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.15	0.64	0.56
Incremental Delay, d2	2.7	10.8		1.0	0.1	0.2	0.3	5.2		1.0	0.1	0.0
Delay (s)	50.6	51.2		51.6	36.8	20.4	24.6	40.5		47.0	13.3	5.5
Level of Service	D	D		D	D	C	C	D		D	B	A
Approach Delay (s)		51.1			25.3			39.8			26.2	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

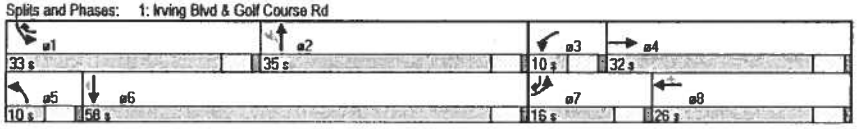
Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	143	459	11	51	181	30	640	701	1038	56
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	16.0	32.0	10.0	26.0	33.0	10.0	35.0	33.0	58.0	16.0
Total Split (%)	14.5%	29.1%	9.1%	23.6%	30.0%	9.1%	31.8%	30.0%	52.7%	14.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	10.2	26.1	5.0	20.9	52.4	37.5	32.4	26.5	53.7	68.9
Actuated g/C Ratio	0.09	0.24	0.05	0.19	0.48	0.34	0.29	0.24	0.49	0.63
v/c Ratio	0.58	0.88	0.17	0.10	0.29	0.16	0.76	0.86	0.61	0.06
Control Delay	55.5	52.2	55.7	37.2	15.3	15.8	41.6	53.9	14.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	52.2	55.7	37.2	15.3	15.8	41.6	53.9	14.4	3.6
LOS	E	D	E	D	B	B	D	D	B	A
Approach Delay		52.9		21.7			40.5		29.5	
Approach LOS		D		C			D		C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 44 (40%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 36.8 — Intersection LOS: D
Intersection Capacity Utilization 66.9% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	459	110	11	51	181	30	640	16	701	1038	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3403		1752	3505	1568	1752	3492		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.27	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3403		1752	3505	1568	504	3492		3400	3505	1568
Peak-hour factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.84	0.84	0.84	0.99	0.99	0.99
Adj. Flow (vph)	183	588	141	14	64	226	36	762	19	708	1048	57
RTOR Reduction (vph)	0	19	0	0	0	21	0	1	0	0	0	24
Lane Group Flow (vph)	183	710	0	14	64	205	36	780	0	708	1048	33
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	10.2	26.1		5.0	20.9	47.4	37.6	32.4		26.5	53.7	63.9
Effective Green, g (s)	10.2	26.1		5.0	20.9	47.4	37.6	32.4		26.5	53.7	63.9
Actuated g/C Ratio	0.09	0.24		0.05	0.19	0.43	0.34	0.29		0.24	0.49	0.58
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	315	807		80	666	747	231	1029		819	1711	982
v/s Ratio Prot	c0.05	c0.21		0.01	0.02	0.07	0.01	c0.22		c0.21	0.30	0.00
v/s Ratio Perm						0.06	0.05					0.02
v/c Ratio	0.58	0.88		0.17	0.10	0.27	0.16	0.76		0.86	0.61	0.03
Uniform Delay, d1	47.9	40.4		50.5	36.8	20.2	24.3	35.2		40.0	20.6	9.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.12	0.63	1.64
Incremental Delay, d2	2.7	10.8		1.0	0.1	0.2	0.3	5.2		7.2	1.2	0.0
Delay (s)	50.6	51.2		51.6	36.8	20.4	24.6	40.5		52.0	14.1	16.2
Level of Service	D	D		D	D	C	C	D		D	B	B
Approach Delay (s)		51.1			25.3			39.8			29.0	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	36.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	156	250	51	396	715	135	995	293	636	150
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	11.0	21.0	11.0	21.0	33.0	14.0	35.0	33.0	54.0	11.0
Total Split (%)	11.0%	21.0%	11.0%	21.0%	33.0%	14.0%	35.0%	33.0%	54.0%	11.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	6.0	15.6	5.9	15.5	49.0	38.2	30.0	28.5	50.3	61.3
Actuated g/C Ratio	0.06	0.16	0.06	0.16	0.49	0.38	0.30	0.28	0.50	0.61
v/c Ratio	1.02	0.74	0.55	0.81	1.03	0.42	1.03	0.37	0.45	0.18
Control Delay	116.1	46.8	66.1	53.5	66.1	15.5	71.5	32.4	9.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.1	46.8	66.1	53.5	66.1	15.5	71.5	32.4	9.8	0.4
LOS	F	D	E	D	E	B	E	C	A	A
Approach Delay		70.3		61.8			64.9		14.6	
Approach LOS		E		E			E		B	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 49.7 — Intersection LOS: D
Intersection Capacity Utilization 89.5% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

ø1	ø2	ø3	ø4
33 s	35 s	11 s	21 s

ø5	ø6	ø7	ø8
14 s	54 s	11 s	21 s

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	250	54	51	396	715	135	995	23	293	636	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.86
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3411		1752	3505	1568	1752	3493		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.35	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3411		1752	3505	1568	654	3493		3400	3505	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.90	0.90	0.90	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	208	333	72	57	440	794	144	1059	24	362	785	185
RTOR Reduction (vph)	0	19	0	0	0	5	0	1	0	0	0	76
Lane Group Flow (vph)	208	386	0	57	440	789	144	1082	0	362	785	109
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	6.0	15.6		5.9	15.5	44.0	38.2	30.0		28.5	50.3	56.3
Effective Green, g (s)	6.0	15.6		5.9	15.5	44.0	38.2	30.0		28.5	50.3	56.3
Actuated g/C Ratio	0.06	0.16		0.06	0.16	0.44	0.38	0.30		0.28	0.50	0.56
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	204	532		103	543	768	340	1048		969	1763	961
v/s Ratio Prot	c0.06	0.11		0.03	0.13	c0.29	0.03	c0.31		0.11	0.22	0.01
v/s Ratio Perm						0.21	0.13					0.06
v/c Ratio	1.02	0.73		0.55	0.81	1.03	0.42	1.03		0.37	0.45	0.11
Uniform Delay, d1	47.0	40.2		45.8	40.8	28.0	20.8	35.0		28.6	15.9	10.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.09	0.56	0.07
Incremental Delay, d2	68.2	4.9		6.3	8.9	39.6	0.9	36.4		0.2	0.6	0.0
Delay (s)	115.2	45.1		52.1	49.8	67.6	21.7	71.4		31.3	9.5	0.8
Level of Service	F	D		D	D	E	C	E		C	A	A
Approach Delay (s)		68.9			60.8			65.5			14.2	
Approach LOS		E			E			E			B	

Intersection Summary

HCM Average Control Delay	49.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	166	266	53	410	741	157	1154	328	712	168
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	13.0	24.0	10.0	21.0	41.0	17.0	45.0	41.0	69.0	13.0
Total Split (%)	10.8%	20.0%	8.3%	17.5%	34.2%	14.2%	37.5%	34.2%	57.5%	10.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	8.0	19.0	5.0	16.0	57.0	49.6	40.0	36.0	66.4	79.4
Actuated g/C Ratio	0.07	0.16	0.04	0.13	0.48	0.41	0.33	0.30	0.55	0.66
v/c Ratio	0.97	0.78	0.81	0.98	1.10	0.49	1.08	0.40	0.45	0.19
Control Delay	109.4	56.9	118.5	88.2	94.7	18.0	88.5	28.5	8.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.4	56.9	118.5	88.2	94.7	18.0	88.5	28.5	8.9	1.1
LOS	F	E	F	F	F	B	F	C	A	A
Approach Delay		74.7		93.6			80.3		13.2	
Approach LOS		E		F			F		B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 79 (66%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 62.8 — Intersection LOS: E
Intersection Capacity Utilization 95.9% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

ø1	ø2	ø3	ø4
41 s	45 s	10 s	24 s
ø5	ø6	ø7	ø8
17 s	69 s	13 s	21 s

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	266	57	53	410	741	157	1154	27	328	712	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3412		1752	3505	1568	1752	3493		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.32	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3412		1752	3505	1568	596	3493		3400	3505	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.90	0.90	0.90	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	221	355	76	59	456	823	167	1228	29	405	879	207
RTOR Reduction (vph)	0	15	0	0	0	4	0	1	0	0	0	67
Lane Group Flow (vph)	221	416	0	59	456	819	167	1256	0	405	879	140
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	8.0	19.0		5.0	16.0	52.0	49.6	40.0		36.0	66.4	74.4
Effective Green, g (s)	8.0	19.0		5.0	16.0	52.0	49.6	40.0		36.0	66.4	74.4
Actuated g/C Ratio	0.07	0.18		0.04	0.13	0.43	0.41	0.33		0.30	0.55	0.82
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	227	540		73	467	745	339	1164		1020	1939	1037
v/s Ratio Prot	c0.07	c0.12		0.03	0.13	c0.33	0.04	c0.36		0.12	0.25	0.01
v/s Ratio Perm						0.19	0.16					0.08
v/c Ratio	0.97	0.77		0.81	0.98	1.10	0.49	1.08		0.40	0.45	0.14
Uniform Delay, d1	55.9	48.4		57.0	51.8	34.0	22.8	40.0		33.4	16.0	9.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.83	0.52	0.52
Incremental Delay, d2	51.9	6.7		46.1	35.2	63.5	1.1	50.3		0.1	0.4	0.0
Delay (s)	107.8	55.1		103.1	87.0	97.5	24.0	90.3		27.8	8.7	4.9
Level of Service	F	E		F	F	F	C	F		C	A	A
Approach Delay (s)		72.9			94.2			82.6			13.4	
Approach LOS		E			F			F			B	

Intersection Summary

HCM Average Control Delay	63.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	185	266	53	410	772	157	1186	361	747	188
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	12.0	23.0	10.0	21.0	42.0	17.0	45.0	42.0	70.0	12.0
Total Split (%)	10.0%	19.2%	8.3%	17.5%	35.0%	14.2%	37.5%	35.0%	58.3%	10.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	7.0	18.0	5.0	16.0	58.0	49.5	40.0	37.0	67.5	79.5
Actuated g/C Ratio	0.06	0.15	0.04	0.13	0.48	0.41	0.33	0.31	0.56	0.66
v/c Ratio	1.25	0.82	0.81	0.98	1.13	0.51	1.11	0.43	0.47	0.21
Control Delay	192.1	60.9	118.5	88.2	104.6	18.6	98.7	33.1	9.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	192.1	60.9	118.5	88.2	104.6	18.8	98.7	33.1	9.5	0.5
LOS	F	E	F	F	F	B	F	C	A	A
Approach Delay		108.7		99.8			89.6		14.8	
Approach LOS		F		F			F		B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 71.4 — Intersection LOS: E
Intersection Capacity Utilization 99.2% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	266	57	53	410	772	157	1186	27	361	747	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3412		1752	3505	1568	1752	3493		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.31	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3412		1752	3505	1568	571	3493		3400	3505	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.90	0.90	0.90	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	247	355	76	59	456	858	167	1262	29	446	922	232
RTOR Reduction (vph)	0	15	0	0	0	3	0	1	0	0	0	65
Lane Group Flow (vph)	247	416	0	59	456	855	167	1290	0	446	922	167
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	7.0	18.0		5.0	16.0	53.0	49.5	40.0		37.0	67.5	74.5
Effective Green, g (s)	7.0	18.0		5.0	16.0	53.0	49.5	40.0		37.0	67.5	74.5
Actuated g/C Ratio	0.06	0.15		0.04	0.13	0.44	0.41	0.33		0.31	0.56	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	198	512		73	467	758	329	1164		1048	1972	1039
v/s Ratio Prot	c0.07	0.12		0.03	0.13	c0.35	0.04	c0.37		0.13	0.26	0.01
v/s Ratio Perm						0.20	0.17					0.10
v/c Ratio	1.25	0.81		0.81	0.98	1.13	0.51	1.11		0.43	0.47	0.16
Uniform Delay, d1	56.5	49.4		57.0	51.8	33.5	22.9	40.0		33.0	15.6	9.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.97	0.57	0.12
Incremental Delay, d2	146.3	9.5		46.1	35.2	74.0	1.2	61.2		0.1	0.4	0.0
Delay (s)	202.8	58.9		103.1	87.0	107.5	24.1	101.2		32.4	9.2	1.1
Level of Service	F	E		F	F	F	C	F		C	A	A
Approach Delay (s)		111.3			100.5			92.4			14.5	
Approach LOS		F			F			F			B	

Intersection Summary

HCM Average Control Delay	72.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	185	266	53	410	772	157	1186	361	747	188
Turn Type	Prot		Prot		pm+ov	pm+pt		Prot		pm+ov
Protected Phases	7	4	3	8	1	5	2	1	6	7
Permitted Phases					8	2				6
Detector Phase	7	4	3	8	1	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	12.0	23.0	10.0	21.0	42.0	17.0	45.0	42.0	70.0	12.0
Total Split (%)	10.0%	19.2%	8.3%	17.5%	35.0%	14.2%	37.5%	35.0%	58.3%	10.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?										
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	7.0	18.0	5.0	16.0	58.0	49.5	40.0	37.0	67.5	79.5
Actuated g/C Ratio	0.06	0.15	0.04	0.13	0.48	0.41	0.33	0.31	0.56	0.66
v/c Ratio	1.25	0.82	0.81	0.98	1.13	0.51	1.11	0.43	0.47	0.21
Control Delay	192.1	60.9	118.5	88.2	104.6	18.6	98.7	25.1	11.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	192.1	60.9	118.5	88.2	104.6	18.6	98.7	25.1	11.8	1.3
LOS	F	E	F	F	F	B	F	C	B	A
Approach Delay		108.7		99.8			89.6		14.0	
Approach LOS		F		F			F		B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 118 (98%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 71.2 — Intersection LOS: E
Intersection Capacity Utilization 99.2% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Irving Blvd & Golf Course Rd

HCM Signalized Intersection Capacity Analysis
1: Irving Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	266	57	53	410	772	157	1186	27	361	747	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3400	3412		1752	3505	1568	1752	3493		3400	3505	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.31	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3400	3412		1752	3505	1568	571	3493		3400	3505	1568
Peak-hour factor, PHF	0.75	0.75	0.75	0.90	0.90	0.90	0.94	0.94	0.94	0.81	0.81	0.81
Adj. Flow (vph)	247	355	76	59	456	858	167	1262	29	446	922	232
RTOR Reduction (vph)	0	15	0	0	0	3	0	1	0	0	0	65
Lane Group Flow (vph)	247	416	0	59	456	855	167	1290	0	446	922	167
Turn Type	Prot			Prot		pm+ov	pm+pt			Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2					6
Actuated Green, G (s)	7.0	18.0		5.0	16.0	53.0	49.5	40.0		37.0	67.5	74.5
Effective Green, g (s)	7.0	18.0		5.0	16.0	53.0	49.5	40.0		37.0	67.5	74.5
Actuated g/C Ratio	0.06	0.15		0.04	0.13	0.44	0.41	0.33		0.31	0.56	0.62
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	198	512		73	467	758	329	1164		1048	1972	1039
v/s Ratio Prot	c0.07	0.12		0.03	0.13	c0.35	0.04	c0.37		0.13	0.26	0.01
v/s Ratio Perm						0.20	0.17					0.10
v/c Ratio	1.25	0.81		0.81	0.98	1.13	0.51	1.11		0.43	0.47	0.16
Uniform Delay, d1	56.5	49.4		57.0	51.8	33.5	22.9	40.0		33.0	15.6	9.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.72	0.69	0.39
Incremental Delay, d2	146.3	9.5		46.1	35.2	74.0	1.2	61.2		0.2	0.7	0.1
Delay (s)	202.8	58.9		103.1	87.0	107.5	24.1	101.2		24.0	11.5	3.8
Level of Service	F	E		F	F	F	C	F		C	B	A
Approach Delay (s)		111.3			100.5			92.4			13.9	
Approach LOS		F			F			F			B	

Intersection Summary

HCM Average Control Delay	72.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

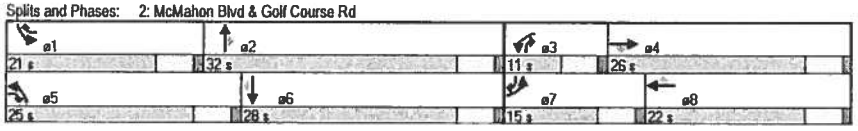
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	693	631	185	297	57	175	324	265	121	766	59
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	15.0	26.0	25.0	11.0	22.0	21.0	25.0	32.0	11.0	21.0	28.0	15.0
Total Split (%)	16.7%	28.9%	27.8%	12.2%	24.4%	23.3%	27.8%	35.6%	12.2%	23.3%	31.1%	16.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	9.5	21.0	46.0	6.0	17.5	38.5	20.0	27.0	38.0	16.0	23.0	37.5
Actuated g/C Ratio	0.11	0.23	0.51	0.07	0.19	0.43	0.22	0.30	0.42	0.18	0.26	0.42
v/c Ratio	0.69	1.03	0.95	0.92	0.49	0.09	0.26	0.35	0.39	0.23	0.96	0.10
Control Delay	58.5	75.6	44.8	85.2	35.3	4.7	42.0	12.5	2.8	32.8	56.3	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	75.6	44.8	85.2	35.3	4.7	42.0	12.5	2.8	32.8	56.3	4.7
LOS	E	E	D	F	D	A	D	B	A	C	E	A
Approach Delay		60.7			49.2			15.9			50.1	
Approach LOS		E			D			B			D	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 47.4 — Intersection LOS: D
Intersection Capacity Utilization 78.0% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	693	631	185	297	57	175	324	265	121	766	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	127	845	770	208	334	64	199	368	301	136	861	66
RTOR Reduction (vph)	0	0	7	0	0	40	0	0	127	0	0	42
Lane Group Flow (vph)	127	845	763	208	334	24	199	368	174	136	861	24
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.5	21.0	41.0	6.0	17.5	33.5	20.0	27.0	33.0	16.0	23.0	32.5
Effective Green, g (s)	9.5	21.0	41.0	6.0	17.5	33.5	20.0	27.0	33.0	16.0	23.0	32.5
Actuated g/C Ratio	0.11	0.23	0.46	0.07	0.19	0.37	0.22	0.30	0.37	0.18	0.26	0.36
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	818	801	227	682	671	756	1052	662	604	896	653
v/s Ratio Prot	c0.07	c0.24	c0.21	0.06	0.10	0.01	0.06	c0.10	0.02	0.04	c0.25	0.00
v/s Ratio Perm			0.28			0.01			0.09			0.01
v/c Ratio	0.69	1.03	0.95	0.92	0.49	0.04	0.26	0.35	0.26	0.23	0.96	0.04
Uniform Delay, d1	38.8	34.5	23.6	41.8	32.3	18.0	28.9	24.6	20.0	31.7	33.1	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.42	0.47	0.26	1.00	1.00	1.00
Incremental Delay, d2	10.1	40.3	21.0	37.3	0.6	0.0	0.2	0.8	0.2	0.9	22.0	0.0
Delay (s)	48.9	74.8	44.6	79.1	32.8	18.0	41.1	12.4	5.3	32.6	55.0	18.6
Level of Service	D	E	D	E	C	B	D	B	A	C	E	B
Approach Delay (s)		59.6			47.1			16.5			49.9	
Approach LOS		E			D			B			D	

Intersection Summary

HCM Average Control Delay	46.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

