



CITY of NOVI CITY COUNCIL

Agenda Item **K**
 January 24, 2011

SUBJECT: Approval of Traffic Control Order 11-01 for the implementation of a 30 mph speed limit on Orchard Hill Place between Haggerty Road and Eight Mile Road.

SUBMITTING DEPARTMENT: Department of Public Services, Engineering Division *Bill*

CITY MANAGER APPROVAL: *[Signature]*

BACKGROUND INFORMATION:

The Uniform Traffic Code requires that traffic control orders, as issued by the traffic engineer and approved by the City Council, be on file for the enforcement of traffic control signs. Our review of the traffic control file indicated that a traffic control order for the existing 25 mph posted speed does not exist. As such, an engineering study was performed to establish a legal speed limit as required by the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) (see Birchler Arroyo study dated April 9, 2010). Speed limits are generally set using the 85th percentile speed, which is the speed at or below which 85 percent of the motorists drive on a given road unaffected by slower traffic or poor weather.

A speed limit of 30 mph is proposed to represent existing driver behavior on this segment as demonstrated by the 85th percentile speeds of 28.8 mph at the northern section of the road and 34.3 mph near the south end of the road. The traffic report also recommends the restriping of the existing two lane road with three narrower lanes (establishing a center left turn lane) as a traffic calming measure to address reports of speeding drivers as well as additional signage for the curves. The report recommendations will be completed under the existing pavement striping contract and using in-house staff in spring 2011. In accordance with Department of Public Service's standard procedures, within one year after implementation of new speed limits (and following the restriping of the pavement), staff will collect speed samples to verify that the new posted speed limit continues to reflect the 85th percentile speed.

The new signage would meet the federal retroreflectivity requirements and would be funded by the Traffic Control Sign Replacement Program as approved in the FY2010-11 budget.

RECOMMENDED ACTION: Approval of Traffic Control Order 11-01 for the implementation of a 30 mph speed limit on Orchard Hill Place between Haggerty Road and Eight Mile Road.

	1	2	Y	N
Mayor Landry				
Mayor Pro Tem Gatt				
Council Member Fischer				
Council Member Margolis				

	1	2	Y	N
Council Member Mutch				
Council Member Staudt				
Council Member Wrobel				

**CITY OF NOVI
TRAFFIC CONTROL ORDER**

 X SPEED
 PARKING
 OTHER

DATE OF ORDER: 1/14/2011

CONTROL NUMBER: 11-01


PURSUANT TO CHAPTER NO. 33 OF THE CODE OF ORDINANCES OF THE CITY OF NOVI, MICHIGAN, SAME BEING THE UNIFORM TRAFFIC CODE FOR CITIES, TOWNSHIPS AND VILLAGES OF MICHIGAN AND IN THE INTEREST OF PUBLIC SAFETY AND CONVENIENCE THE FOLLOWING TRAFFIC CONTROL ORDER IS HEREBY ISSUED BY BRIAN COBURN, ENGINEERING MANAGER, DULY AUTHORIZED AS TRAFFIC ENGINEER, BY SEC. 33.141 OF THE AFORESAID CHAPTER.

ISSUANCE OF THIS TRAFFIC CONTROL ORDER WAS PRECEDED BY STUDY AND INVESTIGATION OF TRAFFIC CONDITIONS ON THE FOLLOWING PUBLIC ROAD OR ROADS IN THE CITY OF NOVI, MICHIGAN.

ORCHARD HILL PLACE

AND AFTER SAID INVESTIGATION, IT IS HEREBY ORDERED AND DIRECTED THAT THE DEPARTMENT OF PUBLIC SERVICES ERECT AND MAINTAIN THE SPEED LIMIT SIGN(S) IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS REQUIRED BY SEC. 33.217 OF THE AFORESAID CHAPTER, SAID SIGNS TO GIVE NOTICE OF THE FOLLOWING DETERMINATION:

SPEED LIMIT FOR ORCHARD HILL PLACE TO BE 30 MPH



Brian Coburn, P.E. - Traffic Engineer
Dated: 1/14/2011

APPROVED BY CITY COUNCIL

TRAFFIC CONTROL ORDER NUMBER 11-01 HAVING BEEN PRESENTED TO THE COUNCIL OF THE CITY OF NOVI, MICHIGAN FOR STUDY AND APPROVAL, IS HEREBY APPROVED AND IT IS HEREBY ORDERED AND DIRECTED THAT THIS ORDER BE FILED IN THE OFFICE OF THE CITY CLERK AND A COPY THEREOF IN THE OFFICE OF THE CHIEF OF POLICE OF SAID CITY.