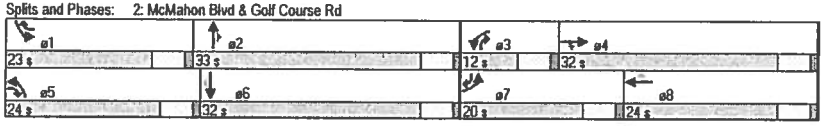
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	853	207	333	64	196	363	297	170	1079	83
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	20.0	32.0	24.0	12.0	24.0	23.0	24.0	33.0	12.0	23.0	32.0	20.0
Total Split (%)	20.0%	32.0%	24.0%	12.0%	24.0%	23.0%	24.0%	33.0%	12.0%	23.0%	32.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	13.5	27.0	51.0	7.0	20.5	43.5	19.0	28.0	40.0	18.0	27.0	45.5
Actuated g/C Ratio	0.14	0.27	0.51	0.07	0.20	0.44	0.19	0.28	0.40	0.18	0.27	0.46
v/c Ratio	0.73	1.21	1.30	0.98	0.52	0.10	0.35	0.42	0.48	0.31	1.28	0.12
Control Delay	59.5	137.3	167.8	101.2	38.9	4.7	36.7	20.0	9.8	37.3	167.2	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	137.3	167.8	101.2	38.9	4.7	36.7	20.0	9.8	37.3	167.2	5.9
LOS	E	F	F	F	D	A	D	B	A	D	F	A
Approach Delay		145.1			56.6			20.3			140.6	
Approach LOS		F			E			C			F	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 110.9 Intersection LOS: F
Intersection Capacity Utilization 101.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	853	207	333	64	196	363	297	170	1079	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	172	1143	1040	233	374	72	223	412	338	191	1212	93
RTOR Reduction (vph)	0	0	2	0	0	44	0	0	81	0	0	41
Lane Group Flow (vph)	172	1143	1038	233	374	28	223	412	257	191	1212	62
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.5	27.0	46.0	7.0	20.5	38.5	19.0	28.0	35.0	18.0	27.0	40.5
Effective Green, g (s)	13.5	27.0	46.0	7.0	20.5	38.5	19.0	28.0	35.0	18.0	27.0	40.5
Actuated g/C Ratio	0.14	0.27	0.46	0.07	0.20	0.38	0.19	0.28	0.35	0.18	0.27	0.40
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	237	946	800	238	719	682	646	981	627	612	946	713
v/s Ratio Prot	c0.10	0.33	c0.25	0.07	0.11	0.01	0.07	0.12	0.03	0.06	c0.35	0.01
v/s Ratio Perm			0.42			0.01			0.14			0.02
v/c Ratio	0.73	1.21	1.30	0.98	0.52	0.04	0.35	0.42	0.41	0.31	1.28	0.07
Uniform Delay, d1	41.5	36.5	27.0	46.4	35.4	19.2	35.1	29.4	24.7	35.6	36.5	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.64	0.57	1.00	1.00	1.00
Incremental Delay, d2	10.5	103.7	143.0	51.8	0.7	0.0	0.3	1.1	0.3	1.3	134.7	0.0
Delay (s)	52.0	140.2	170.0	98.2	36.1	19.2	35.5	19.8	14.4	36.9	171.2	18.3
Level of Service	D	F	F	F	D	B	D	B	B	D	F	B
Approach Delay (s)		146.9			55.6			21.5			144.5	
Approach LOS		F			E			C			F	

Intersection Summary

HCM Average Control Delay	112.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

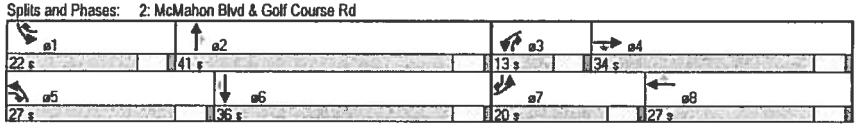
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	868	237	333	64	207	369	321	170	1087	83
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	20.0	34.0	27.0	13.0	27.0	22.0	27.0	41.0	13.0	22.0	36.0	20.0
Total Split (%)	18.2%	30.9%	24.5%	11.8%	24.5%	20.0%	24.5%	37.3%	11.8%	20.0%	32.7%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	13.9	29.0	56.0	8.0	23.1	45.1	22.0	36.0	49.0	17.0	31.0	49.9
Actuated g/C Ratio	0.13	0.26	0.51	0.07	0.21	0.41	0.20	0.33	0.45	0.15	0.28	0.45
v/c Ratio	0.77	1.24	1.32	1.08	0.51	0.11	0.35	0.37	0.49	0.36	1.24	0.12
Control Delay	69.8	151.8	180.8	127.7	41.6	5.3	48.4	15.4	7.4	43.9	150.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	151.8	180.8	127.7	41.6	5.3	48.4	15.4	7.4	43.9	150.1	7.3
LOS	E	F	F	F	D	A	D	B	A	D	F	A
Approach Delay		158.8			70.1			20.1			127.8	
Approach LOS		F			E			C			F	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 114.0 — Intersection LOS: F
Intersection Capacity Utilization 103.1% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	868	237	333	64	207	369	321	170	1087	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	172	1143	1059	266	374	72	235	419	365	191	1221	93
RTOR Reduction (vph)	0	0	2	0	0	46	0	0	55	0	0	37
Lane Group Flow (vph)	172	1143	1057	266	374	26	235	419	310	191	1221	56
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.9	29.0	51.0	8.0	23.1	40.1	22.0	36.0	44.0	17.0	31.0	44.9
Effective Green, g (s)	13.9	29.0	51.0	8.0	23.1	40.1	22.0	36.0	44.0	17.0	31.0	44.9
Actuated g/C Ratio	0.13	0.26	0.46	0.07	0.21	0.36	0.20	0.33	0.40	0.15	0.28	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	924	798	247	736	643	680	1147	698	525	988	711
v/s Ratio Prot	0.10	0.33	c0.26	c0.08	0.11	0.01	0.07	0.12	c0.03	0.06	c0.35	0.01
v/s Ratio Perm			0.41			0.01			0.17			0.03
v/c Ratio	0.78	1.24	1.33	1.08	0.51	0.04	0.35	0.37	0.44	0.36	1.24	0.08
Uniform Delay, d1	46.6	40.5	29.5	51.0	38.4	22.5	37.8	28.3	24.1	41.7	39.5	19.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.24	0.51	0.34	1.00	1.00	1.00
Incremental Delay, d2	15.8	116.0	155.0	79.2	0.6	0.0	0.3	0.7	0.4	1.9	114.9	0.0
Delay (s)	62.3	156.5	184.5	130.2	39.0	22.6	47.1	15.3	8.6	43.6	154.4	20.0
Level of Service	E	F	F	F	D	C	D	B	A	D	F	B
Approach Delay (s)		162.1			71.4			20.2			132.1	
Approach LOS		F			E			C			F	

Intersection Summary

HCM Average Control Delay	116.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	868	237	333	64	207	369	321	170	1087	83
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	20.0	34.0	27.0	13.0	27.0	22.0	27.0	41.0	13.0	22.0	36.0	20.0
Total Split (%)	18.2%	30.9%	24.5%	11.8%	24.5%	20.0%	24.5%	37.3%	11.8%	20.0%	32.7%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	13.9	29.0	56.0	8.0	23.1	45.1	22.0	36.0	49.0	17.0	31.0	49.9
Actuated g/C Ratio	0.13	0.26	0.51	0.07	0.21	0.41	0.20	0.33	0.45	0.15	0.28	0.45
v/c Ratio	0.77	1.24	1.32	1.08	0.51	0.11	0.35	0.37	0.49	0.36	1.24	0.12
Control Delay	69.8	151.8	180.8	127.7	41.6	5.3	52.6	13.7	7.1	43.9	150.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	151.8	180.6	127.7	41.6	5.3	52.6	13.7	7.1	43.9	150.1	7.3
LOS	E	F	F	F	D	A	D	B	A	D	F	A
Approach Delay		158.8			70.1			20.3			127.8	
Approach LOS		F			E			C			F	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 114.1 — Intersection LOS: F
Intersection Capacity Utilization 103.1% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd

HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	937	868	237	333	64	207	369	321	170	1087	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.82	0.82	0.82	0.89	0.89	0.89	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	172	1143	1059	266	374	72	235	419	365	191	1221	93
RTOR Reduction (vph)	0	0	2	0	0	46	0	0	55	0	0	37
Lane Group Flow (vph)	172	1143	1057	266	374	26	235	419	310	191	1221	56
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.9	29.0	51.0	8.0	23.1	40.1	22.0	36.0	44.0	17.0	31.0	44.9
Effective Green, g (s)	13.9	29.0	51.0	8.0	23.1	40.1	22.0	36.0	44.0	17.0	31.0	44.9
Actuated g/C Ratio	0.13	0.26	0.46	0.07	0.21	0.36	0.20	0.33	0.40	0.15	0.28	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	924	798	247	736	643	680	1147	698	525	988	711
v/s Ratio Prot	0.10	0.33	c0.26	c0.08	0.11	0.01	0.07	0.12	c0.03	0.06	c0.35	0.01
v/s Ratio Perm			0.41			0.01			0.17			0.03
v/c Ratio	0.78	1.24	1.33	1.08	0.51	0.04	0.35	0.37	0.44	0.36	1.24	0.08
Uniform Delay, d1	46.6	40.5	29.5	51.0	38.4	22.5	37.8	28.3	24.1	41.7	39.5	19.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.34	0.45	0.31	1.00	1.00	1.00
Incremental Delay, d2	15.8	116.0	155.0	79.2	0.6	0.0	0.3	0.9	0.4	1.9	114.9	0.0
Delay (s)	62.3	156.5	184.5	130.2	39.0	22.6	51.1	13.6	7.8	43.6	154.4	20.0
Level of Service	E	F	F	F	D	C	D	B	A	D	F	B
Approach Delay (s)		162.1			71.4			20.2			132.1	
Approach LOS		F			E			C			F	

Intersection Summary

HCM Average Control Delay	116.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	601	323	335	726	170	514	883	272	133	625	133
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	16.0	26.0	24.0	18.0	28.0	21.0	24.0	35.0	18.0	21.0	32.0	16.0
Total Split (%)	16.0%	26.0%	24.0%	18.0%	28.0%	21.0%	24.0%	35.0%	18.0%	21.0%	32.0%	16.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	11.0	21.2	44.8	12.8	23.0	44.0	18.5	30.0	47.8	16.0	27.5	43.5
Actuated g/C Ratio	0.11	0.21	0.45	0.13	0.23	0.44	0.18	0.30	0.48	0.18	0.28	0.44
v/c Ratio	0.91	0.83	0.46	0.81	0.95	0.25	0.87	0.89	0.35	0.27	0.71	0.21
Control Delay	91.0	49.0	19.6	58.4	60.1	13.7	48.3	27.5	3.9	38.4	37.5	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.0	49.0	19.6	58.4	60.1	13.7	48.3	27.5	3.9	38.4	37.5	16.8
LOS	F	D	B	E	E	B	D	C	A	D	D	B
Approach Delay		46.8			53.2			30.1			34.5	
Approach LOS		D			D			C			C	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 40.4 — Intersection LOS: D
Intersection Capacity Utilization 78.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd

ø1	ø2	ø3	ø4
21 s	35 s	18 s	26 s
ø5	**ø6**	**ø7**	**ø8**
24 s	32 s	16 s	28 s

HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	601	323	335	726	170	514	883	272	133	625	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	176	620	333	353	764	179	547	939	289	145	679	145
RTOR Reduction (vph)	0	0	21	0	0	30	0	0	90	0	0	10
Lane Group Flow (vph)	176	620	312	353	764	149	547	939	199	145	679	135
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	21.2	39.7	12.8	23.0	39.0	18.5	30.0	42.8	16.0	27.5	38.5
Effective Green, g (s)	11.0	21.2	39.7	12.8	23.0	39.0	18.5	30.0	42.8	16.0	27.5	38.5
Actuated g/C Ratio	0.11	0.21	0.40	0.13	0.23	0.39	0.18	0.30	0.43	0.16	0.28	0.38
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	193	743	701	435	806	690	629	1052	750	544	964	682
v/s Ratio Prot	0.10	0.18	0.08	c0.10	c0.22	0.03	c0.16	c0.27	0.03	0.04	0.19	0.02
v/s Ratio Perm			0.12			0.06			0.09			0.06
v/c Ratio	0.91	0.83	0.45	0.81	0.95	0.22	0.87	0.89	0.27	0.27	0.70	0.20
Uniform Delay, d1	44.0	37.7	22.1	42.4	37.9	20.3	39.6	33.5	18.5	36.9	32.6	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.17	0.76	0.53	1.00	1.00	1.00
Incremental Delay, d2	40.8	8.0	0.5	11.0	19.9	0.2	1.3	1.2	0.0	1.2	4.3	0.1
Delay (s)	84.8	45.7	22.5	53.4	57.8	20.5	47.6	26.6	9.9	38.0	36.9	20.6
Level of Service	F	D	C	D	E	C	D	C	A	D	D	C
Approach Delay (s)		45.0			51.4			30.4			34.6	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	39.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

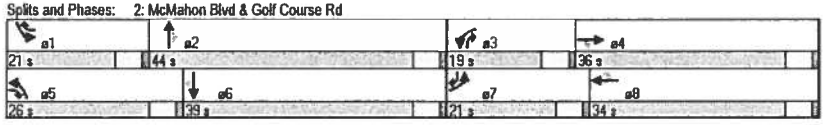
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	437	375	813	190	576	989	305	187	880	187
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	21.0	36.0	26.0	19.0	34.0	21.0	26.0	44.0	19.0	21.0	39.0	21.0
Total Split (%)	17.5%	30.0%	21.7%	15.8%	28.3%	17.5%	21.7%	36.7%	15.8%	17.5%	32.5%	17.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	16.0	31.0	57.0	14.0	29.0	50.0	21.0	39.0	58.0	16.0	34.0	55.0
Actuated g/C Ratio	0.13	0.26	0.48	0.12	0.24	0.42	0.18	0.32	0.48	0.13	0.28	0.46
v/c Ratio	1.02	0.93	0.60	0.99	1.01	0.30	1.03	0.92	0.41	0.45	0.96	0.28
Control Delay	114.9	60.3	26.7	97.1	78.9	19.9	75.9	33.1	9.4	51.5	63.8	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.9	60.3	26.7	97.1	78.9	19.9	75.9	33.1	9.4	51.5	63.8	20.7
LOS	F	E	C	F	E	B	E	C	A	D	E	C
Approach Delay		58.9			75.7			42.4			55.5	
Approach LOS		E			E			D			E	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 56.9 — Intersection LOS: E
Intersection Capacity Utilization 92.7% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	437	375	813	190	576	989	305	187	880	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	238	838	451	395	856	200	613	1052	324	203	957	203
RTOR Reduction (vph)	0	0	6	0	0	24	0	0	34	0	0	5
Lane Group Flow (vph)	238	838	445	395	856	176	613	1052	291	203	957	198
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	31.0	52.0	14.0	29.0	45.0	21.0	39.0	53.0	16.0	34.0	50.0
Effective Green, g (s)	16.0	31.0	52.0	14.0	29.0	45.0	21.0	39.0	53.0	16.0	34.0	50.0
Actuated g/C Ratio	0.13	0.26	0.43	0.12	0.24	0.38	0.18	0.32	0.44	0.13	0.28	0.42
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	905	745	397	847	653	595	1139	758	453	993	719
v/s Ratio Prot	c0.14	0.24	0.10	0.12	c0.24	0.04	c0.18	c0.30	0.04	0.06	0.27	0.04
v/s Ratio Perm			0.18			0.08			0.14			0.09
v/c Ratio	1.02	0.93	0.60	0.99	1.01	0.27	1.03	0.92	0.38	0.45	0.96	0.28
Uniform Delay, d1	52.0	43.4	26.0	53.0	45.5	26.1	49.5	39.1	22.5	47.9	42.4	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.17	0.79	0.57	1.00	1.00	1.00
Incremental Delay, d2	63.3	15.0	1.3	43.6	33.6	0.2	19.9	1.6	0.0	3.2	21.0	0.2
Delay (s)	115.3	58.3	27.3	96.5	79.1	26.3	78.1	32.4	12.8	51.1	63.4	23.3
Level of Service	F	E	C	F	E	C	E	C	B	D	E	C
Approach Delay (s)		58.1			76.6			43.3			55.6	
Approach LOS		E			E			D			E	

Intersection Summary

HCM Average Control Delay	57.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

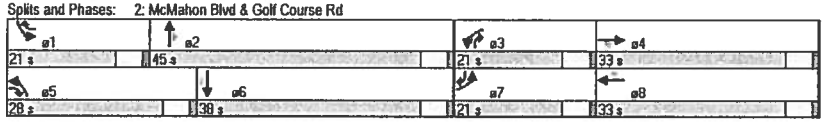
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	474	427	813	190	616	1009	362	187	898	187
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	21.0	33.0	28.0	21.0	33.0	21.0	28.0	45.0	21.0	21.0	38.0	21.0
Total Split (%)	17.5%	27.5%	23.3%	17.5%	27.5%	17.5%	23.3%	37.5%	17.5%	17.5%	31.7%	17.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	16.0	28.0	56.0	16.0	28.0	49.0	23.0	40.0	61.0	16.0	33.0	54.0
Actuated g/C Ratio	0.13	0.23	0.47	0.13	0.23	0.41	0.19	0.33	0.51	0.13	0.28	0.45
v/c Ratio	1.02	1.02	0.66	0.99	1.05	0.30	1.00	0.92	0.47	0.45	1.01	0.29
Control Delay	114.9	83.2	29.6	92.3	89.0	20.2	70.3	31.4	11.5	51.5	75.5	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.9	63.2	29.6	92.3	89.0	20.2	70.3	31.4	11.5	51.5	75.5	21.3
LOS	F	F	C	F	F	C	E	C	B	D	E	C
Approach Delay		71.3			80.8			39.8			64.0	
Approach LOS		E			F			D			E	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 28 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 61.8 — Intersection LOS: E
Intersection Capacity Utilization 94.3% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	474	427	813	190	616	1009	362	187	898	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	238	838	489	449	856	200	655	1073	385	203	976	203
RTOR Reduction (vph)	0	0	5	0	0	26	0	0	31	0	0	5
Lane Group Flow (vph)	238	838	484	449	856	174	655	1073	354	203	976	198
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	28.0	51.0	18.0	28.0	44.0	23.0	40.0	56.0	16.0	33.0	49.0
Effective Green, g (s)	16.0	28.0	51.0	16.0	28.0	44.0	23.0	40.0	56.0	16.0	33.0	49.0
Actuated g/C Ratio	0.13	0.23	0.42	0.13	0.23	0.37	0.19	0.33	0.47	0.13	0.28	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	818	732	453	818	640	652	1168	797	453	964	706
v/s Ratio Prot	c0.14	0.24	0.13	0.13	c0.24	0.04	c0.19	0.31	0.06	0.06	c0.28	0.04
v/s Ratio Perm			0.18			0.07			0.17			0.09
v/c Ratio	1.02	1.02	0.66	0.99	1.05	0.27	1.00	0.92	0.44	0.45	1.01	0.28
Uniform Delay, d1	52.0	46.0	27.6	51.9	46.0	26.7	48.5	38.4	21.5	47.9	43.5	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.23	0.76	0.70	1.00	1.00	1.00
Incremental Delay, d2	63.3	37.8	2.2	39.8	44.3	0.2	11.7	1.5	0.0	3.2	32.1	0.2
Delay (s)	115.3	83.8	29.8	91.8	90.3	27.0	71.3	30.7	15.1	51.1	75.6	23.9
Level of Service	F	F	C	F	F	C	E	C	B	D	E	C
Approach Delay (s)		71.7			82.3			40.5			64.4	
Approach LOS		E			F			D			E	