IT IS FURTHER ORDERED AND DIRECTED THAT THIS ORDER SHALL BECOME EFFECTIVE UPON BEING FILED WITH THE CLERK AND UPON ERECTION OF ADEQUATE SIGNS GIVING NOTICE OF THE EXISTENCE OF AFORESAID,

SPEED LIMIT FOR ORCHARD HILL PLACE TO BE 30 MPH

ADOPTED AT THE REGULAR MEETING OF
CITY COUNCIL ON 01/24/2011

By: _____
David Landry, Mayor

By: _____
Maryanne Cornelius, Clerk

April 9, 2010

Brian T. Coburn, P.E.
Engineering Div., Dept. of Public Services
City of Novi
26300 Delwal Drive
Novi, MI 48375
bcoburn@cityofnovi.org



Subject: Traffic Calming Study of Orchard Hill Place

Dear Mr. Coburn:

Orchard Hill Place between Eight Mile and Haggerty Roads (Figure 1) is a predominately 36-ft wide, non-residential collector with a double solid yellow centerline over its entire length and a posted speed limit of 25 mph (although the 36-ft wide section widens to a boulevard entrance at each end). At your request, we have evaluated the striping pattern, advisory curve signing, and current speeds, with an eye toward "calming" traffic; that is, inducing a safer, more uniform flow.

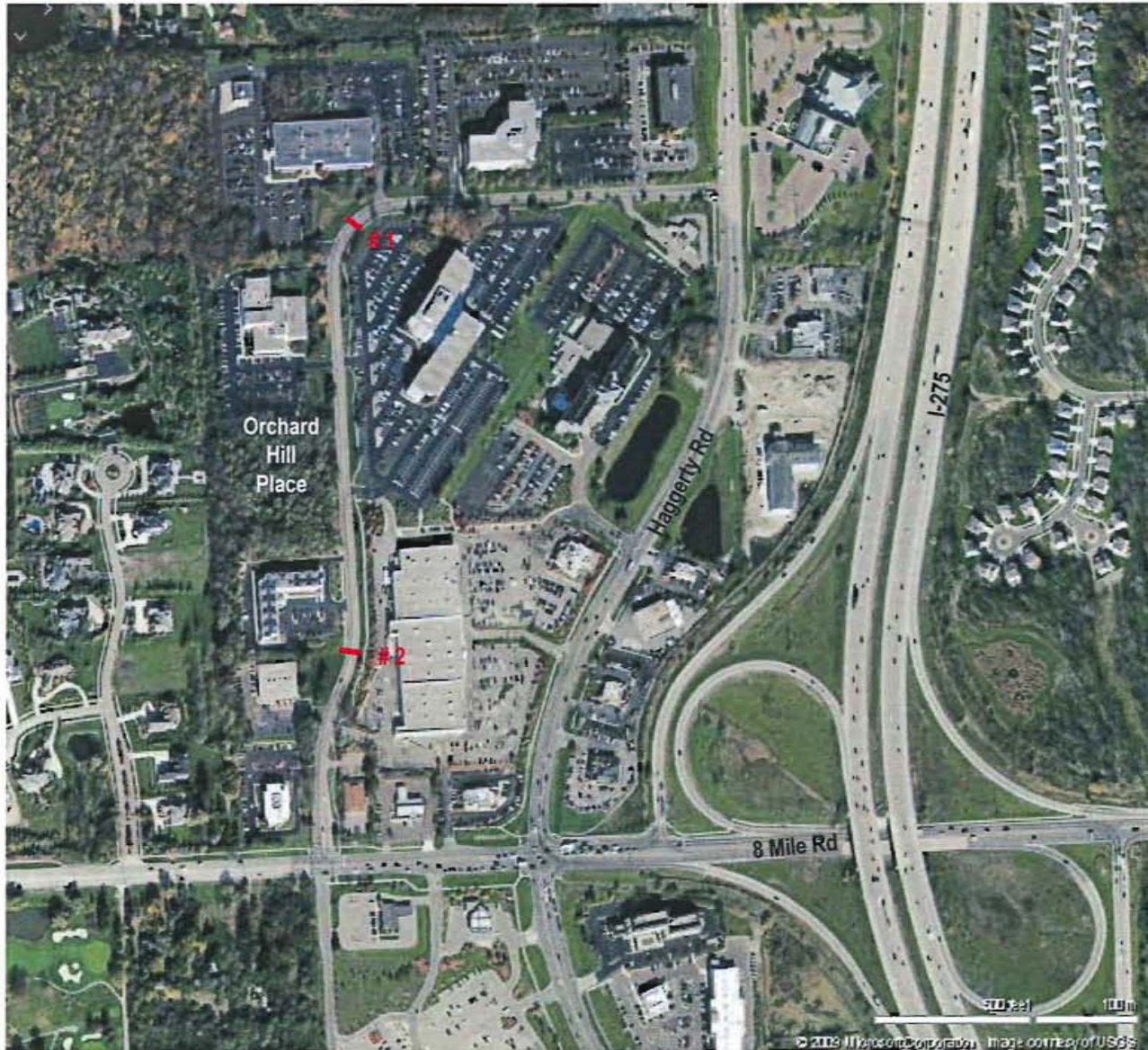
We are making recommendations at this time for a change in the striping pattern and advisory curve signing. Assuming that the City approves and implements our recommendations in this regard, we would then proceed to evaluate another round of speed samples to see if the revised striping and signing have been effective in "calming" traffic. At present, existing speeds indicate that the speed limit should be 30 mph rather than 25 mph.

Recommendations

1. The 36-ft wide section of Orchard Hill Place should be re-striped to include a 10-ft-wide two-way left-turn lane and two 12½-ft-wide travel lanes (to face of curb, leaving 11 ft to lip of gutter).
2. In each direction in advance of the right-angle bend from north-south to east-west, the existing advisory curve (W1-2) signs should be replaced with advisory turn (W1-1) signs, since the computed safe and comfortable speed for this curve is only 27 mph.
3. At least two weeks after the above striping and signing changes have been implemented, 48-hour mid-week speed samples should be taken at the same locations used in baseline sampling (discussed below).

Current Speeds and Volumes

Automated (hose) counts were made by City personnel, at the two locations marked in Figure 1 as locations #1 and #2, on Tuesday-Thursday, March 30-April 1, 2010. Table 1 summarizes the results of this data collection effort. Key findings include:



Speed
Sampling
Location



BIRCHLER ARROYO
ASSOCIATES, INC.

Figure 1. Aerial Photo of Orchard Hill Place and Environs

**Table 1. Summary of Speed Statistics for Orchard Hill Place
for March 30 - April 1, 2010**

Sampling Location	Dir.	Date	Sample Size	Speed (mph)			
				Average	85th %tile	10-mph Pace	% in Pace
1 (North)	NB	3-30-10 (>11 am)	251	24.9	29.2	20-30	80.4%
		3-31-10	484	24.2	28.6	20-30	81.8%
		4-01-10 (<11 am)	298	24.2	28.4	20-30	86.2%
		Average Day	516	24.4	28.7	20-30	82.7%
	SB	3-30-10 (>11 am)	634	24.6	28.8	20-30	85.8%
		3-31-10	775	24.5	28.9	20-30	81.4%
		4-01-10 (<11 am)	180	24.0	28.6	20-30	81.6%
		Average Day	795	24.5	28.8	20-30	83.2%
Both	Average Day	1311	24.4	28.8	20-30	83.0%	
2 (South)	NB	3-30-10 (>11 am)	530	28.4	33.6	25-35	70.7%
		3-31-10	1139	28.2	33.3	25-35	72.2%
		4-01-10 (<11 am)	674	28.1	33.2	25-35	70.9%
		Average Day	1172	28.2	33.3	25-35	70.9%
	SB	3-30-10 (>11 am)	1332	30.8	35.5	25-35	74.2%
		3-31-10	1553	30.2	34.7	25-35	75.4%
		4-01-10 (<11 am)	333	29.7	34.6	25-35	73.2%
		Average Day	1609	30.4	35.0	25-35	74.7%
Both	Average Day	2781	29.5	34.3	25-35	73.1%	

- ❑ Average speeds are 24-30 mph and 85th-percentile speeds are 29-34 mph. The average speed approximates the speed limit only where constrained by the 90-degree bend in the road, and the 85th-percentile speed exceeds the speed limit by 4-9 mph.
- ❑ Southbound on the 90-degree bend, the average speed is 24.5 mph and the 85th-percentile speed is 28.8 mph. These compare well to the 27 mph “comfortable” speed computed on the basis of the curve radius, adverse cross slope in the southbound lane, and typical side friction for that speed (per methodology recommended by the American Association of State Highway and Transportation Officials, or AASHTO).
- ❑ That southbound traffic volumes exceed northbound volumes – by 37% (south) to 54% (north) – may be a reflection of cut-through traffic from southbound Haggerty to westbound Eight Mile (the two right turns in that direction make it a more desirable cut-through route than the two left turns required in the opposite direction).
- ❑ Despite the apparent presence of some cut-through traffic, the average daily traffic volumes on Orchard Hill Place – about 1,300-2,800 vehicles – are not unusually high for a non-residential collector of this type and length.