Intersection Summary

HCM Average Control Delay	52.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
2: McMahon Blvd & Golf Course Rd

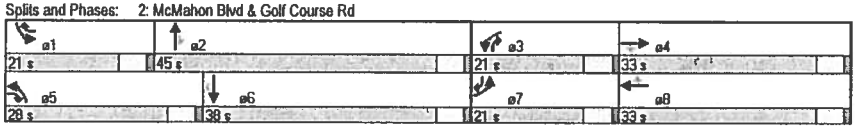
Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	474	427	813	190	616	1009	362	187	898	187
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	10.0
Total Split (s)	21.0	33.0	28.0	21.0	33.0	21.0	28.0	45.0	21.0	21.0	38.0	21.0
Total Split (%)	17.5%	27.5%	23.3%	17.5%	27.5%	17.5%	23.3%	37.5%	17.5%	17.5%	31.7%	17.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Max	Min	C-Max	Min	Max	C-Max	Min
Act Effct Green (s)	16.0	28.0	56.0	16.0	28.0	49.0	23.0	40.0	61.0	16.0	33.0	54.0
Actuated g/C Ratio	0.13	0.23	0.47	0.13	0.23	0.41	0.19	0.33	0.51	0.13	0.28	0.45
v/c Ratio	1.02	1.02	0.66	0.99	1.05	0.30	1.00	0.92	0.47	0.45	1.01	0.29
Control Delay	114.9	83.2	29.6	92.3	89.0	20.2	81.8	40.3	9.3	51.5	75.5	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.9	83.2	29.6	92.3	89.0	20.2	81.8	40.3	9.3	51.5	75.5	21.3
LOS	F	F	C	F	F	C	F	D	A	D	E	C
Approach Delay		71.3			80.8			47.5			64.0	
Approach LOS		E			F			D			E	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 64.3 — Intersection LOS: E
Intersection Capacity Utilization 94.3% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: McMahon Blvd & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
2: McMahon Blvd & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	813	474	427	813	190	616	1009	362	187	898	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1568	3400	3505	1568	3400	3505	1568	3400	3505	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	238	838	489	449	856	200	655	1073	385	203	976	203
RTOR Reduction (vph)	0	0	5	0	0	26	0	0	31	0	0	5
Lane Group Flow (vph)	238	838	484	449	856	174	655	1073	354	203	976	198
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	28.0	51.0	16.0	28.0	44.0	23.0	40.0	56.0	16.0	33.0	49.0
Effective Green, g (s)	16.0	28.0	51.0	16.0	28.0	44.0	23.0	40.0	56.0	16.0	33.0	49.0
Actuated g/C Ratio	0.13	0.23	0.42	0.13	0.23	0.37	0.19	0.33	0.47	0.13	0.28	0.41
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	818	732	453	818	640	652	1168	797	453	964	706
v/s Ratio Prot	c0.14	0.24	0.13	0.13	c0.24	0.04	c0.19	0.31	0.06	0.06	c0.28	0.04
v/s Ratio Perm			0.18			0.07			0.17			0.09
v/c Ratio	1.02	1.02	0.66	0.99	1.05	0.27	1.00	0.92	0.44	0.45	1.01	0.28
Uniform Delay, d1	52.0	46.0	27.6	51.9	46.0	26.7	48.5	38.4	21.5	47.9	43.5	23.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	0.79	0.50	1.00	1.00	1.00
Incremental Delay, d2	63.3	37.8	2.2	39.8	44.3	0.2	29.8	9.2	0.3	3.2	32.1	0.2
Delay (s)	115.3	83.8	29.8	91.8	90.3	27.0	82.1	39.7	11.0	51.1	75.6	23.9
Level of Service	F	F	C	F	F	C	F	D	B	D	E	C
Approach Delay (s)		71.7			82.3			47.6			64.4	
Approach LOS		E			F			D			E	

Intersection Summary

HCM Average Control Delay	64.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

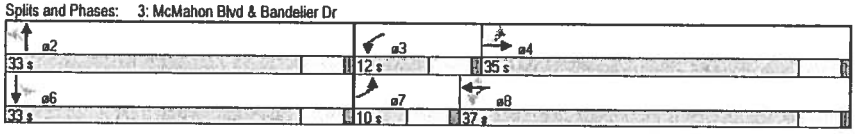
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	5	1007	39	372	28	7	1	261	5
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	35.0	12.0	37.0	37.0	33.0	33.0	33.0	33.0
Total Split (%)	12.5%	43.8%	15.0%	46.3%	46.3%	41.3%	41.3%	41.3%	41.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	34.8	29.8	37.5	31.2	31.2	25.9	25.9	25.9	25.9
Actuated g/C Ratio	0.45	0.39	0.49	0.40	0.40	0.34	0.34	0.34	0.34
v/c Ratio	0.01	0.93	0.18	0.30	0.05	0.02	0.38	0.92	0.04
Control Delay	9.4	37.6	11.2	16.7	5.9	17.3	8.9	59.2	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	37.6	11.2	16.7	5.9	17.3	8.9	59.2	10.3
LOS	A	D	B	B	A	B	A	E	B
Approach Delay		37.4		15.5			9.2		55.9
Approach LOS		D		B			A		E

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 77.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.3 — Intersection LOS: C
Intersection Capacity Utilization 70.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr



HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1007	4	39	372	28	7	1	183	261	5	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.85		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3503		1752	3505	1568	1752	1569		1752	1643	
Flt Permitted	0.50	1.00		0.13	1.00	1.00	0.74	1.00		0.53	1.00	
Satd. Flow (perm)	929	3503		236	3505	1568	1371	1569		987	1643	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.75	0.75	0.75	0.86	0.86	0.86
Adj. Flow (vph)	6	1259	5	44	423	32	9	1	244	303	6	16
RTOR Reduction (vph)	0	1	0	0	0	19	0	110	0	0	11	0
Lane Group Flow (vph)	6	1263	0	44	423	13	9	135	0	303	11	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	34.8	29.8		37.6	31.2	31.2	25.9	25.9		25.9	25.9	
Effective Green, g (s)	34.8	29.8		37.6	31.2	31.2	25.9	25.9		25.9	25.9	
Actuated g/C Ratio	0.45	0.39		0.49	0.40	0.40	0.34	0.34		0.34	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	1354		241	1418	635	461	527		332	552	
v/s Ratio Prot	0.00	c0.36		c0.02	0.12			0.09			0.01	
v/s Ratio Perm	0.00			0.07		0.01	0.01			c0.31		
v/c Ratio	0.01	0.93		0.18	0.30	0.02	0.02	0.26		0.91	0.02	
Uniform Delay, d1	11.6	22.7		14.3	15.5	13.8	17.1	18.6		24.5	17.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	11.8		0.4	0.1	0.0	0.0	0.3		28.2	0.0	
Delay (s)	11.7	34.5		14.7	15.7	13.8	17.1	18.9		52.7	17.1	
Level of Service	B	C		B	B	B	B	B		D	B	
Approach Delay (s)		34.4			15.5			18.8			50.3	
Approach LOS		C			B			B			D	

Intersection Summary

HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	5	1092	44	417	31	8	1	292	8
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		8
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	36.0	10.0	36.0	36.0	34.0	34.0	34.0	34.0
Total Split (%)	12.5%	45.0%	12.5%	45.0%	45.0%	42.5%	42.5%	42.5%	42.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.0	31.0	36.0	31.0	31.0	29.0	29.0	29.0	29.0
Actuated g/C Ratio	0.45	0.39	0.45	0.39	0.39	0.36	0.36	0.36	0.36
v/c Ratio	0.01	1.01	0.25	0.35	0.06	0.02	0.41	1.01	0.04
Control Delay	9.8	52.8	13.1	18.3	6.0	16.8	10.1	79.5	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	52.8	13.1	18.3	6.0	16.8	10.1	79.5	9.5
LOS	A	D	B	B	A	B	B	E	A
Approach Delay		52.6		17.0			10.4		74.5
Approach LOS		D		B			B		E

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 43.4 — Intersection LOS: D
Intersection Capacity Utilization 78.0% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr

ø2	ø3	ø4
34 s	10 s	36 s
ø6	ø7	ø8
34 s	10 s	36 s

HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1092	4	44	417	31	8	1	205	292	8	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.85		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3503		1752	3505	1568	1752	1569		1752	1642	
Flt Permitted	0.44	1.00		0.13	1.00	1.00	0.74	1.00		0.51	1.00	
Satd. Flow (perm)	804	3503		238	3505	1568	1366	1569		934	1642	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.75	0.75	0.75	0.86	0.86	0.86
Adj. Flow (vph)	6	1365	5	50	474	35	11	1	273	340	7	19
RTOR Reduction (vph)	0	1	0	0	0	21	0	101	0	0	12	0
Lane Group Flow (vph)	6	1369	0	50	474	14	11	173	0	340	14	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	36.0	31.0		36.0	31.0	31.0	29.0	29.0		29.0	29.0	
Effective Green, g (s)	36.0	31.0		36.0	31.0	31.0	29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.45	0.39		0.45	0.39	0.39	0.36	0.36		0.36	0.36	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	421	1357		202	1358	608	495	569		339	595	
v/s Ratio Prot	0.00	c0.39		c0.02	0.14			0.11			0.01	
v/s Ratio Perm	0.01			0.10		0.01	0.01			c0.36		
v/c Ratio	0.01	1.01		0.25	0.35	0.02	0.02	0.30		1.00	0.02	
Uniform Delay, d1	12.2	24.5		17.1	17.4	15.1	16.4	18.3		25.5	16.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	26.7		0.6	0.2	0.0	0.0	0.3		49.6	0.0	
Delay (s)	12.2	51.2		17.8	17.5	15.2	18.4	18.6		75.1	16.4	
Level of Service	B	D		B	B	B	B	B		E	B	
Approach Delay (s)		51.0			17.4			18.5			71.0	
Approach LOS		D			B			B			E	

Intersection Summary

HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	5	1101	46	424	32	8	1	294	6
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	40.0	11.0	41.0	41.0	39.0	39.0	39.0	39.0
Total Split (%)	11.1%	44.4%	12.2%	45.6%	45.6%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	40.0	35.0	41.8	35.9	35.9	34.0	34.0	34.0	34.0
Actuated g/C Ratio	0.44	0.39	0.46	0.40	0.40	0.38	0.38	0.38	0.38
v/c Ratio	0.01	1.01	0.26	0.34	0.06	0.02	0.41	0.98	0.04
Control Delay	11.2	56.2	14.7	19.7	6.1	17.9	11.6	74.5	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	56.2	14.7	19.7	6.1	17.9	11.6	74.5	9.8
LOS	B	E	B	B	A	B	B	E	A
Approach Delay		56.0		18.4			11.8		69.9
Approach LOS		E		B			B		E

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 89.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 44.9 — Intersection LOS: D
Intersection Capacity Utilization 79.9% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr

ø2	ø3	ø4
39 s	11 s	40 s
ø6	ø7	ø8
39 s	10 s	41 s

HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1101	4	46	424	32	8	1	208	294	6	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.85		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3503		1752	3505	1568	1752	1569		1752	1642	
Flt Permitted	0.44	1.00		0.11	1.00	1.00	0.74	1.00		0.50	1.00	
Satd. Flow (perm)	805	3503		206	3505	1568	1366	1569		920	1642	
Peak-hour factor, PHF	0.80	0.80	0.80	0.88	0.88	0.88	0.75	0.75	0.75	0.86	0.86	0.86
Adj. Flow (vph)	6	1376	5	52	482	36	11	1	277	342	7	19
RTOR Reduction (vph)	0	0	0	0	0	22	0	90	0	0	12	0
Lane Group Flow (vph)	6	1381	0	52	482	14	11	188	0	342	14	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	40.0	35.0		41.8	35.9	35.9	34.0	34.0		34.0	34.0	
Effective Green, g (s)	40.0	35.0		41.8	35.9	35.9	34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.44	0.39		0.46	0.40	0.40	0.38	0.38		0.38	0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	411	1364		197	1400	626	517	593		348	621	
v/s Ratio Prot	0.00	c0.39		c0.02	0.14			0.12			0.01	
v/s Ratio Perm	0.01			0.11		0.01	0.01			c0.37		
v/c Ratio	0.01	1.01		0.26	0.34	0.02	0.02	0.32		0.98	0.02	
Uniform Delay, d1	13.9	27.5		19.1	18.8	16.4	17.5	19.8		27.7	17.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	27.5		0.7	0.1	0.0	0.0	0.3		43.3	0.0	
Delay (s)	14.0	54.9		19.8	19.0	16.4	17.5	20.1		71.0	17.5	
Level of Service	B	D		B	B	B	B	C		E	B	
Approach Delay (s)		54.8			18.9			20.0			67.2	
Approach LOS		D			B			B			E	

Intersection Summary

HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

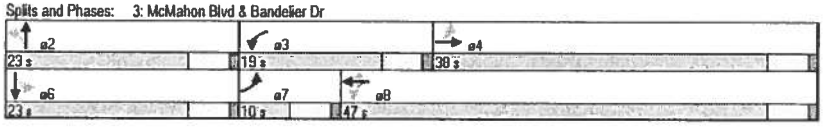
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	15	606	138	1058	194	5	1	115	3
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	38.0	19.0	47.0	47.0	23.0	23.0	23.0	23.0
Total Split (%)	12.5%	47.5%	23.8%	58.8%	58.8%	28.8%	28.8%	28.8%	28.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	31.6	26.4	36.5	28.9	28.9	11.7	11.7	11.7	11.7
Actuated g/C Ratio	0.51	0.43	0.59	0.47	0.47	0.19	0.19	0.19	0.19
v/c Ratio	0.06	0.47	0.30	0.68	0.24	0.02	0.32	0.54	0.05
Control Delay	5.7	13.8	6.5	14.9	2.4	23.2	8.0	33.8	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	13.8	6.5	14.9	2.4	23.2	8.0	33.8	14.6
LOS	A	B	A	B	A	C	A	C	B
Approach Delay		13.7		12.4			8.7		31.8
Approach LOS		B		B			A		C

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 61.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.7 — Intersection LOS: B
Intersection Capacity Utilization 59.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr



HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	606	24	138	1058	194	5	1	100	115	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3485		1752	3505	1568	1752	1570		1752	1623	
Flt Permitted	0.18	1.00		0.30	1.00	1.00	0.75	1.00		0.68	1.00	
Satd. Flow (perm)	330	3485		547	3505	1568	1379	1570		1247	1623	
Peak-hour factor, PHF	0.89	0.89	0.89	0.95	0.95	0.95	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	17	681	27	145	1114	204	8	1	125	128	3	12
RTOR Reduction (vph)	0	3	0	0	0	107	0	101	0	0	10	0
Lane Group Flow (vph)	17	705	0	145	1114	97	8	25	0	128	5	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	31.6	26.4		36.6	28.9	28.9	11.7	11.7		11.7	11.7	
Effective Green, g (s)	31.6	26.4		36.6	28.9	28.9	11.7	11.7		11.7	11.7	
Actuated g/C Ratio	0.52	0.43		0.60	0.48	0.48	0.19	0.19		0.19	0.19	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	293	1513		482	1666	745	265	302		240	312	
v/s Ratio Prot	0.00	0.20		c0.04	c0.32			0.02			0.00	
v/s Ratio Perm	0.03			0.14		0.06	0.00			c0.10		
v/c Ratio	0.06	0.47		0.30	0.87	0.13	0.02	0.08		0.53	0.02	
Uniform Delay, d1	7.6	12.2		5.7	12.3	8.9	19.9	20.1		22.1	19.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.4	1.0	0.1	0.0	0.1		2.3	0.0	
Delay (s)	7.7	12.4		6.0	13.3	9.0	19.9	20.3		24.4	19.9	
Level of Service	A	B		A	B	A	B	C		C	B	
Approach Delay (s)		12.3			12.0			20.3			23.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	16	857	155	1185	217	6	1	129	3
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	47.0	16.0	53.0	53.0	27.0	27.0	27.0	27.0
Total Split (%)	11.1%	52.2%	17.8%	58.9%	58.9%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	37.0	31.8	42.9	34.8	34.8	13.9	13.9	13.9	13.9
Actuated g/C Ratio	0.53	0.46	0.62	0.50	0.50	0.20	0.20	0.20	0.20
v/c Ratio	0.07	0.48	0.36	0.71	0.25	0.03	0.33	0.58	0.05
Control Delay	6.5	14.7	7.6	16.3	2.3	25.5	7.8	37.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	14.7	7.6	16.3	2.3	25.5	7.8	37.7	15.3
LOS	A	B	A	B	A	C	A	D	B
Approach Delay		14.5		13.5			8.7		35.4
Approach LOS		B		B			A		D

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 69.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 63.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr

ø2	ø3	ø4
27 s	16 s	47 s
ø6	ø7	ø8
27 s	10 s	53 s

HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	657	26	155	1185	217	6	1	112	129	3	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3485		1752	3505	1588	1752	1570		1752	1620	
Flt Permitted	0.14	1.00		0.27	1.00	1.00	0.75	1.00		0.67	1.00	
Satd. Flow (perm)	263	3485		499	3505	1568	1378	1570		1230	1620	
Peak-hour factor, PHF	0.89	0.89	0.89	0.95	0.95	0.95	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	18	738	29	163	1247	228	8	1	140	143	3	13
RTOR Reduction (vph)	0	3	0	0	0	113	0	112	0	0	10	0
Lane Group Flow (vph)	18	764	0	163	1247	115	8	29	0	143	6	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.0	31.8		43.0	34.8	34.8	13.9	13.9		13.9	13.9	
Effective Green, g (s)	37.0	31.8		43.0	34.8	34.8	13.9	13.9		13.9	13.9	
Actuated g/C Ratio	0.54	0.46		0.62	0.51	0.51	0.20	0.20		0.20	0.20	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	1608		461	1770	792	278	317		248	327	
v/s Ratio Prot	0.01	0.22		c0.04	c0.36			0.02			0.00	
v/s Ratio Perm	0.03			0.18		0.07	0.01			c0.12		
v/c Ratio	0.07	0.47		0.35	0.70	0.15	0.03	0.09		0.58	0.02	
Uniform Delay, d1	8.5	12.8		6.1	13.1	9.1	22.1	22.4		24.8	22.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.5	1.3	0.1	0.0	0.1		3.2	0.0	
Delay (s)	8.6	13.0		6.6	14.4	9.2	22.1	22.5		28.1	22.0	
Level of Service	A	B		A	B	A	C	C		C	C	
Approach Delay (s)		12.9			12.9			22.5			27.5	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Timings
3: McMahon Blvd & Bandelier Dr

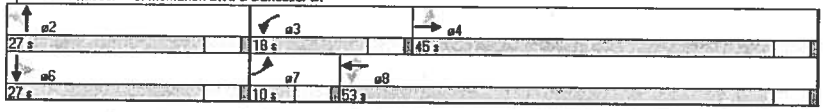
Terry O. Brown, PE
5/22/2011

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	16	681	163	1210	223	6	1	135	3
Turn Type	pm+pt		pm+pt		Perm	Perm		Perm	
Protected Phases	7	4	3	8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	7	4	3	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	10.0	45.0	18.0	53.0	53.0	27.0	27.0	27.0	27.0
Total Split (%)	11.1%	50.0%	20.0%	58.9%	58.9%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	38.3	33.1	44.6	36.3	36.3	14.7	14.7	14.7	14.7
Actuated g/C Ratio	0.53	0.46	0.62	0.50	0.50	0.20	0.20	0.20	0.20
v/c Ratio	0.07	0.49	0.39	0.72	0.26	0.03	0.34	0.61	0.05
Control Delay	6.7	15.2	8.1	16.7	2.3	25.8	7.7	39.5	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	15.2	8.1	16.7	2.3	25.8	7.7	39.5	15.4
LOS	A	B	A	B	A	C	A	D	B
Approach Delay		15.0		13.8			8.6		37.2
Approach LOS		B		B			A		D