Factors to Consider in Evaluating Speed Limit

In determining an appropriate speed limit, consideration should be given to both the guidance contained in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)* and the State law supporting access-point frequency and prevailing speed as the two leading factors.

Section 2B.13 of the *MMUTCD* establishes the standard that an “engineering study... in accordance with established traffic engineering practices” be conducted prior to setting a speed limit. Guidance for such a study includes the following:

- ❑ “When a speed limit is to be posted, it should be within ... 5 mph of the 85th-percentile of free-flowing traffic.
- ❑ Other factors that may be considered when establishing speed limits are the following:
 - A. Road characteristics, shoulder condition, grade, alignment, and sight distance;
 - B. The pace speed;
 - C. Roadside development and environment;
 - D. Parking practices and pedestrian activity;
 - E. Reported crash experience for at least a 12-month period.”

A portion of the *Michigan Vehicle Code (MCL 257.627)* establishes prima facie speed limits based on (1) whether or not the road runs through a business district, and (2) the number of access points (driveways or intersecting roadways) within each half mile of road. In a business district or where there are 60 or more access points per half mile, the prima facie limit is 25 mph. Outside a business district, the prima facie limit is 35 mph for 45-59 access points per half mile and 45 mph for 30-44 access points per half mile.

Another speed limit (or limits) can be established by the City based on an engineering study. Such a study is begun in this report, with the following preliminary findings.

Prima Facie Speed Limit – The land development along Orchard Hill Place does not qualify as a business district per State law (MCL 257.5). There are 18 driveways along this 0.62-mile-long street, yielding a density of approximately 15 driveways per half mile. According to the speed ranges presented above, the prima facie speed limit is 55 mph.

Alignment and Roadside – The most limiting feature is the horizontal curve noted above, which has a computed comfortable speed of 27 mph (but is only 365 ft long). Although the 2008 reconstruction plans do not state a design speed for the road, either with or without the above curve included, BA has evaluated the plans to determine safe speed at the following additional locations:

- First horizontal curve north of Eight Mile – 500-ft radius, comfortable at 34-35 mph.
- Second horizontal curve north of Eight Mile – 450-ft radius, comfortable at 33-34 mph.
- Vertical curve cresting 785 ft north of Eight Mile – 360 ft of sight distance, safe for 45 mph.

As can be seen in the series of four birds-eye aerial photos (Figures 2-5) and the two surface photos taken on the above crest (Figures 6-7), the roadsides along Orchard Hill Place are relatively free of hazards. There are only a few street trees, and most are up the side slopes behind the curb. Based on the above physical features, it appears that a 35-mph design speed is reasonably conservative, giving due regard to the need for warning drivers of a reduced speed on the 90-degree bend.

Pace Speed – As noted in Table 1, the current 10-mph speed range containing the most vehicles (i.e., the pace) is 20-30 mph on the 90-degree bend (sampling location #1) and 25-35 mph on the second curve north of Eight Mile Road (sampling location #2). Hence, it appears that most drivers are choosing a speed appropriate to the road design.

Crash History – A detailed tabulation of all crashes reported for the five years between 2004 and 2008 was obtained from the Traffic Improvement Association (see attached). The seven reported crashes are summarized in Table 2 (below). Analysis indicates that the leading contributing factors appear to have been adverse weather (four crashes) and driveway use (two crashes). Excessive speed was cited in only one instance, involving a collision between opposing-direction vehicles on the 90-degree bend under conditions of snow and ice.

Conclusions – All of the above analyses support 30 mph as a more appropriate speed limit than the 25 mph now posted, assuming retention of the existing two-lane striping pattern and the recommended replacement of the curve warning sign with a turn warning sign. However, as noted in our Recommendations section, we believe that a change in speed limit should await a follow-up speed study to determine whether or not the striping of narrower lanes (via the introduction of a two-way left-turn lane) is effective in reducing speeds to levels closer to the existing 25-mph limit.

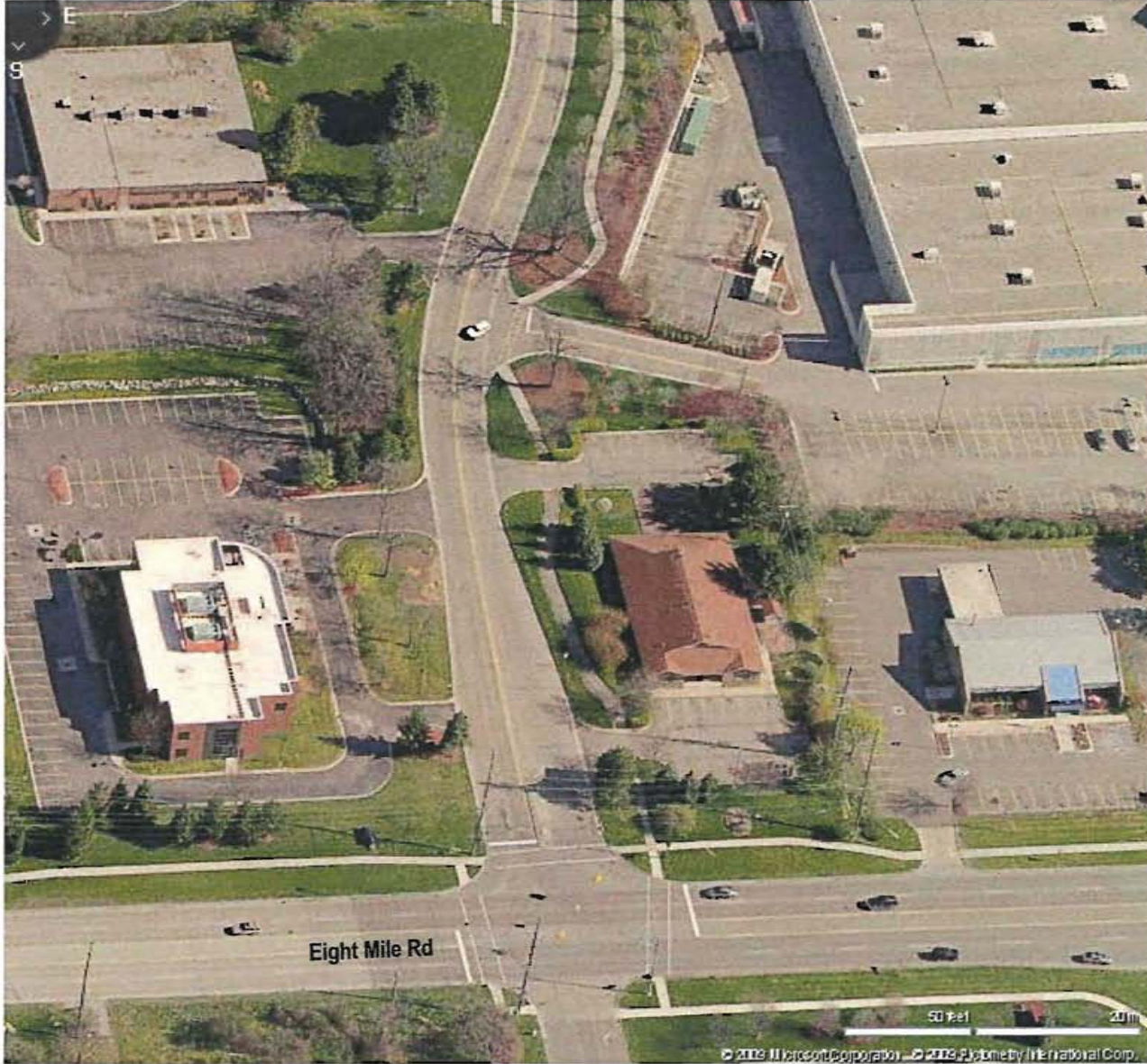


Figure 2. First Section of Orchard Hill Place North of Eight Mile Road



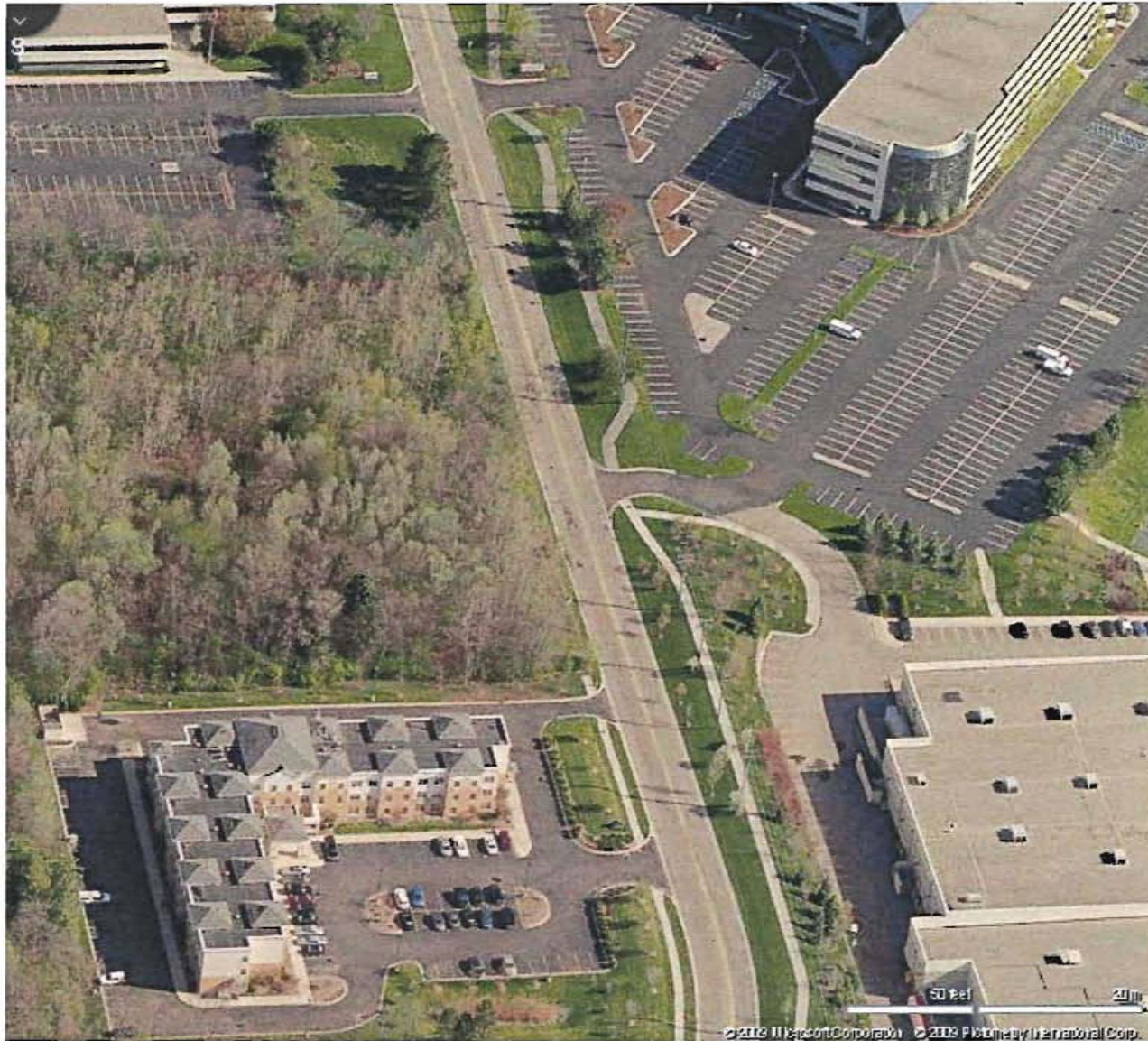


Figure 3. Second Section of Orchard Hill Place North of Eight Mile Road



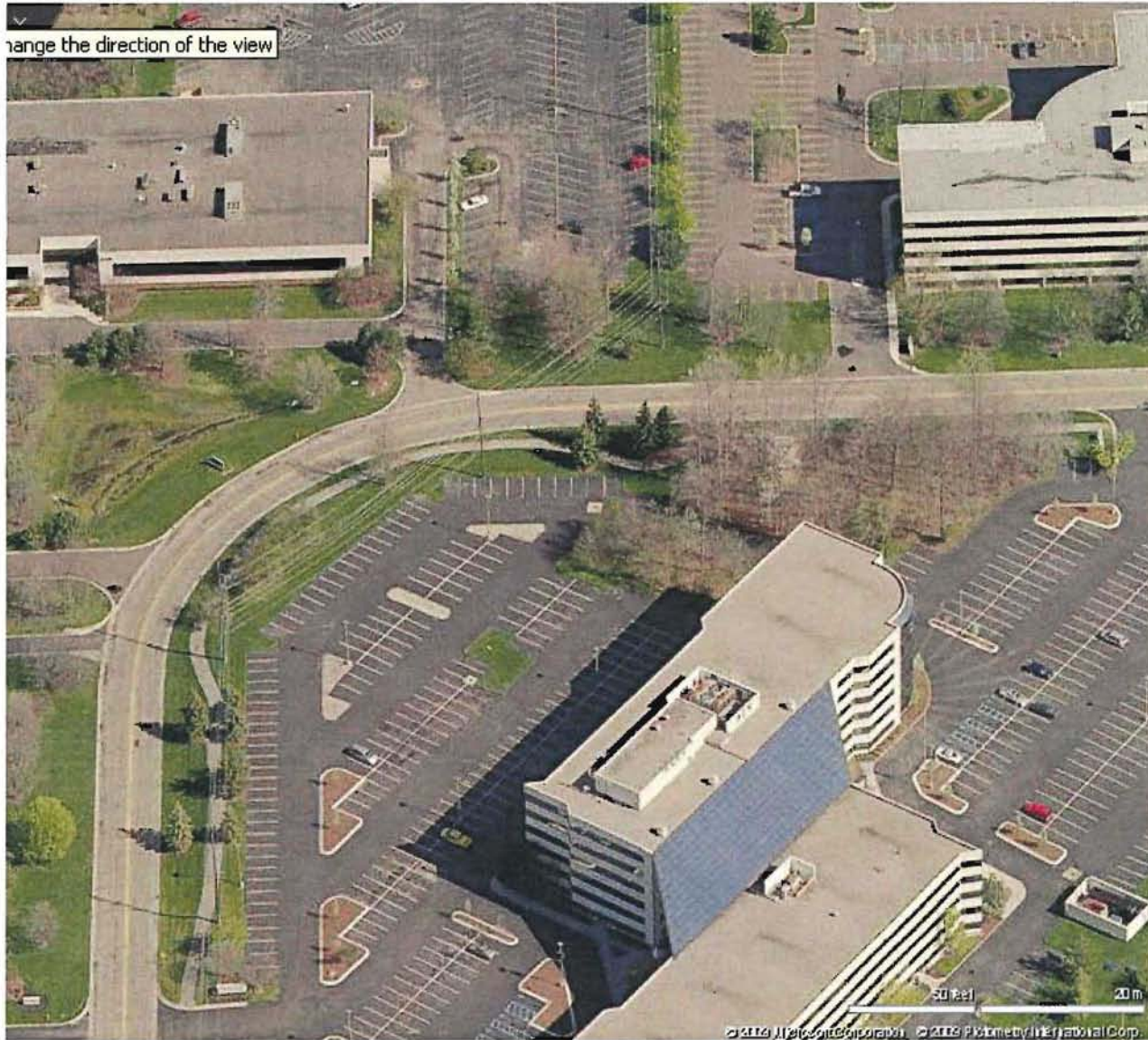


Figure 4. Third Section of Orchard Hill Place North of Eight Mile Road

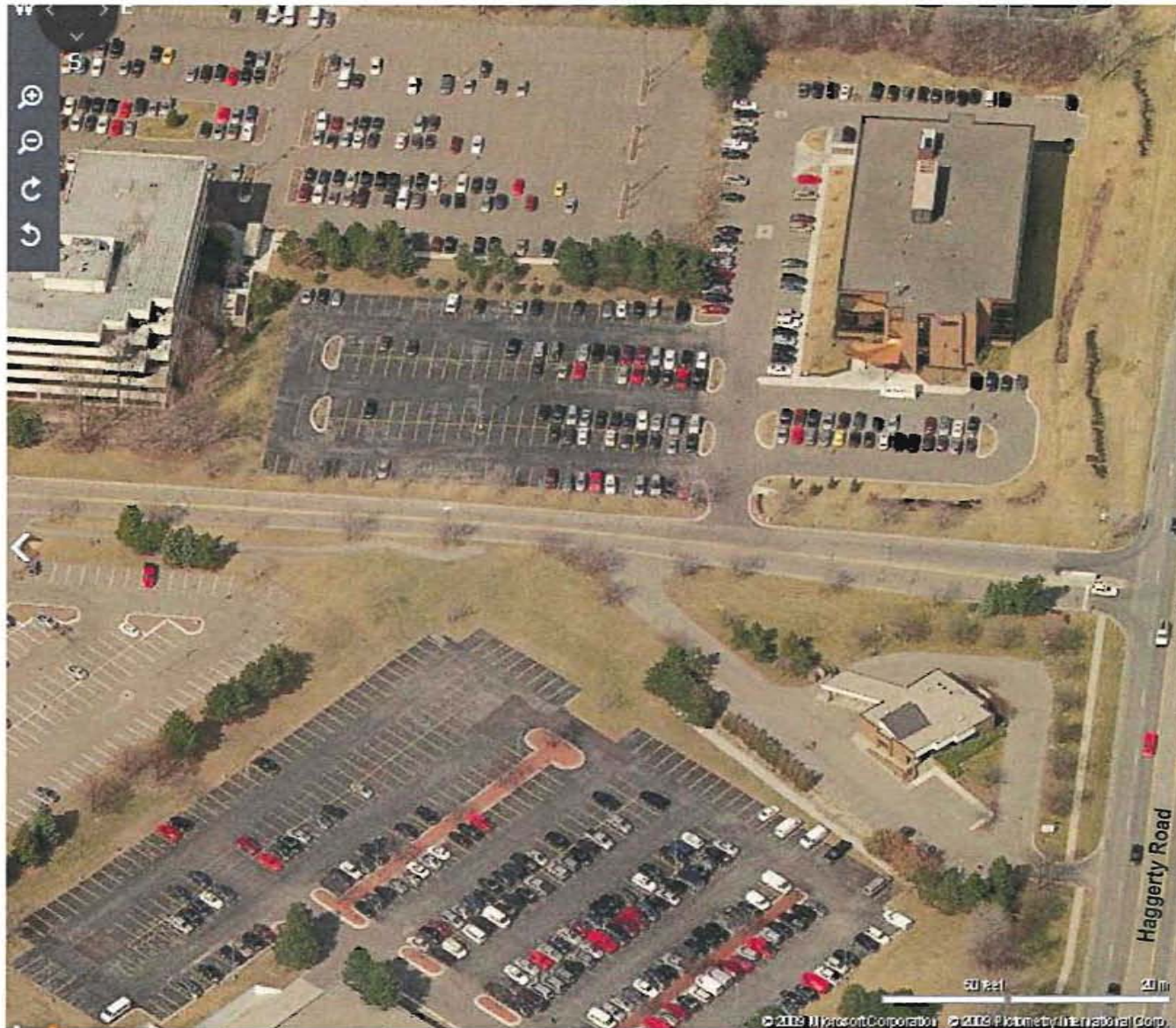


Figure 5. First Section of Orchard Hill Place West of Haggerty Road



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Figure 6. Looking North at Speed Sampling Location #2