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 71.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 15.2 — Intersection LOS: B
Intersection Capacity Utilization 69.2% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: McMahon Blvd & Bandelier Dr



HCM Signalized Intersection Capacity Analysis
3: McMahon Blvd & Bandelier Dr

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	681	26	163	1210	223	6	1	120	135	3	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.85		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3486		1752	3505	1568	1752	1570		1752	1620	
Flt Permitted	0.14	1.00		0.26	1.00	1.00	0.75	1.00		0.65	1.00	
Satd. Flow (perm)	251	3486		473	3505	1568	1378	1570		1204	1620	
Peak-hour factor, PHF	0.89	0.89	0.89	0.95	0.95	0.95	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	18	766	29	172	1274	235	8	1	150	150	3	13
RTOR Reduction (vph)	0	3	0	0	0	115	0	119	0	0	10	0
Lane Group Flow (vph)	18	791	0	172	1274	120	8	32	0	150	6	0
Turn Type	pm+pt			pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	38.3	33.1		44.9	36.4	36.4	14.7	14.7		14.7	14.7	
Effective Green, g (s)	38.3	33.1		44.9	36.4	36.4	14.7	14.7		14.7	14.7	
Actuated g/C Ratio	0.54	0.46		0.63	0.51	0.51	0.21	0.21		0.21	0.21	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	1618		450	1789	800	284	324		248	334	
v/s Ratio Prot	0.01	0.23		c0.05	c0.36			0.02			0.00	
v/s Ratio Perm	0.03			0.20		0.08	0.01			c0.12		
v/c Ratio	0.07	0.49		0.38	0.71	0.15	0.03	0.10		0.60	0.02	
Uniform Delay, d1	8.8	13.2		6.3	13.4	9.2	22.6	22.9		25.7	22.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.5	1.4	0.1	0.0	0.1		4.1	0.0	
Delay (s)	9.0	13.5		6.9	14.8	9.3	22.6	23.1		29.8	22.6	
Level of Service	A	B		A	B	A	C	C		C	C	
Approach Delay (s)		13.4			13.2			23.0			29.1	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	32	764	7	6	1582
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	41	38	868	8	7	1798
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1060
pX, platoon unblocked	0.78					
vC, conflicting volume	1785	438			876	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1444	438			876	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	56	93			99	
cM capacity (veh/h)	94	564			760	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	79	579	297	7	899	899
Volume Left	41	0	0	7	0	0
Volume Right	38	0	8	0	0	0
cSH	156	1700	1700	760	1700	1700
Volume to Capacity	0.50	0.34	0.17	0.01	0.53	0.53
Queue Length 95th (ft)	61	0	0	1	0	0
Control Delay (s)	49.3	0.0	0.0	9.8	0.0	0.0
Lane LOS	E			A		
Approach Delay (s)	49.3	0.0		0.0		
Approach LOS	E					

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	39	36	856	8	7	1772
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	46	42	973	9	8	2014
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1060
pX, platoon unblocked	0.75					
vC, conflicting volume	2000	491			982	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1666	491			982	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	28	92			99	
cM capacity (veh/h)	64	521			693	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	88	648	333	8	1007	1007
Volume Left	46	0	0	8	0	0
Volume Right	42	0	9	0	0	0
cSH	111	1700	1700	693	1700	1700
Volume to Capacity	0.80	0.38	0.20	0.01	0.59	0.59
Queue Length 95th (ft)	113	0	0	1	0	0
Control Delay (s)	109.0	0.0	0.0	10.3	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	109.0	0.0		0.0		
Approach LOS	F					

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	1	16	39	1	36	40	856	8	7	1797	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	46	1	19	46	1	42	45	973	9	8	2042	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1060	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	2678	3131	1021	2125	3155	491	2070			982		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2555	3181	262	1789	3214	491	1714			982		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	80	96	0	79	92	83			99		
cM capacity (veh/h)	6	6	530	26	6	521	261			693		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	66	89	45	648	333	8	1021	1021	28
Volume Left	46	46	45	0	0	8	0	0	0
Volume Right	19	42	0	0	9	0	0	0	28
cSH	9	43	261	1700	1700	693	1700	1700	1700
Volume to Capacity	7.57	2.07	0.17	0.38	0.20	0.01	0.60	0.60	0.02
Queue Length 95th (ft)	Err	234	15	0	0	1	0	0	0
Control Delay (s)	Err	699.6	21.7	0.0	0.0	10.3	0.0	0.0	0.0
Lane LOS	F	F	C			B			
Approach Delay (s)	Err	699.6	1.0			0.0			
Approach LOS	F	F							

Intersection Summary			
Average Delay	221.5		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

Timings
4: 'A' & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	39	1	39	1	40	856	7	1797	25
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	15.0	15.0	15.0	15.0	95.0	95.0	95.0	95.0	95.0
Total Split (%)	13.6%	13.6%	13.6%	13.6%	86.4%	86.4%	86.4%	86.4%	86.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		8.6		8.6	94.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio		0.08		0.08	0.86	0.86	0.86	0.86	0.86
v/c Ratio		0.58		0.62	0.37	0.33	0.02	0.68	0.02
Control Delay		59.2		50.9	14.2	1.3	0.9	1.8	0.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		59.2		50.9	14.2	1.3	0.9	1.8	0.2
LOS		E		D	B	A	A	A	A
Approach Delay		59.2		50.9		1.9		1.7	
Approach LOS		E		D		A		A	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 4.3 — Intersection LOS: A
Intersection Capacity Utilization 62.7% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: 'A' & Golf Course Rd

ø2	ø4
95 s	15 s
ø6	ø8
95 s	15 s

HCM Signalized Intersection Capacity Analysis
4: 'A' & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	1	16	39	1	36	40	856	8	7	1797	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.96			0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1713			1684		1752	3500		1752	3505	1568
Flt Permitted		0.72			0.85		0.08	1.00		0.29	1.00	1.00
Satd. Flow (perm)		1270			1462		142	3500		526	3505	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	46	1	19	46	1	42	45	973	9	8	2042	28
RTOR Reduction (vph)	0	14	0	0	30	0	0	0	0	0	0	4
Lane Group Flow (vph)	0	52	0	0	59	0	45	982	0	8	2042	24
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		7.5			7.5		92.5	92.5		92.5	92.5	92.5
Effective Green, g (s)		7.5			7.5		92.5	92.5		92.5	92.5	92.5
Actuated g/C Ratio		0.07			0.07		0.84	0.84		0.84	0.84	0.84
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		87			100		119	2943		442	2947	1319
v/s Ratio Prot								0.28			c0.58	
v/s Ratio Perm		c0.04			0.04		0.32			0.02		0.02
v/c Ratio		0.60			0.59		0.38	0.33		0.02	0.69	0.02
Uniform Delay, d1		49.8			49.8		2.0	1.9		1.4	3.3	1.4
Progression Factor		1.00			1.00		1.96	0.53		0.45	0.44	0.35
Incremental Delay, d2		10.6			9.1		7.0	0.2		0.0	0.1	0.0
Delay (s)		60.4			58.8		11.0	1.3		0.6	1.6	0.5
Level of Service		E			E		B	A		A	A	A
Approach Delay (s)		60.4			58.8			1.7			1.6	
Approach LOS		E			E			A			A	

Intersection Summary

HCM Average Control Delay	4.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	33	1669	37	42	1283
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	13	39	1776	39	45	1365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1060
pX, platoon unblocked	0.84					
vC, conflicting volume	2567	907			1815	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2487	907			1815	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	26	86			86	
cM capacity (veh/h)	17	276			330	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1184	631	45	682	682
Volume Left	0	0	45	0	0
Volume Right	0	39	0	0	0
cSH	1700	1700	330	1700	1700
Volume to Capacity	0.70	0.37	0.14	0.40	0.40
Queue Length 95th (ft)	0	0	12	0	0
Control Delay (s)	0.0	0.0	17.6	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		0.6		
Approach LOS					

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	37	1869	41	47	1437
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	14	44	1988	44	50	1529
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1060
pX, platoon unblocked	0.77					
vC, conflicting volume	2874	1016			2032	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2836	1016			2032	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	81			82	
cM capacity (veh/h)	8	234			271	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	58	1326	706	50	764	764
Volume Left	14	0	0	50	0	0
Volume Right	44	0	44	0	0	0
cSH	31	1700	1700	271	1700	1700
Volume to Capacity	1.85	0.78	0.42	0.18	0.45	0.45
Queue Length 95th (ft)	165	0	0	17	0	0
Control Delay (s)	675.0	0.0	0.0	21.3	0.0	0.0
Lane LOS	F			C		
Approach Delay (s)	675.0	0.0		0.7		
Approach LOS	F					

Intersection Summary			
Average Delay	10.9		
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

Terry O. Brown, PE
5/22/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	135	1	55	12	1	37	98	1852	41	47	1480	65
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	159	1	65	14	1	44	104	1970	44	50	1574	69
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1060	
pX, platoon unblocked	0.77	0.77	0.77	0.77	0.77		0.77					
vC, conflicting volume	2912	3897	787	3153	3944	1007	1644			2014		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2886	4168	117	3199	4230	1007	1233			2014		
tC, single (s)	7.6	6.6	7.0	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	91	0	0	82	76			82		
cM capacity (veh/h)	0	1	698	0	1	237	426			276		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	225	59	104	1313	700	50	787	787	69
Volume Left	159	14	104	0	0	50	0	0	0
Volume Right	65	44	0	0	44	0	0	0	69
cSH	0	0	426	1700	1700	276	1700	1700	1700
Volume to Capacity	Err	Err	0.24	0.77	0.41	0.18	0.46	0.46	0.04
Queue Length 95th (ft)	Err	Err	24	0	0	16	0	0	0
Control Delay (s)	Err	Err	16.2	0.0	0.0	20.9	0.0	0.0	0.0
Lane LOS	F	F	C			C			
Approach Delay (s)	Err	Err	0.8			0.6			
Approach LOS	F	F							

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

Timings
4: 'A' & Golf Course Rd

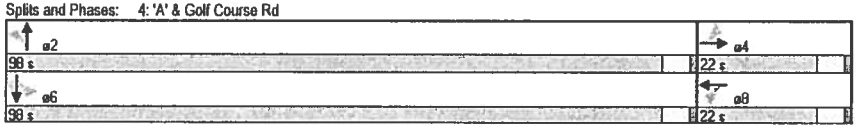
Terry O. Brown, PE
5/24/2011

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	135	1	12	1	98	1852	47	1480	65
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	8
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	98.0	98.0	98.0	98.0	98.0
Total Split (%)	18.3%	18.3%	18.3%	18.3%	81.7%	81.7%	81.7%	81.7%	81.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	16.2	16.2		16.2	93.8	93.8	93.8	93.8	93.8
Actuated g/C Ratio	0.14	0.14		0.14	0.78	0.78	0.78	0.78	0.78
v/c Ratio	0.85	0.25		0.25	0.55	0.74	0.52	0.57	0.06
Control Delay	87.2	13.7		25.9	5.7	4.4	21.2	6.1	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.2	13.7		25.9	5.7	4.4	21.2	6.1	1.7
LOS	F	B		C	A	A	C	A	A
Approach Delay		65.6		25.9		4.4		6.4	
Approach LOS		E		C		A		A	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 8.9 — Intersection LOS: A
Intersection Capacity Utilization 83.3% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: 'A' & Golf Course Rd



HCM Signalized Intersection Capacity Analysis
4: 'A' & Golf Course Rd

Terry O. Brown, PE
5/24/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	1	55	12	1	37	98	1852	41	47	1480	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.90		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1572			1639		1752	3493		1752	3505	1568
Flt Permitted	0.75	1.00			0.93		0.13	1.00		0.07	1.00	1.00
Satd. Flow (perm)	1383	1572			1538		242	3493		123	3505	1568
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	159	1	65	14	1	44	104	1970	44	50	1574	69
RTOR Reduction (vph)	0	56	0	0	30	0	0	1	0	0	0	15
Lane Group Flow (vph)	159	10	0	0	29	0	104	2013	0	50	1574	54
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	16.2	16.2			16.2		93.8	93.8		93.8	93.8	93.8
Effective Green, g (s)	16.2	16.2			16.2		93.8	93.8		93.8	93.8	93.8
Actuated g/C Ratio	0.13	0.13			0.13		0.78	0.78		0.78	0.78	0.78
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	187	212			208		189	2730		96	2740	1226
v/s Ratio Prot		0.01						c0.58			0.45	
v/s Ratio Perm	c0.11				0.02		0.43			0.41		0.03
v/c Ratio	0.85	0.05			0.14		0.55	0.74		0.52	0.57	0.04
Uniform Delay, d1	50.7	45.2			45.7		5.0	6.8		4.8	5.2	3.0
Progression Factor	1.00	1.00			1.00		0.64	0.59		1.50	1.06	2.24
Incremental Delay, d2	29.0	0.1			0.3		1.0	0.2		7.5	0.3	0.0
Delay (s)	79.7	45.3			46.1		4.3	4.1		14.8	5.9	6.7
Level of Service	E	D			D		A	A		B	A	A
Approach Delay (s)		69.6			46.1			4.1			6.2	
Approach LOS		E			D			A			A	

Intersection Summary

HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	16	0	896	1779	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	19	0	1018	2022	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				972		
pX, platoon unblocked	0.83					
vC, conflicting volume	2545	1025	2050			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2454	1025	2050			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	100			
cM capacity (veh/h)	21	231	267			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	509	509	1348	702
Volume Left	0	0	0	0	0
Volume Right	19	0	0	0	28
cSH	231	1700	1700	1700	1700
Volume to Capacity	0.08	0.30	0.30	0.79	0.41
Queue Length 95th (ft)	7	0	0	0	0
Control Delay (s)	22.0	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	22.0	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	50	0	1950	1428	59
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	59	0	2074	1519	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				980		
pX, platoon unblocked	0.69					
vC, conflicting volume	2588	791	1582			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2401	791	1582			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	82	100			
cM capacity (veh/h)	19	330	407			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	59	1037	1037	1013	569
Volume Left	0	0	0	0	0
Volume Right	59	0	0	0	63
cSH	330	1700	1700	1700	1700
Volume to Capacity	0.18	0.61	0.61	0.60	0.33
Queue Length 95th (ft)	16	0	0	0	0
Control Delay (s)	18.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	18.2	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

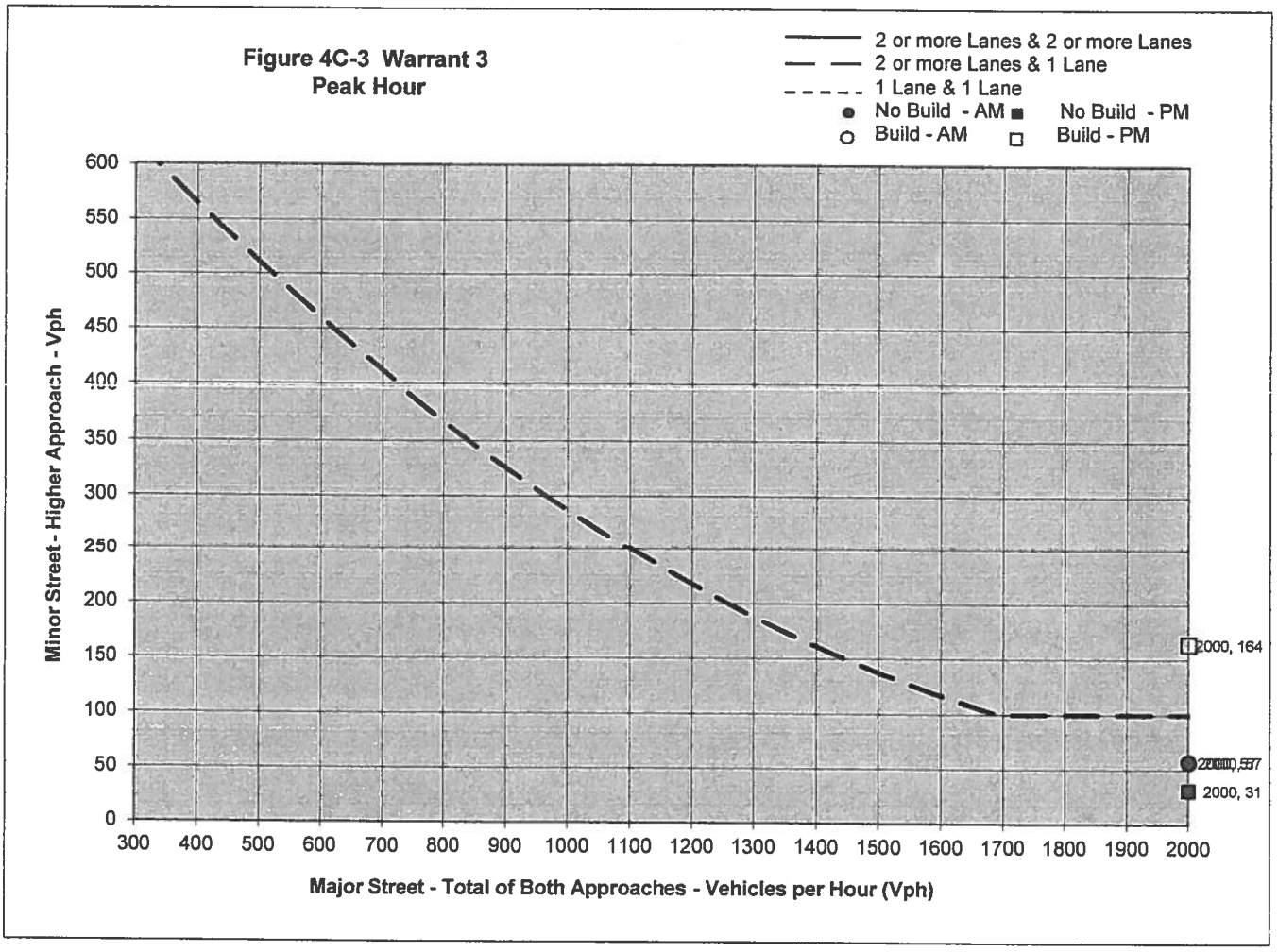
Project Name
Golf Course Rd Development
Intersection
Driveway 'A' / Golf Course Rd
Analysis Year
2015

Number of Lanes

Major St.	2
Minor St.	1

Analysis Year Traffic Volumes

AM	Major	Minor	PM	Major	Minor
No Build	2643	57	No Build	3394	31
Build	2733	57	Build	3583	164

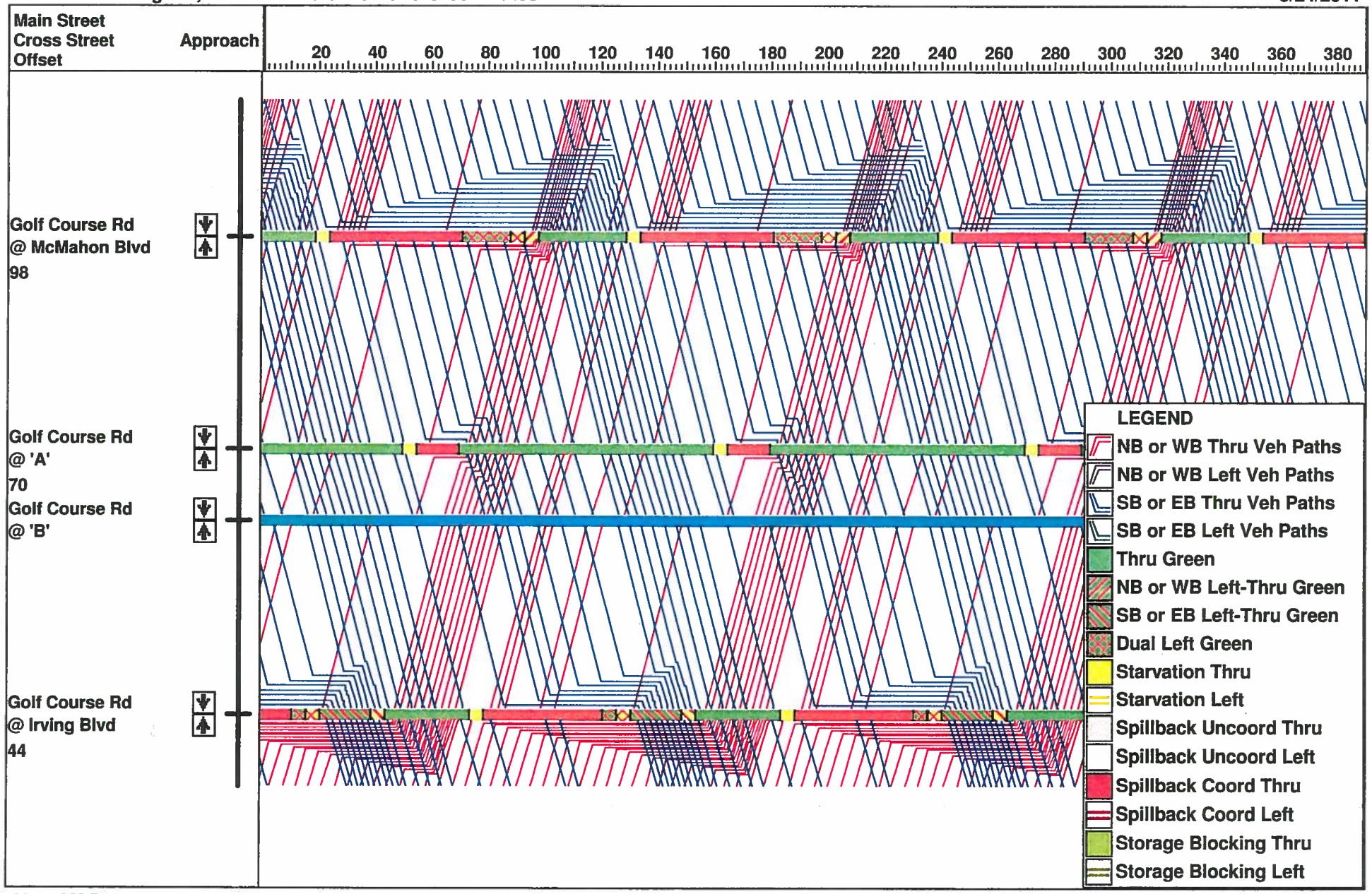


Comments -

Developed by DWH

Time-Space Diagram - Golf Course Rd
Traffic Flow Diagram, 50th Percentile Flow and Green Times

Terry O. Brown, P.E.
5/24/2011



2015 AM Peak BUILD Conditions

Existing Geometry w/Signalized Driveway
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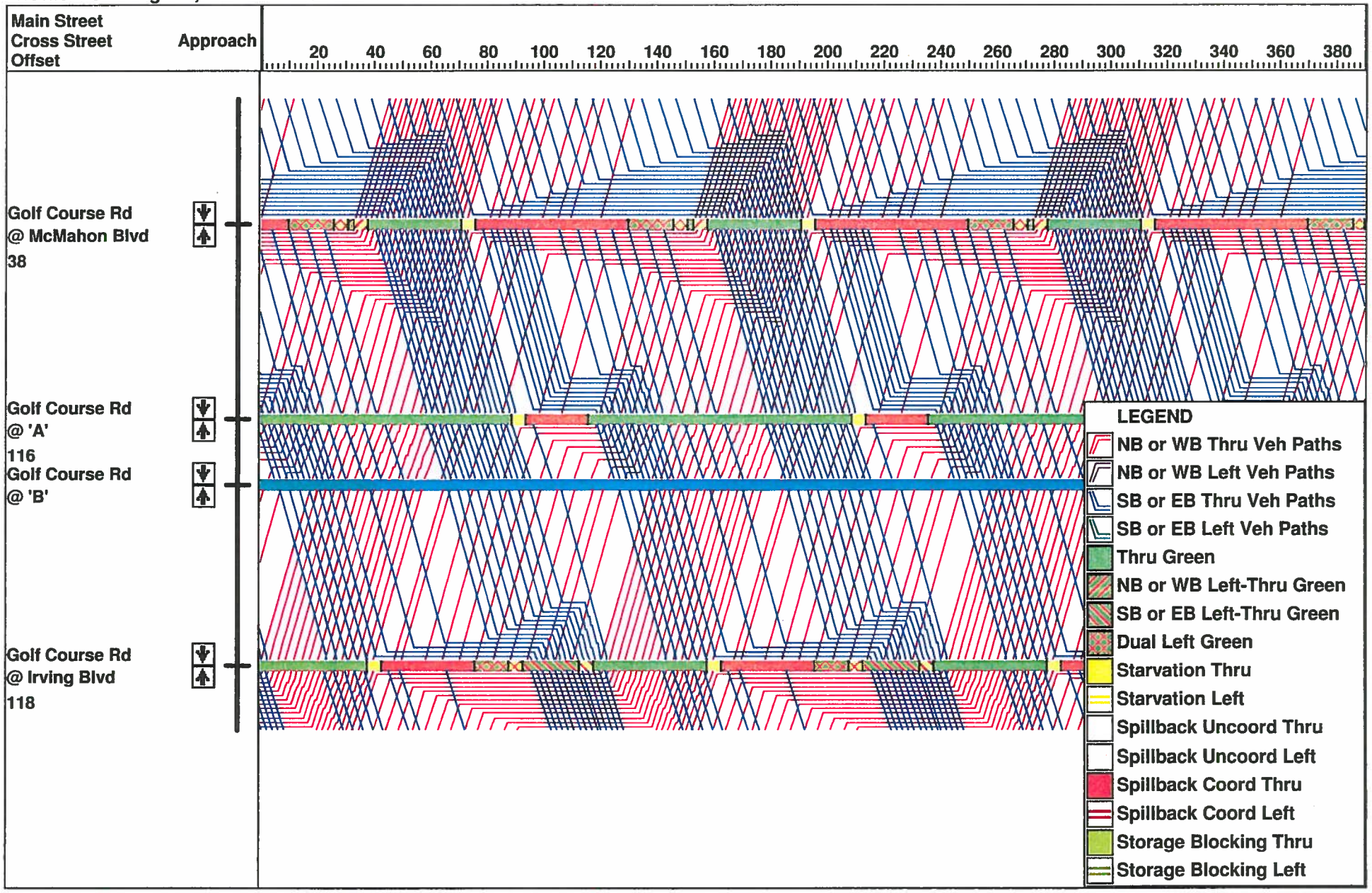
Time-Space Diagram - Golf Course Rd
Traffic Flow Diagram, 90th Percentile Flow and Green Times

Terry O. Brown, P.E.
5/24/2011



2015 PM Peak BUILD Conditions

Existing Geometry w/Signalized Driveway
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1: Irving Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	712	243	686	1795	3436
Control Delay / Veh (s/v)	53	22	40	26	34
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	53	22	40	26	34
Total Delay (hr)	10	1	8	13	33
Stops / Veh	0.90	0.58	0.88	0.65	0.74
Stops (#)	640	141	601	1165	2547
Average Speed (mph)	8	10	6	15	11
Total Travel Time (hr)	14	2	9	21	46
Distance Traveled (mi)	113	20	52	330	514
Fuel Consumed (gal)	17	3	13	33	66
Fuel Economy (mpg)	6.7	6.8	3.8	10.0	7.8
CO Emissions (kg)	1.17	0.20	0.94	2.30	4.61
NOx Emissions (kg)	0.23	0.04	0.18	0.45	0.90
VOC Emissions (kg)	0.27	0.05	0.22	0.53	1.07
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	23	2	30	22	77

2: McMahon Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	1946	634	897	1340	4817
Control Delay / Veh (s/v)	159	70	20	128	113
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	159	70	20	128	113
Total Delay (hr)	86	12	5	48	151
Stops / Veh	0.81	0.78	0.60	0.79	0.76
Stops (#)	1576	496	541	1062	3675
Average Speed (mph)	10	3	19	4	8
Total Travel Time (hr)	122	14	10	52	197
Distance Traveled (mi)	1251	42	180	183	1655
Fuel Consumed (gal)	122	14	15	52	204
Fuel Economy (mpg)	10.2	2.9	11.7	3.5	8.1
CO Emissions (kg)	8.56	1.01	1.08	3.62	14.27
NOx Emissions (kg)	1.66	0.20	0.21	0.70	2.78
VOC Emissions (kg)	1.98	0.23	0.25	0.84	3.31
Unserved Vehicles (#)	392	17	0	207	616
Vehicles in dilemma zone (#)	34	12	4	40	90

3: McMahon Blvd & Bandelier Dr

Direction	EB	WB	NB	SB	All
Volume (vph)	1110	502	216	316	2144
Control Delay / Veh (s/v)	56	18	12	70	45
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	56	18	12	70	45
Total Delay (hr)	17	3	1	6	27
Stops / Veh	0.87	0.62	0.37	0.79	0.75
Stops (#)	965	313	80	250	1608
Average Speed (mph)	5	27	11	2	11
Total Travel Time (hr)	20	12	1	7	39
Distance Traveled (mi)	90	323	12	16	441
Fuel Consumed (gal)	23	17	1	7	48
Fuel Economy (mpg)	3.9	19.5	8.1	2.4	9.2
CO Emissions (kg)	1.63	1.16	0.10	0.46	3.35
NOx Emissions (kg)	0.32	0.22	0.02	0.09	0.65
VOC Emissions (kg)	0.38	0.27	0.02	0.11	0.78
Unserved Vehicles (#)	14	0	0	0	14
Vehicles in dilemma zone (#)	57	17	0	0	74

4: 'A' & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	56	76	904	1829	2865
Control Delay / Veh (s/v)	9999	715	1	0	215
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	9999	715	1	0	215
Total Delay (hr)	156	15	0	0	171
Stops / Veh	1.00	1.00	0.19	0.01	0.11
Stops (#)	56	76	174	14	320
Average Speed (mph)	0	0	35	40	2
Total Travel Time (hr)	156	15	2	9	182
Distance Traveled (mi)	2	3	64	367	437
Fuel Consumed (gal)	114	12	4	13	144
Fuel Economy (mpg)	0.0	0.3	15.3	27.6	3.0
CO Emissions (kg)	8.00	0.81	0.29	0.93	10.03
NOx Emissions (kg)	1.56	0.16	0.06	0.18	1.95
VOC Emissions (kg)	1.85	0.19	0.07	0.22	2.32
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

5: 'B' & Golf Course Rd

Direction	EB	NB	SB	All
Volume (vph)	16	896	1804	2716
Control Delay / Veh (s/v)	22	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	22	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	16	0	0	16
Average Speed (mph)	6	40	40	40
Total Travel Time (hr)	0	4	3	7
Distance Traveled (mi)	1	165	127	293
Fuel Consumed (gal)	0	6	5	11
Fuel Economy (mpg)	NA	27.9	27.9	27.5
CO Emissions (kg)	0.01	0.41	0.32	0.74
NOx Emissions (kg)	0.00	0.08	0.06	0.14
VOC Emissions (kg)	0.00	0.10	0.07	0.17
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	86
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	86
Total Delay (hr)	381
Stops / Veh	0.51
Stops (#)	8166
Average Speed (mph)	7
Total Travel Time (hr)	472
Distance Traveled (mi)	3340
Fuel Consumed (gal)	472
Fuel Economy (mpg)	7.1
CO Emissions (kg)	33.00
NOx Emissions (kg)	6.42
VOC Emissions (kg)	7.65
Unserved Vehicles (#)	631
Vehicles in dilemma zone (#)	241
Performance Index	403.9

1: Irving Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	712	243	686	1795	3436
Control Delay / Veh (s/v)	53	22	40	30	36
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	53	22	40	30	36
Total Delay (hr)	10	1	8	15	34
Stops / Veh	0.90	0.58	0.88	0.66	0.75
Stops (#)	640	141	601	1190	2572
Average Speed (mph)	8	10	6	14	11
Total Travel Time (hr)	14	2	9	23	48
Distance Traveled (mi)	113	20	52	330	514
Fuel Consumed (gal)	17	3	13	34	67
Fuel Economy (mpg)	6.7	6.8	3.8	9.6	7.6
CO Emissions (kg)	1.17	0.20	0.94	2.40	4.71
NOx Emissions (kg)	0.23	0.04	0.18	0.47	0.92
VOC Emissions (kg)	0.27	0.05	0.22	0.56	1.09
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	23	2	30	9	64

2: McMahon Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	1946	634	897	1340	4817
Control Delay / Veh (s/v)	159	70	20	128	113
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	159	70	20	128	113
Total Delay (hr)	86	12	5	48	151
Stops / Veh	0.81	0.78	0.59	0.79	0.76
Stops (#)	1576	496	532	1062	3666
Average Speed (mph)	10	3	19	4	8
Total Travel Time (hr)	122	14	10	52	197
Distance Traveled (mi)	1251	42	180	183	1655
Fuel Consumed (gal)	122	14	15	52	204
Fuel Economy (mpg)	10.2	2.9	11.7	3.5	8.1
CO Emissions (kg)	8.56	1.01	1.08	3.62	14.26
NOx Emissions (kg)	1.66	0.20	0.21	0.70	2.77
VOC Emissions (kg)	1.98	0.23	0.25	0.84	3.31
Unserved Vehicles (#)	392	17	0	207	616
Vehicles in dilemma zone (#)	34	12	6	40	92

3: McMahon Blvd & Bandelier Dr

Direction	EB	WB	NB	SB	All
Volume (vph)	1110	502	216	316	2144
Control Delay / Veh (s/v)	56	18	12	70	45
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	56	18	12	70	45
Total Delay (hr)	17	3	1	6	27
Stops / Veh	0.87	0.62	0.37	0.79	0.75
Stops (#)	965	313	80	250	1608
Average Speed (mph)	5	27	11	2	11
Total Travel Time (hr)	20	12	1	7	39
Distance Traveled (mi)	90	323	12	16	441
Fuel Consumed (gal)	23	17	1	7	48
Fuel Economy (mpg)	3.9	19.5	8.1	2.4	9.2
CO Emissions (kg)	1.63	1.16	0.10	0.46	3.35
NOx Emissions (kg)	0.32	0.22	0.02	0.09	0.65
VOC Emissions (kg)	0.38	0.27	0.02	0.11	0.78
Unserved Vehicles (#)	14	0	0	0	14
Vehicles in dilemma zone (#)	57	17	0	0	74

4: 'A' & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	56	76	904	1829	2865
Control Delay / Veh (s/v)	59	51	2	2	4
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	59	51	2	2	4
Total Delay (hr)	1	1	0	1	3
Stops / Veh	0.77	0.66	0.20	0.16	0.20
Stops (#)	43	50	182	295	570
Average Speed (mph)	2	3	31	36	30
Total Travel Time (hr)	1	1	2	10	14
Distance Traveled (mi)	2	3	64	367	437
Fuel Consumed (gal)	1	1	4	17	23
Fuel Economy (mpg)	2.4	2.9	14.4	22.0	18.7
CO Emissions (kg)	0.07	0.08	0.31	1.17	1.63
NOx Emissions (kg)	0.01	0.02	0.06	0.23	0.32
VOC Emissions (kg)	0.02	0.02	0.07	0.27	0.38
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	7	36	43

5: 'B' & Golf Course Rd

Direction	EB	NB	SB	All
Volume (vph)	16	896	1804	2716
Control Delay / Veh (s/v)	11	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	11	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	16	0	0	16
Average Speed (mph)	10	40	40	40
Total Travel Time (hr)	0	4	3	7
Distance Traveled (mi)	1	165	127	293
Fuel Consumed (gal)	0	6	5	11
Fuel Economy (mpg)	NA	27.9	27.9	27.6
CO Emissions (kg)	0.01	0.41	0.32	0.74
NOx Emissions (kg)	0.00	0.08	0.06	0.14
VOC Emissions (kg)	0.00	0.10	0.07	0.17
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	48
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	48
Total Delay (hr)	215
Stops / Veh	0.53
Stops (#)	8432
Average Speed (mph)	11
Total Travel Time (hr)	306
Distance Traveled (mi)	3340
Fuel Consumed (gal)	353
Fuel Economy (mpg)	9.5
CO Emissions (kg)	24.69
NOx Emissions (kg)	4.80
VOC Emissions (kg)	5.72
Unserved Vehicles (#)	631
Vehicles in dilemma zone (#)	273
Performance Index	238.7

1: Irving Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	508	1235	1371	1296	4410
Control Delay / Veh (s/v)	109	100	90	15	73
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	109	100	90	15	73
Total Delay (hr)	15	34	34	5	89
Stops / Veh	0.85	0.85	0.84	0.41	0.72
Stops (#)	434	1049	1146	536	3165
Average Speed (mph)	5	3	3	21	5
Total Travel Time (hr)	18	37	37	11	103
Distance Traveled (mi)	80	100	103	241	524
Fuel Consumed (gal)	18	37	40	18	112
Fuel Economy (mpg)	4.6	2.7	2.6	13.5	4.7
CO Emissions (kg)	1.23	2.57	2.79	1.24	7.84
NOx Emissions (kg)	0.24	0.50	0.54	0.24	1.52
VOC Emissions (kg)	0.28	0.60	0.65	0.29	1.82
Unserved Vehicles (#)	37	88	118	0	242
Vehicles in dilemma zone (#)	13	15	45	26	99

2: McMahon Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	1518	1430	1987	1272	6207
Control Delay / Veh (s/v)	71	81	40	64	62
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	71	81	40	64	62
Total Delay (hr)	30	32	22	23	107
Stops / Veh	0.84	0.84	0.77	0.85	0.82
Stops (#)	1280	1197	1529	1083	5089
Average Speed (mph)	17	3	12	6	11
Total Travel Time (hr)	58	35	32	27	152
Distance Traveled (mi)	975	95	399	173	1642
Fuel Consumed (gal)	69	36	45	33	184
Fuel Economy (mpg)	14.2	2.6	8.8	5.2	8.9
CO Emissions (kg)	4.81	2.53	3.18	2.34	12.85
NOx Emissions (kg)	0.94	0.49	0.62	0.45	2.50
VOC Emissions (kg)	1.12	0.59	0.74	0.54	2.98
Unserved Vehicles (#)	23	36	3	11	73
Vehicles in dilemma zone (#)	31	31	27	35	124

3: McMahon Blvd & Bandelier Dr

Direction	EB	WB	NB	SB	All
Volume (vph)	723	1596	127	149	2595
Control Delay / Veh (s/v)	15	14	9	37	15
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	15	14	9	37	15
Total Delay (hr)	3	6	0	2	11
Stops / Veh	0.63	0.58	0.20	0.81	0.59
Stops (#)	454	921	25	120	1520
Average Speed (mph)	13	29	13	4	26
Total Travel Time (hr)	5	35	1	2	42
Distance Traveled (mi)	59	1026	7	8	1099
Fuel Consumed (gal)	8	50	1	2	61
Fuel Economy (mpg)	7.5	20.3	NA	3.6	18.0
CO Emissions (kg)	0.55	3.53	0.04	0.15	4.27
NOx Emissions (kg)	0.11	0.69	0.01	0.03	0.83
VOC Emissions (kg)	0.13	0.82	0.01	0.03	0.99
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	35	65	0	0	100

4: 'A' & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	191	50	1991	1592	3824
Control Delay / Veh (s/v)	9999	9999	1	1	631
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	9999	9999	1	1	631
Total Delay (hr)	531	139	0	0	670
Stops / Veh	1.00	1.00	0.16	0.12	0.20
Stops (#)	191	50	317	197	755
Average Speed (mph)	0	0	36	39	1
Total Travel Time (hr)	531	139	4	8	682
Distance Traveled (mi)	8	2	140	320	470
Fuel Consumed (gal)	390	102	8	14	514
Fuel Economy (mpg)	0.0	0.0	16.6	23.5	0.9
CO Emissions (kg)	27.28	7.14	0.59	0.95	35.96
NOx Emissions (kg)	5.31	1.39	0.12	0.18	7.00
VOC Emissions (kg)	6.32	1.65	0.14	0.22	8.33
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

5: 'B' & Golf Course Rd

Direction	EB	NB	SB	All
Volume (vph)	50	1950	1487	3487
Control Delay / Veh (s/v)	18	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	18	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	50	0	0	50
Average Speed (mph)	7	40	40	39
Total Travel Time (hr)	0	9	3	12
Distance Traveled (mi)	2	362	105	469
Fuel Consumed (gal)	1	13	4	17
Fuel Economy (mpg)	NA	27.9	27.9	27.1
CO Emissions (kg)	0.04	0.91	0.26	1.21
NOx Emissions (kg)	0.01	0.18	0.05	0.23
VOC Emissions (kg)	0.01	0.21	0.06	0.28
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	154
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	154
Total Delay (hr)	877
Stops / Veh	0.52
Stops (#)	10579
Average Speed (mph)	4
Total Travel Time (hr)	991
Distance Traveled (mi)	4205
Fuel Consumed (gal)	889
Fuel Economy (mpg)	4.7
CO Emissions (kg)	62.12
NOx Emissions (kg)	12.09
VOC Emissions (kg)	14.40
Unserved Vehicles (#)	316
Vehicles in dilemma zone (#)	323
Performance Index	906.5

1: Irving Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	508	1235	1371	1296	4410
Control Delay / Veh (s/v)	109	100	90	14	72
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	109	100	90	14	72
Total Delay (hr)	15	34	34	5	89
Stops / Veh	0.85	0.85	0.84	0.50	0.74
Stops (#)	434	1049	1146	644	3273
Average Speed (mph)	5	3	3	22	5
Total Travel Time (hr)	18	37	37	11	102
Distance Traveled (mi)	80	100	103	241	524
Fuel Consumed (gal)	18	37	40	19	113
Fuel Economy (mpg)	4.6	2.7	2.6	12.9	4.6
CO Emissions (kg)	1.23	2.57	2.79	1.30	7.90
NOx Emissions (kg)	0.24	0.50	0.54	0.25	1.54
VOC Emissions (kg)	0.28	0.60	0.65	0.30	1.83
Unserved Vehicles (#)	37	88	118	0	242
Vehicles in dilemma zone (#)	13	15	45	49	122

2: McMahon Blvd & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	1518	1430	1987	1272	6207
Control Delay / Veh (s/v)	71	81	48	64	64
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	71	81	48	64	64
Total Delay (hr)	30	32	26	23	111
Stops / Veh	0.84	0.84	0.79	0.85	0.83
Stops (#)	1280	1197	1575	1083	5135
Average Speed (mph)	17	3	11	6	11
Total Travel Time (hr)	58	35	36	27	156
Distance Traveled (mi)	975	95	399	173	1642
Fuel Consumed (gal)	69	36	49	33	187
Fuel Economy (mpg)	14.2	2.6	8.1	5.2	8.8
CO Emissions (kg)	4.81	2.53	3.42	2.34	13.10
NOx Emissions (kg)	0.94	0.49	0.67	0.45	2.55
VOC Emissions (kg)	1.12	0.59	0.79	0.54	3.04
Unserved Vehicles (#)	23	36	3	11	73
Vehicles in dilemma zone (#)	31	31	58	35	155

3: McMahon Blvd & Bandelier Dr

Direction	EB	WB	NB	SB	All
Volume (vph)	723	1596	127	149	2595
Control Delay / Veh (s/v)	15	14	9	37	15
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	15	14	9	37	15
Total Delay (hr)	3	6	0	2	11
Stops / Veh	0.63	0.58	0.20	0.81	0.59
Stops (#)	454	921	25	120	1520
Average Speed (mph)	13	29	13	4	26
Total Travel Time (hr)	5	35	1	2	42
Distance Traveled (mi)	59	1026	7	8	1099
Fuel Consumed (gal)	8	50	1	2	61
Fuel Economy (mpg)	7.5	20.3	NA	3.6	18.0
CO Emissions (kg)	0.55	3.53	0.04	0.15	4.27
NOx Emissions (kg)	0.11	0.69	0.01	0.03	0.83
VOC Emissions (kg)	0.13	0.82	0.01	0.03	0.99
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	35	65	0	0	100

4: 'A' & Golf Course Rd

Direction	EB	WB	NB	SB	All
Volume (vph)	191	50	1991	1592	3824
Control Delay / Veh (s/v)	66	26	4	6	9
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	66	26	4	6	9
Total Delay (hr)	3	0	2	3	9
Stops / Veh	0.70	0.44	0.28	0.34	0.33
Stops (#)	134	22	567	538	1261
Average Speed (mph)	2	5	24	30	22
Total Travel Time (hr)	4	0	6	11	21
Distance Traveled (mi)	8	2	140	320	470
Fuel Consumed (gal)	4	0	12	19	35
Fuel Economy (mpg)	2.3	NA	11.3	17.0	13.3
CO Emissions (kg)	0.25	0.03	0.87	1.31	2.47
NOx Emissions (kg)	0.05	0.01	0.17	0.26	0.48
VOC Emissions (kg)	0.06	0.01	0.20	0.30	0.57
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	61	36	97

5: 'B' & Golf Course Rd

Direction	EB	NB	SB	All
Volume (vph)	50	1950	1487	3487
Control Delay / Veh (s/v)	12	0	0	0
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	12	0	0	0
Total Delay (hr)	0	0	0	0
Stops / Veh	1.00	0.00	0.00	0.01
Stops (#)	50	0	0	50
Average Speed (mph)	10	40	40	39
Total Travel Time (hr)	0	9	3	12
Distance Traveled (mi)	2	362	105	469
Fuel Consumed (gal)	0	13	4	17
Fuel Economy (mpg)	NA	27.9	27.9	27.3
CO Emissions (kg)	0.03	0.91	0.26	1.20
NOx Emissions (kg)	0.01	0.18	0.05	0.23
VOC Emissions (kg)	0.01	0.21	0.06	0.28
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

Network Totals

Number of Intersections	5
Control Delay / Veh (s/v)	39
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	39
Total Delay (hr)	220
Stops / Veh	0.55
Stops (#)	11239
Average Speed (mph)	13
Total Travel Time (hr)	334
Distance Traveled (mi)	4205
Fuel Consumed (gal)	414
Fuel Economy (mpg)	10.2
CO Emissions (kg)	28.94
NOx Emissions (kg)	5.63
VOC Emissions (kg)	6.71
Unserved Vehicles (#)	316
Vehicles in dilemma zone (#)	474
Performance Index	251.2

Traffic Count Data Sheet

Year Counts Taken: **2011**

E-W Street **Irving Blvd**
N-S Street: **Golf Course Rd**

Speed Limit (Irving Blvd)= **35** MPH
Speed Limit (Golf Course Rd)= **40** MPH
Date of Count: **5/10/11**

Begin Time	End Time	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	34	107	29	1	6	41	6	122	3	150	238	9
7:15 AM	7:30 AM	55	125	33	2	11	40	6	142	1	164	225	5
7:30 AM	7:45 AM	23	125	22	2	13	36	9	111	5	163	214	16
7:45 AM	8:00 AM	15	74	19	6	19	44	5	161	5	139	236	15
8:00 AM	8:15 AM	~~13~~	~~83~~	~~21~~	~~2~~	~~33~~	~~43~~	~~5~~	~~108~~	~~2~~	~~106~~	~~173~~	~~4~~
8:15 AM	8:30 AM	~~15~~	~~66~~	~~23~~	~~3~~	~~18~~	~~32~~	~~15~~	~~138~~	~~4~~	~~117~~	~~171~~	~~12~~
8:30 AM	8:45 AM	~~38~~	~~69~~	~~22~~	~~2~~	~~18~~	~~52~~	~~8~~	~~131~~	~~4~~	~~104~~	~~167~~	~~14~~
8:45 AM	9:00 AM	~~34~~	~~78~~	~~14~~	~~2~~	~~36~~	~~40~~	~~14~~	~~113~~	~~4~~	~~98~~	~~185~~	~~13~~
AM Peak Hour Volumes		**127**	**431**	**103**	**11**	**49**	**161**	**26**	**536**	**14**	**616**	**913**	**45**
% of Total Traffic		4.2%	14.2%	3.4%	0.4%	1.6%	5.3%	0.9%	17.7%	0.5%	20.3%	30.1%	1.5%
% Directional			21.8%			7.3%			19.0%			51.9%	
AM Peak Hour Factor			*0.78*			*0.80*			*0.84*			*0.99*	

Begin Time	End Time	Eastbound (Irving Blvd)			Westbound (Irving Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	~~29~~	~~44~~	~~26~~	~~3~~	~~80~~	~~149~~	~~25~~	~~184~~	~~12~~	~~70~~	~~163~~	~~41~~
4:15 PM	4:30 PM	~~35~~	~~59~~	~~8~~	~~15~~	~~73~~	~~139~~	~~33~~	~~228~~	~~6~~	~~66~~	~~184~~	~~46~~
4:30 PM	4:45 PM	~~50~~	~~81~~	~~7~~	~~13~~	~~85~~	~~163~~	~~25~~	~~256~~	~~8~~	~~50~~	~~130~~	~~29~~
4:45 PM	5:00 PM	~~29~~	~~60~~	~~11~~	~~10~~	~~94~~	~~173~~	~~20~~	~~263~~	~~4~~	~~47~~	~~157~~	~~31~~
5:00 PM	5:15 PM	26	55	10	10	86	176	41	231	5	80	173	26
5:15 PM	5:30 PM	34	45	12	15	118	189	35	236	4	100	192	42
5:30 PM	5:45 PM	47	57	11	18	107	190	30	270	7	52	154	49
5:45 PM	6:00 PM	49	93	21	8	85	160	29	258	7	61	117	33
PM Peak Hour Volumes		**156**	**250**	**54**	**51**	**396**	**715**	**135**	**995**	**23**	**293**	**636**	**150**
% of Total Traffic		4.0%	6.5%	1.4%	1.3%	10.3%	18.6%	3.5%	25.8%	0.6%	7.6%	16.5%	3.9%
% Directional			11.9%			30.2%			29.9%			28.0%	
PM Peak Hour Factor			*0.71*			*0.90*			*0.94*			*0.81*	

Traffic Count Data Sheet

Year Counts Taken: **2011**

E-W Street **McMahon Blvd**
N-S Street: **Golf Course Rd**

Speed Limit (McMahon Blvd)= **35** MPH
Speed Limit (Golf Course Rd)= **40** MPH
Date of Count: **5/12/11**

Begin Time	End Time	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	21	187	177	42	65	11	40	66	68	27	207	11
7:15 AM	7:30 AM	22	226	187	54	79	10	36	62	98	43	207	16
7:30 AM	7:45 AM	28	146	144	51	83	18	41	84	51	27	187	20
7:45 AM	8:00 AM	33	134	123	38	70	18	58	112	48	24	165	12
8:00 AM	8:15 AM	~~17~~	~~101~~	~~124~~	~~32~~	~~67~~	~~11~~	~~47~~	~~80~~	~~31~~	~~19~~	~~155~~	~~13~~
8:15 AM	8:30 AM	~~33~~	~~137~~	~~111~~	~~28~~	~~59~~	~~15~~	~~46~~	~~90~~	~~40~~	~~22~~	~~135~~	~~10~~
8:30 AM	8:45 AM	~~24~~	~~146~~	~~118~~	~~33~~	~~51~~	~~15~~	~~51~~	~~101~~	~~59~~	~~26~~	~~114~~	~~8~~
8:45 AM	9:00 AM	~~21~~	~~164~~	~~85~~	~~55~~	~~89~~	~~7~~	~~44~~	~~92~~	~~70~~	~~30~~	~~147~~	~~13~~
AM Peak Hour Volumes		**104**	**693**	**631**	**185**	**297**	**57**	**175**	**324**	**265**	**121**	**766**	**59**
% of Total Traffic		2.8%	18.8%	17.2%	5.0%	8.1%	1.6%	4.8%	8.8%	7.2%	3.3%	20.8%	1.6%
% Directional			38.8%			14.7%			20.8%			25.7%	
AM Peak Hour Factor			*0.82*			*0.89*			*0.88*			*0.89*	

Begin Time	End Time	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Golf Course Rd)			Southbound (Golf Course Rd)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	~~38~~	~~150~~	~~78~~	~~85~~	~~164~~	~~22~~	~~124~~	~~151~~	~~63~~	~~24~~	~~126~~	~~21~~
4:15 PM	4:30 PM	~~38~~	~~134~~	~~95~~	~~75~~	~~184~~	~~25~~	~~105~~	~~184~~	~~79~~	~~36~~	~~124~~	~~31~~
4:30 PM	4:45 PM	39	142	85	91	177	40	121	197	66	39	167	35
4:45 PM	5:00 PM	39	162	75	66	169	42	127	219	64	32	168	30
5:00 PM	5:15 PM	48	135	87	88	190	44	134	241	67	30	148	36
5:15 PM	5:30 PM	45	162	76	90	190	44	132	226	75	32	142	32
5:30 PM	5:45 PM	~~46~~	~~134~~	~~60~~	~~96~~	~~179~~	~~30~~	~~132~~	~~234~~	~~82~~	~~29~~	~~103~~	~~20~~
5:45 PM	6:00 PM	~~39~~	~~161~~	~~68~~	~~68~~	~~198~~	~~41~~	~~160~~	~~227~~	~~79~~	~~26~~	~~133~~	~~23~~
PM Peak Hour Volumes		**171**	**601**	**323**	**335**	**726**	**170**	**514**	**883**	**272**	**133**	**625**	**133**
% of Total Traffic		3.5%	12.3%	6.6%	6.9%	14.9%	3.5%	10.5%	18.1%	5.6%	2.7%	12.8%	2.7%
% Directional			22.4%			25.2%			34.2%			18.2%	
PM Peak Hour Factor			*0.97*			*0.95*			*0.94*			*0.92*	

Traffic Count Data Sheet

Year Counts Taken: **2011**

E-W Street **McMahon Blvd**
N-S Street: **Bandelier Dr**

Speed Limit (McMahon Blvd)= **35** MPH
Speed Limit (Bandelier Dr)= **30** MPH
Date of Count: **5/5/11**

Begin Time	End Time	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
		L	T	R	L	T	R	L	T	R	L	T	R
7:00 AM	7:15 AM	0	266	0	7	81	2	1	0	47	71	1	2
7:15 AM	7:30 AM	3	313	2	9	107	9	0	1	67	75	3	3
7:30 AM	7:45 AM	1	217	2	11	98	11	4	0	35	58	1	3
7:45 AM	8:00 AM	1	211	0	12	86	6	2	0	34	57	0	6
8:00 AM	8:15 AM	~~3~~	~~163~~	~~0~~	~~11~~	~~79~~	~~6~~	~~2~~	~~0~~	~~29~~	~~27~~	~~0~~	~~2~~
8:15 AM	8:30 AM	~~2~~	~~184~~	~~1~~	~~13~~	~~81~~	~~12~~	~~1~~	~~0~~	~~31~~	~~39~~	~~0~~	~~0~~
8:30 AM	8:45 AM	~~4~~	~~181~~	~~1~~	~~9~~	~~70~~	~~10~~	~~0~~	~~0~~	~~31~~	~~42~~	~~2~~	~~6~~
8:45 AM	9:00 AM	~~2~~	~~187~~	~~1~~	~~9~~	~~87~~	~~16~~	~~1~~	~~0~~	~~24~~	~~50~~	~~0~~	~~3~~
AM Peak Hour Volumes		**5**	**1007**	**4**	**39**	**372**	**28**	**7**	**1**	**183**	**261**	**5**	**14**
% of Total Traffic		0.3%	52.3%	0.2%	2.0%	19.3%	1.5%	0.4%	0.1%	9.5%	13.6%	0.3%	0.7%
% Directional			52.8%			22.8%			9.9%			14.5%	
AM Peak Hour Factor			*0.80*			*0.88*			*0.70*			*0.86*	

Begin Time	End Time	Eastbound (McMahon Blvd)			Westbound (McMahon Blvd)			Northbound (Bandelier Dr)			Southbound (Bandelier Dr)		
		L	T	R	L	T	R	L	T	R	L	T	R
4:00 PM	4:15 PM	~~7~~	~~162~~	~~0~~	~~34~~	~~232~~	~~51~~	~~1~~	~~0~~	~~23~~	~~18~~	~~0~~	~~3~~
4:15 PM	4:30 PM	~~4~~	~~141~~	~~4~~	~~47~~	~~237~~	~~39~~	~~2~~	~~1~~	~~34~~	~~22~~	~~1~~	~~2~~
4:30 PM	4:45 PM	~~0~~	~~151~~	~~0~~	~~49~~	~~241~~	~~48~~	~~0~~	~~0~~	~~25~~	~~19~~	~~0~~	~~4~~
4:45 PM	5:00 PM	~~6~~	~~171~~	~~8~~	~~34~~	~~248~~	~~34~~	~~2~~	~~2~~	~~24~~	~~35~~	~~0~~	~~3~~
5:00 PM	5:15 PM	5	141	2	25	272	46	1	0	22	31	0	2
5:15 PM	5:30 PM	4	151	1	32	289	45	2	0	23	30	0	1
5:30 PM	5:45 PM	1	178	2	45	248	47	1	1	23	24	1	4
5:45 PM	6:00 PM	5	136	19	36	249	56	1	0	32	30	2	4
PM Peak Hour Volumes		**15**	**606**	**24**	**138**	**1058**	**194**	**5**	**1**	**100**	**115**	**3**	**11**
% of Total Traffic		0.7%	26.7%	1.1%	6.1%	46.6%	8.5%	0.2%	0.0%	4.4%	5.1%	0.1%	0.5%
% Directional			28.4%			61.2%			4.7%			5.7%	
PM Peak Hour Factor			*0.89*			*0.95*			*0.80*			*0.90*	

Intersection Data Sheet

Intersection: **Irving Blvd / Golf Course Rd**

Posted Speed Limit (E-W Street): 35 Date: 5/5/2011

Eastbound Approach: **Irving Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
2	0	1	1	0

Length: 110'

Length:

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **/No**

Westbound Approach: **Irving Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	stripes	2	0	1

Length: 170'

Length: 250'

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **/No**

Posted Speed Limit (N-S Street): 40

Northbound Approach: **Golf Course Rd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	0	1	1	0

Length: 180'

Length:

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **/No**

Southbound Approach: **Golf Course Rd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes

Length: 180'

Length: 180'

turn on green arrow only? (No)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **/No**

Intersection Data Sheet

Intersection: **McMahon Blvd / Golf Course Rd**

Posted Speed Limit (E-W Street): 35 Date: 5/5/2011

Eastbound Approach: **McMahon Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	stripes	2	0	1

Length: 250'

Length: 230'

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	Y

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? /No

Westbound Approach: **McMahon Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
2	0	2	0	1

Length: 300'

Length: 230'

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	Y

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? /No

Posted Speed Limit (N-S Street): 40

Northbound Approach: **Golf Course Rd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
2	0	2	0	1

Length: 200'

Length: 230'

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	Y

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? /No

Southbound Approach: **Golf Course Rd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
2	0	2	0	1

Length: 150'

Length: 150'

turn on green arrow only? (Yes)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	Y

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? /No

Intersection Data Sheet

Intersection: **McMahon Blvd / Bandelier Dr**

Posted Speed Limit (E-W Street): 35 Date: 5/5/2011

Eastbound Approach: **McMahon Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	0	1	1	0

Length: 125'

Length:

turn on green arrow only? (No)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **No**

Westbound Approach: **McMahon Blvd**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	0	2	0	1

Length: 120'

Length: 175'

turn on green arrow only? (No)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
Y	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **No**

Posted Speed Limit (N-S Street): 30

Northbound Approach: **Bandelier Dr**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	0	0	1	0

Length: 85'

Length:

turn on green arrow only? (No)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
N	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **No**

Southbound Approach: **Bandelier Dr**

# Left Turn Lanes	# Thru/Left Lanes	# Thru Lanes	# Thru/Right Lanes	# Right Turn Lanes
1	0	0	1	0

Length: 50'

Length:

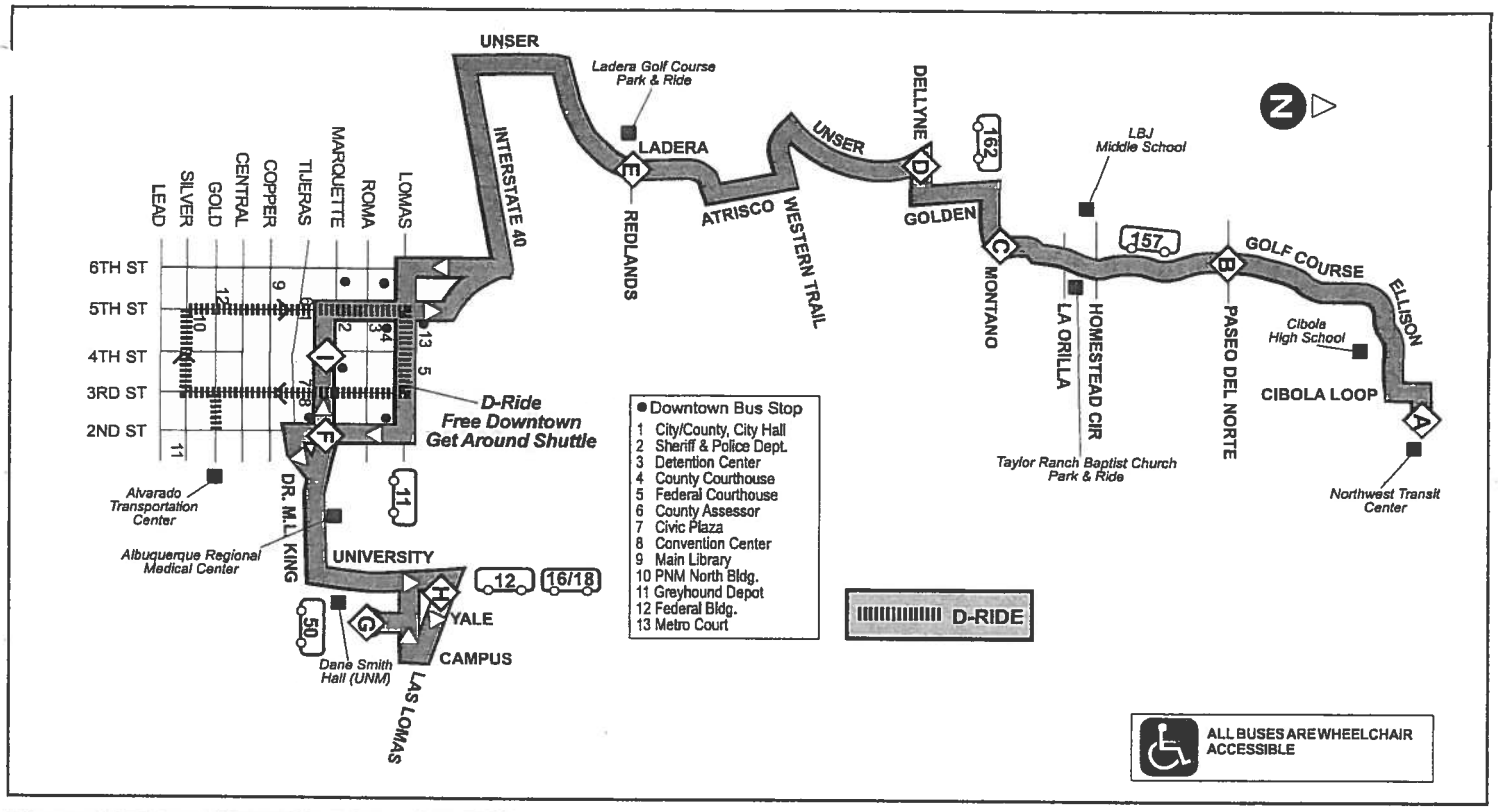
turn on green arrow only? (No)

Left Turn Arrow?	Thru Green?	Right Turn Arrow?
N	Y	N

add lane? (N)

Is there a right turn slip lane that by-passes the traffic signal? **No**

Route 92/Ruta 92-Taylor Ranch Express Eff. 12/19/2009



Route 92 - Weekday Southbound

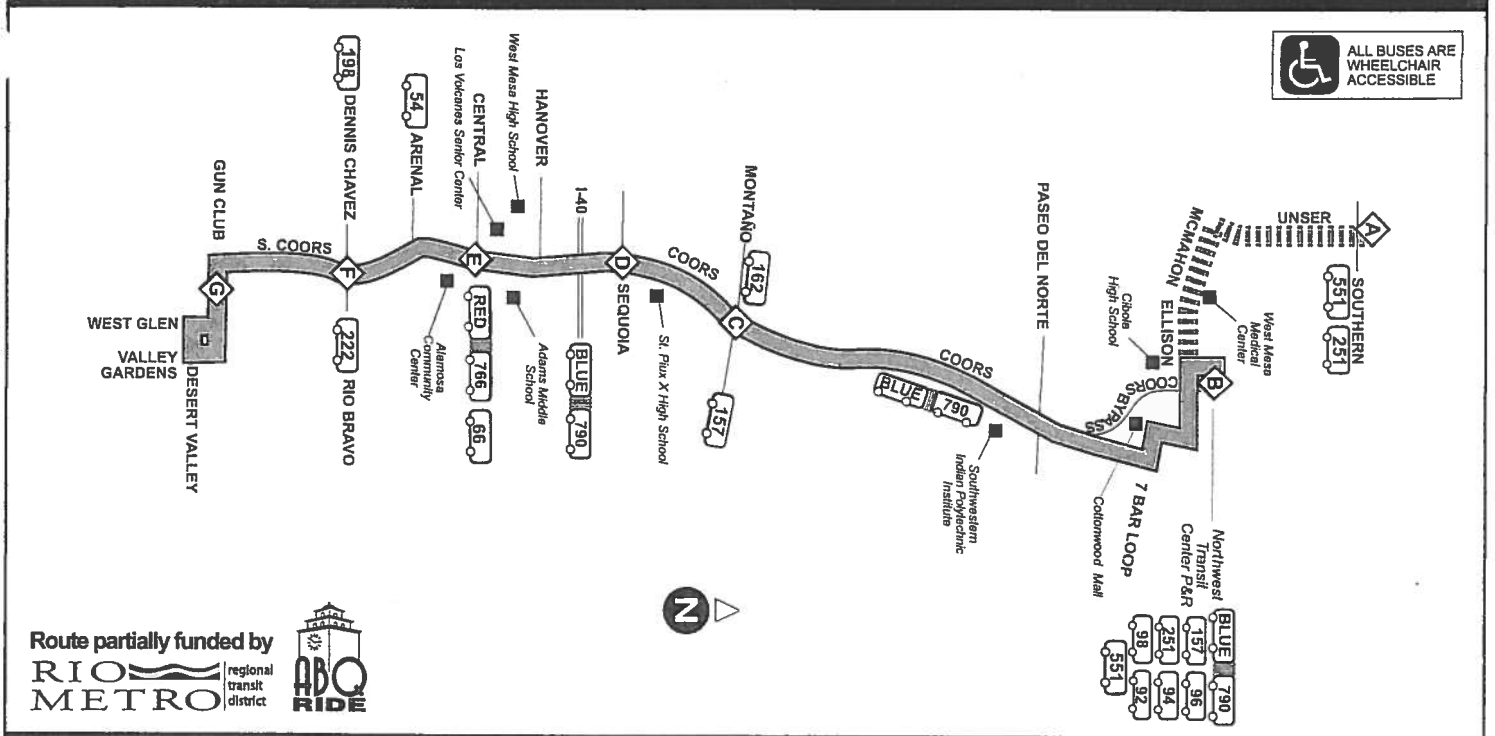
NORTHWEST TRANSIT CENTER (A)	GOLF COURSE & PASEO DEL NORTE (B)	MONTANO & TAYLOR RANCH (C)	DELLYNE & UNSER (D)	LADERA & REDLANDS (E)	2ND & MARQUETTE (F)	DANE SMITH HALL (UNM) (G)
615a	623a	631a	635a	641a	701a	711a
642a	650a	658a	702a	708a	728a	738a

Route 92 - Weekday Northbound

UNIVERSITY & LOMAS (H)	DANE SMITH HALL (UNM) (G)	4TH & MARQUETTE (I)	LADERA & REDLANDS (E)	DELLYNE & UNSER (D)	MONTANO & TAYLOR RANCH (C)	GOLF COURSE & PASEO DEL NORTE (B)	NORTHWEST TRANSIT CENTER (A)
433p	436p	446p	458p	502p	507p	513p	521p
503p	506p	516p	528p	532p	537p	543p	551p

Route 155 / Ruta 155
Coors Blvd. Line

Effective 1/29/2011



Routes 155 - Weekday Southbound

SOUTHERN & UNSER (A)	NORTHWEST TRANSIT CENTER P & R (B)	COORS & MONTAÑO (C)	COORS & SEQUIOA (D)	COORS & CENTRAL (E)	COORS & RIO BRAVO (F)	COORS & GUN CLUB (G)
5:38a	5:53a	6:09a	6:14a	6:23a	6:34a	6:39a
6:16a	6:31a	6:47a	6:52a	7:01a	7:12a	7:17a
6:46a	7:01a	7:17a	7:22a	7:32a	7:43a	7:48a
7:18a	7:33a	7:49a	7:54a	8:04a	8:15a	8:20a
7:52a	8:07a	8:23a	8:28a	8:38a	8:49a	8:54a
....	8:37a	8:53a	8:58a	9:08a	9:19a	9:24a
....	9:07a	9:23a	9:28a	9:38a	9:49a	9:54a
....	9:37a	9:53a	9:58a	10:08a	10:19a	10:24a
....	10:07a	10:23a	10:28a	10:38a	10:49a	10:54a
....	10:37a	10:53a	10:58a	11:08a	11:19a	11:24a
....	11:07a	11:23a	11:28a	11:38a	11:49a	11:54a
....	11:37a	11:53a	11:58a	12:08p	12:19p	12:24p
....	12:07p	12:23p	12:28p	12:39p	12:50p	12:55p
....	12:37p	12:53p	12:58p	1:09p	1:20p	1:25p
....	1:07p	1:23p	1:28p	1:39p	1:50p	1:55p
....	1:37p	1:53p	1:58p	2:09p	2:20p	2:25p
....	2:08p	2:24p	2:29p	2:40p	2:51p	2:56p
....	2:38p	2:54p	2:59p	3:10p	3:21p	3:27p
....	3:08p	3:24p	3:29p	3:40p	3:53p	3:59p
....	3:37p	3:55p	4:00p	4:11p	4:24p	4:30p
....	4:06p	4:24p	4:29p	4:40p	4:53p	4:59p
....	4:38p	4:56p	5:01p	5:12p	5:25p	5:31p
4:53p	5:08p	5:26p	5:31p	5:42p	5:55p	6:01p
5:22p	5:37p	5:55p	6:00p	6:11p	6:24p	6:30p
5:55p	6:10p	6:28p	6:33p	6:42p	6:53p	6:59p
....	6:40p	6:56p	7:01p	7:10p	7:21p	7:27p
....	7:19p	7:35p	7:40p	7:49p	8:00p	8:06p
....	8:03p	8:19p	8:24p	8:33p	8:44p	8:50p
....	8:41p	8:57p	9:02p	9:11p	9:22p	9:28p
....	9:37p	9:53p	9:58p	10:07p	10:18p	10:24p

Routes 155 - Weekday Northbound

COORS & GUN CLUB (G)	COORS & RIO BRAVO (F)	COORS & CENTRAL (E)	COORS & SEQUIOA (D)	COORS & MONTAÑO (C)	NORTHWEST TRANSIT CENTER P & R (B)	SOUTHERN & UNSER (A)
6:33a	6:41a	6:52a	7:00a	7:06a	7:21a	7:36a
7:02a	7:10a	7:22a	7:31a	7:37a	7:52a	....
7:33a	7:41a	7:53a	8:02a	8:08a	8:23a	....
8:06a	8:14a	8:26a	8:35a	8:41a	8:56a	....
8:36a	8:44a	8:56a	9:05a	9:11a	9:26a	....
9:06a	9:14a	9:26a	9:35a	9:41a	9:56a	....
9:35a	9:43a	9:55a	10:04a	10:10a	10:25a	....
10:04a	10:12a	10:24a	10:33a	10:39a	10:54a	....
10:34a	10:42a	10:54a	11:03a	11:09a	11:24a	....
11:04a	11:12a	11:24a	11:33a	11:39a	11:54a	....
11:34a	11:42a	11:54a	12:03p	12:09p	12:24p	....
12:04p	12:12p	12:24p	12:33p	12:39p	12:54p	....
12:35p	12:43p	12:55p	1:04p	1:10p	1:25p	....
1:05p	1:13p	1:25p	1:34p	1:40p	1:55p	....
1:35p	1:43p	1:55p	2:04p	2:10p	2:25p	....
2:06p	2:14p	2:26p	2:35p	2:41p	2:56p	....
2:36p	2:44p	2:56p	3:05p	3:11p	3:26p	....
3:07p	3:15p	3:27p	3:36p	3:42p	3:59p	....
3:37p	3:45p	3:58p	4:07p	4:13p	4:30p	4:45p
4:07p	4:15p	4:28p	4:37p	4:43p	5:00p	5:15p
4:37p	4:45p	4:58p	5:07p	5:15p	5:32p	5:47p
5:08p	5:16p	5:29p	5:38p	5:46p	6:03p	6:18p
5:38p	5:46p	5:59p	6:08p	6:16p	6:32p	....
6:08p	6:16p	6:29p	6:37p	6:43p	6:58p	....
6:40p	6:48p	6:59p	7:07p	7:13p	7:28p	....
7:07p	7:15p	7:26p	7:34p	7:40p	7:55p	....
7:45p	7:53p	8:04p	8:12p	8:18p	8:33p	....
8:30p	8:38p	8:49p	8:57p	9:03p	9:18p	....
9:31p	9:39p	9:50p	9:58p	10:04p	10:19p	....

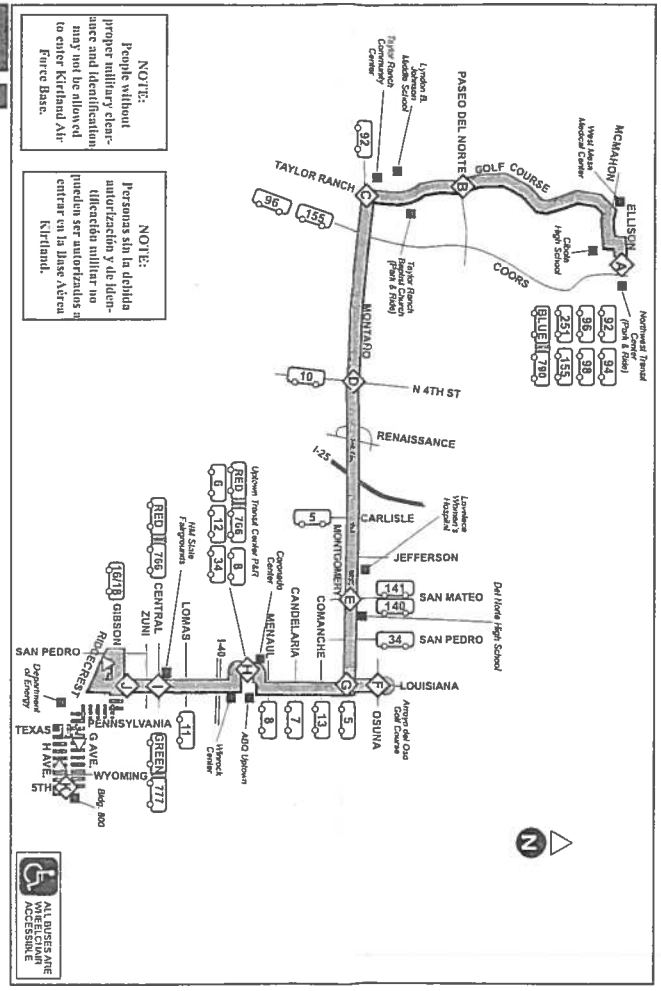
Route 3 & 157 / Ruta 3 & 157 — Effective 5/7/2011
Louisiana & Montaño - Uptown - Cottonwood

Route 3 & 157 - Weekday Southbound

ROUTE	NORTHWEST TRANSIT CENTER PAR (A)	NORTHWEST TRANSIT CENTER PAR (B)	GOLF COURSE & PASEO DEL NORTE (C)	MONTAÑO & TAYLOR RANCH (D)	MONTAÑO & 4TH ST (E)	MONTGOMERY & SAN MATEO (F)	LOUISIANA & OSUNA (G)	LOUISIANA & MONTGOMERY (H)	UPTOWN TRANSIT CENTER PAR (I)	LOUISIANA & CENTRAL (J)	LOUISIANA & GIBSON (K)	BLDG. 800 (K)
3	....	....	....	....	....	5:52a	5:55a	6:02a	6:09a	6:14a	6:20a	
157	5:34a	5:45a	5:51a	5:59a	6:09a	....	6:13a	6:20a	6:27a	6:32a	6:38a	
3	....	....	....	....	....	6:34a	6:37a	6:44a	6:51a	6:56a	7:02a	
157	6:17a	6:28a	6:34a	6:42a	6:52a	....	6:56a	7:03a	7:10a	7:15a	7:21a	
3	....	....	....	....	....	7:14a	7:17a	7:24a	7:31a	7:36a	7:42a	
157	6:58a	7:09a	7:15a	7:23a	7:33a	....	7:37a	7:44a	7:51a	7:56a	8:02a	
3	....	....	....	....	....	7:54a	7:57a	8:04a	8:15a	8:20a	8:27a	
157	7:30a	7:41a	7:47a	7:59a	8:11a	....	8:17a	8:24a	8:35a	8:40a	8:47a	
3	....	....	....	....	....	8:34a	8:37a	8:44a	8:55a	9:00a	9:06a	
157	8:18a	8:29a	8:34a	8:42a	8:53a	....	8:57a	9:04a	9:12a	9:17a	....	
3	....	....	....	....	....	9:14a	9:17a	9:24a	9:32a	9:37a	....	
157	8:58a	9:09a	9:14a	9:22a	9:34a	....	9:38a	9:45a	9:53a	9:58a	....	
3	....	....	....	....	....	9:55a	9:58a	10:05a	10:13a	10:18a	....	
157	9:41a	9:52a	9:56a	10:04a	10:16a	....	10:20a	10:27a	10:35a	10:40a	....	
3	....	....	....	....	....	10:39a	10:42a	10:49a	10:57a	11:02a	....	
157	10:24a	10:35a	10:39a	10:47a	10:59a	....	11:03a	11:12a	11:21a	11:27a	11:33a	
3	....	....	....	....	....	11:24a	11:26a	11:35a	11:44a	11:50a	....	
157	11:08a	11:19a	11:24a	11:32a	11:44a	....	11:48a	11:57a	12:06p	12:12p	....	
3	....	....	....	....	....	12:08p	12:10p	12:19p	12:28p	12:34p	....	
157	11:52a	12:03p	12:08p	12:16p	12:28p	....	12:32p	12:41p	12:50p	12:56p	....	
3	....	....	....	....	....	12:53p	12:55p	1:04p	1:13p	1:19p	....	
157	12:38p	12:49p	12:54p	1:02p	1:14p	....	1:18p	1:27p	1:36p	1:42p	....	
3	....	....	....	....	....	1:39p	1:41p	1:50p	1:59p	2:05p	....	
157	1:24p	1:35p	1:40p	1:48p	2:00p	....	2:04p	2:13p	2:22p	2:28p	....	
3	....	....	....	....	....	2:25p	2:27p	2:36p	2:44p	2:50p	2:56p	
157	2:10p	2:21p	2:26p	2:34p	2:46p	....	2:50p	2:59p	3:07p	3:13p	3:19p	
3	....	....	....	....	....	3:08p	3:10p	3:19p	3:27p	3:33p	3:39p	
157	2:50p	3:01p	3:06p	3:14p	3:26p	....	3:30p	3:39p	3:47p	3:53p	3:59p	
3	....	....	....	....	....	3:48p	3:50p	3:59p	4:07p	4:13p	4:19p	
157	3:30p	3:41p	3:46p	3:54p	4:06p	....	4:10p	4:19p	4:27p	4:33p	4:39p	
3	....	....	....	....	....	4:28p	4:30p	4:39p	4:47p	4:53p	4:59p	
157	4:11p	4:22p	4:27p	4:35p	4:47p	....	4:51p	5:00p	5:08p	5:14p	5:20p	
3	....	....	....	....	....	5:10p	5:12p	5:21p	5:29p	5:35p	5:41p	
157	4:53p	5:04p	5:09p	5:17p	5:29p	....	5:33p	5:42p	5:50p	5:56p	....	
3	....	....	....	....	....	5:52p	5:54p	6:03p	6:11p	6:16p	....	
157	5:39p	5:50p	5:55p	6:03p	6:13p	....	6:17p	6:25p	6:33p	6:38p	....	
3	....	....	....	....	....	6:37p	6:39p	6:47p	6:55p	7:00p	....	
157	6:26p	6:37p	6:40p	6:47p	6:57p	....	7:01p	7:09p	7:17p	7:22p	....	
3	....	....	....	....	....	7:21p	7:23p	7:31p	7:39p	7:44p	....	
157	7:35p	7:46p	7:49p	7:56p	8:06p	....	8:10p	8:18p	8:26p	8:31p	....	
157	8:23p	8:34p	8:37p	8:44p	8:54p	....	8:58p	9:06p	9:14p	9:19p	....	
3	....	....	....	....	....	....	9:47p	9:55p	10:03p	10:08p	....	

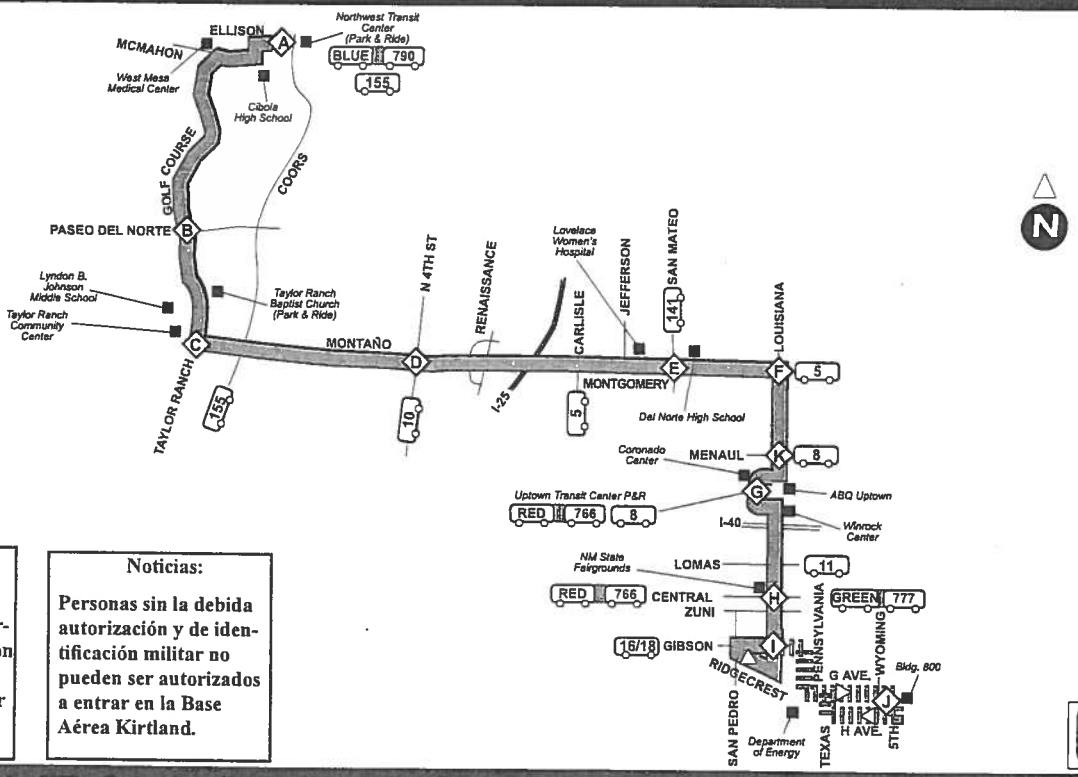
Route 3 & 157 - Weekday Northbound

ROUTE	NORTHWEST TRANSIT CENTER PAR (A)	GOLF COURSE & PASEO DEL NORTE (B)	MONTAÑO & TAYLOR RANCH (C)	MONTAÑO & 4TH ST (D)	MONTGOMERY & SAN MATEO (E)	LOUISIANA & OSUNA (F)	LOUISIANA & MONTGOMERY (G)	UPTOWN TRANSIT CENTER PAR (H)	LOUISIANA & CENTRAL (I)	LOUISIANA & GIBSON (J)	BLDG. 800 (K)
3	....	....	....	....	....	5:51a	5:50a	5:43a	5:36a	5:30a	....
3	....	....	....	....	....	6:27a	6:26a	6:18a	6:09a	6:03a	....
157	....	6:45a	6:55a	7:03a	7:08a	7:18a	6:41a	6:33a	6:24a	6:18a	....
3	6:32a	....	....	....	....	....	7:01a	6:53a	6:44a	6:38a	....
157	6:52a	7:25a	7:35a	7:43a	7:48a	7:58a	7:21a	7:13a	7:04a	6:58a	....
3	7:12a	....	....	....	....	....	7:41a	7:33a	7:24a	7:18a	....
157	7:32a	8:05a	8:15a	8:23a	8:28a	8:38a	8:01a	7:53a	7:44a	7:38a	....
3	7:52a	....	....	....	....	....	8:21a	8:13a	8:04a	7:58a	....
157	8:12a	8:45a	8:55a	9:03a	9:08a	9:17a	8:41a	8:33a	8:24a	8:18a	....
3	8:32a	....	....	....	....	....	9:01a	8:53a	8:44a	8:38a	....
157	8:52a	9:27a	9:37a	9:45a	9:50a	9:59a	9:23a	9:13a	9:04a	8:58a	....
3	9:15a	....	....	....	....	....	9:46a	9:36a	9:27a	9:21a	....
157	....	10:12a	10:22a	10:30a	10:35a	10:44a	10:08a	....	9:58a	9:43a	....
3	....	....	....	....	....	....	10:31a	10:21a	10:12a	10:06a	....
157	....	10:57a	11:07a	11:15a	11:20a	11:29a	10:53a	10:43a	10:34a	10:28a	....
3	....	....	....	....	....	....	11:16a	11:06a	10:57a	10:51a	....
157	....	11:42a	11:52a	12:00p	12:05p	12:15p	11:38a	11:28a	11:19a	11:13a	....
3	....	....	....	....	....	....	12:02p	12:00p	11:50a	11:41a	11:35a
157	....	12:26p	12:38p	12:47p	12:52p	1:02p	12:22p	12:12p	12:03p	11:56a	....
3	....	....	....	....	....	....	12:47p	12:45p	12:35p	12:26p	12:19p
157	....	1:11p	1:23p	1:32p	1:37p	1:47p	1:07p	....	12:57p	12:48p	12:41p
3	....	....	....	....	....	....	1:31p	1:29p	1:19p	1:10p	1:03p
157	1:19p	1:56p	2:08p	2:17p	2:22p	2:32p	1:52p	1:42p	1:33p	1:26p	....
3	....	....	....	....	....	....	2:19p	2:17p	2:05p	1:57p	1:50p
157	....	2:44p	2:56p	3:05p	3:10p	3:20p	2:40p	....	2:28p	2:20p	2:14p
3	....	....	....	....	....	....	3:03p	3:01p	2:49p	2:41p	2:35p
157	2:50p	3:27p	3:39p	3:48p	3:53p	4:03p	3:23p	....	3:11p	3:03p	2:57p
3	3:08p	....	....	....	....	....	3:41p	3:43p	3:29p	3:21p	3:15p
157	3:29p	4:06p	4:18p	4:27p	4:32p	4:42p	4:02p	....	3:50p	3:42p	3:36p
3	3:50p	....	....	....	....	....	4:23p	4:25p	4:11p	4:03p	3:57p
157	4:10p	4:47p	4:59p	5:10p	5:16p	5:26p	4:43p	....	4:31p	4:23p	4:17p
3	4:30p	....	....	....	....	....	5:03p	5:05p	4:51p	4:43p	4:37p
157	4:50p	5:27p	5:39p	5:50p	5:56p	6:05p	5:23p	....	5:11p	5:03p	4:57p
3	5:10p	....	....	....	....	....	5:43p	5:45p	5:31p	5:23p	5:17p
157	5:31p	6:07p	6:16p	6:25p	6:31p	6:40p	6:03p	....	5:52p	5:44p	5:38p
3	5:55p	....	....	....	....	....	6:24p	6:26p	6:15p	6:07p	6:02p
157	....	6:53p	7:02p	7:11p	7:17p	7:26p	6:49p	....	6:40p	6:32p	6:27p
3	....	....	....	....	....	....	7:11p	7:13p	7:02p	6:54p	6:49p
157	....	7:37p	7:46p	7:55p	8:01p	8:10p	7:33p	....	7:24p	7:16p	7:11p
3	....	....	....	....	....	....	8:07p	....	7:56p	7:48p	7:43p
157	....	9:08p	9:17p	9:24p	9:29p	9:38p	9:04p	....	8:55p	8:47p	8:42p
3	....	....	....	....	....	....	9:52p	9:54p	9:43p	9:35p	9:30p



Routes 3 & 157 / Rutas 3 & 157 — Effective 5/7/2011

Montaño / Louisiana / Uptown / Kirtland



NOTE: People without proper military clearance and identification may not be allowed to enter Kirtland Air Force Base.

Noticias: Personas sin la debida autorización y de identificación militar no pueden ser autorizados a entrar en la Base Aérea Kirtland.

ALL BUSES ARE WHEELCHAIR ACCESSIBLE

Route 157 - Saturday South / Eastbound

NORTHWEST TRANSIT CENTER P&R (A)	GOLF COURSE & PASEO DEL NORTE (B)	MONTAÑO & TAYLOR RANCH (C)	MONTAÑO & 4TH ST (D)	MONTGOMERY & SAN MATEO (E)	MONTGOMERY & LOUISIANA (F)	UPTOWN TRANSIT CENTER P&R (G)	LOUISIANA & CENTRAL (H)	LOUISIANA & GIBSON (I)	BLDG. 800 (J)
7:26a	7:37a	7:42a	7:49a	8:01a	8:05a	8:13a	8:22a	8:27a	8:33a
8:40a	8:51a	8:56a	9:03a	9:15a	9:19a	9:27a	9:36a	9:41a	9:47a
9:35a	9:46a	9:51a	9:58a	10:10a	10:14a	10:22a	10:31a	10:36a	....
10:20a	10:31a	10:36a	10:43a	10:55a	10:59a	11:07a	11:16a	11:21a	....
11:05a	11:16a	11:21a	11:28a	11:40a	11:44a	11:52a	12:01p	12:06p	....
11:50a	12:01p	12:06p	12:13p	12:25p	12:29p	12:37p	12:46p	12:51p	....
12:35p	12:46p	12:51p	12:58p	1:10p	1:14p	1:22p	1:31p	1:36p	....
1:20p	1:31p	1:36p	1:43p	1:55p	1:59p	2:07p	2:16p	2:21p	....
2:05p	2:16p	2:21p	2:28p	2:40p	2:44p	2:52p	3:01p	3:06p	3:12p
2:50p	3:01p	3:06p	3:13p	3:25p	3:29p	3:37p	3:46p	3:51p	3:57p
3:35p	3:46p	3:51p	3:58p	4:10p	4:14p	4:22p	4:31p	4:36p	4:42p
4:20p	4:31p	4:36p	4:43p	4:55p	4:59p	5:07p	5:16p	5:21p	....
5:05p	5:16p	5:21p	5:28p	5:40p	5:44p	5:52p	6:01p	6:06p	....
5:50p	6:01p	6:06p	6:13p	6:25p	6:29p	6:37p	6:46p	6:51p	....
6:35p	6:46p	6:51p	6:58p	7:10p	7:14p	7:22p	7:31p	7:36p	....
7:15p	7:26p	7:31p	7:38p	7:50p	7:54p	8:02p	8:11p	8:16p	....
7:58p	8:09p	8:12p	8:19p	8:29p	8:33p	8:41p	8:50p	8:55p	....
8:55p	9:06p	9:09p	9:16p	9:26p	9:30p	9:38p	9:47p	9:52p	....

Route 157 - Saturday West / Northbound

BLDG. 800 (J)	LOUISIANA & GIBSON (I)	LOUISIANA & CENTRAL (H)	UPTOWN TRANSIT CENTER P&R (G)	MONTGOMERY & LOUISIANA (F)	MONTGOMERY & SAN MATEO (E)	MONTAÑO & 4TH ST (D)	MONTAÑO & TAYLOR RANCH (C)	GOLF COURSE & PASEO DEL NORTE (B)	NORTHWEST TRANSIT CENTER P&R (A)
....	8:06a	8:11a	8:20a	8:28a	8:31a	8:42a	8:50a	8:55a	9:04a
8:45a	8:51a	8:56a	9:05a	9:13a	9:16a	9:27a	9:35a	9:40a	9:49a
....	9:36a	9:41a	9:50a	9:58a	10:01a	10:12a	10:20a	10:25a	10:34a
10:16a	10:21a	10:26a	10:35a	10:43a	10:46a	10:57a	11:05a	11:10a	11:19a
....	11:06a	11:11a	11:20a	11:28a	11:31a	11:42a	11:50a	11:55a	12:04p
....	11:51a	11:56a	12:05p	12:13p	12:16p	12:27p	12:35p	12:40p	12:49p
....	12:36p	12:41p	12:50p	12:58p	1:01p	1:12p	1:20p	1:25p	1:34p
....	1:20p	1:25p	1:34p	1:42p	1:45p	1:56p	2:04p	2:09p	2:18p
....	2:05p	2:10p	2:19p	2:27p	2:30p	2:41p	2:49p	2:54p	3:03p
....	2:50p	2:55p	3:04p	3:12p	3:15p	3:26p	3:34p	3:39p	3:48p
3:29p	3:35p	3:40p	3:49p	3:57p	4:00p	4:11p	4:19p	4:24p	4:33p
4:14p	4:20p	4:25p	4:34p	4:42p	4:45p	4:56p	5:04p	5:09p	5:18p
5:00p	5:06p	5:11p	5:20p	5:28p	5:31p	5:42p	5:50p	5:55p	6:04p
....	5:51p	5:56p	6:05p	6:13p	6:16p	6:27p	6:35p	6:40p	6:49p
....	6:36p	6:41p	6:50p	6:58p	7:01p	7:12p	7:20p	7:25p	7:34p
....	7:21p	7:26p	7:35p	7:43p	7:46p	7:57p	8:05p	8:10p	8:19p
....	7:49p	7:54p	8:03p	8:11p	8:14p	8:25p	8:33p	8:38p	8:47p
....	8:26p	8:31p	8:40p	8:48p	8:51p	9:02p	9:10p	9:15p	9:27p
....	9:16p	9:21p	9:30p	9:38p	9:41p	9:52p	10:00p	10:05p	10:14p

Route 3 - Sunday Southbound

NOTE: Rt. 157 has replaced Rt. 3 on Saturdays

LOUISIANA & MENAUL (K)	UPTOWN TRANSIT CENTER P&R (G)	LOUISIANA & CENTRAL (H)	LOUISIANA & GIBSON (I)
7:53a	7:57a	8:07a	8:12a
8:50a	8:54a	9:04a	9:09a
9:50a	9:54a	10:04a	10:09a
10:50a	10:54a	11:04a	11:09a
11:50a	11:54a	12:04p	12:09p
12:50p	12:54p	1:04p	1:09p
1:50p	1:54p	2:04p	2:09p
2:50p	2:54p	3:04p	3:09p
3:50p	3:54p	4:04p	4:09p
4:50p	4:54p	5:04p	5:09p

Route 3 - Sunday Northbound

LOUISIANA & GIBSON (I)	LOUISIANA & CENTRAL (H)	UPTOWN TRANSIT CENTER P&R (G)	LOUISIANA & MENAUL (K)
8:25a	8:30a	8:40a	8:44a
9:25a	9:30a	9:40a	9:44a
10:25a	10:30a	10:40a	10:44a
11:25a	11:30a	11:40a	11:44a
12:25p	12:30p	12:40p	12:44p
1:25p	1:30p	1:40p	1:44p
2:25p	2:30p	2:40p	2:44p
3:25p	3:30p	3:40p	3:44p
4:25p	4:30p	4:40p	4:44p
5:25p	5:30p	5:40p	5:44p

Noticias: Ruta 157 han reemplazado Ruta 3 en los Sabados