Figure 7. Looking South at Speed Sampling Location #2

Table 2. 2004-2008 Crash History for Orchard Hill Place

Year	Date	Time	Mile-post (from 8 Mile)	Crash Type						Crash Severity			Contributing Factors
				Angle	Head-On	Sideswipe		Rear-End	Single-Vehicle	Fatal	Personal Injury (C=Possible Injury)	Property Damage Only (PDO)	
						Opposite Direction	Same Direction						
08	12/23	11a-12p	0.30 ¹	X							X	Snow and ice; excessive NB speed	
	10/30	4-5p	0.56	X							X	Backing from driveway hit by WB	
	09/14	9-10p ²	0.25						X		X	Rain	
06	01/05	5-6p	0.06	X							X	Improper passing SB; wet	
05	06/15	5-6p	0.38	X							X	Driveway vehicle failed to yield	
04	12/28	7-8p	0.19			X					X	SB crossed centerline in slush	
	09/19	3-4p	0.25						X		X	SB ran off road, but why?	
Totals				4		1			2		7		

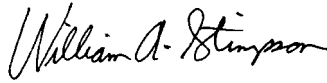
¹ Location apparently miscoded, since crash between NB and WB vehicles occurred on curve centered (per plans) 2,094 ft north of 8 Mile Road's physical centerline.

² Identical single-vehicle crash coded at same time and location, with the only difference being the Crash ID; this duplicate has NOT been listed here, since it is an assumed coding error.

Sincerely,
BIRCHLER ARROYO ASSOCIATES, INC.



Rodney L. Arroyo, AICP
Vice President



William A. Stimpson, P.E.
Director of Traffic Engineering



Traffic Improvement Association

Crash Detail Report

Request #: 0001672

Printed By: Jim Santilli

Printed On: 12/22/2009

FROM_DATE:	1/1/2004
TO_DATE:	12/31/2008
PR/MP	PR 1852502 FROM MP 0 TO MP 0.631 [Orchard Hill Pl & W 8 Mile Rd to Orchard Hill Pl & Haggerty Rd]

#1 Location: S ORCHARDHILL (0.25) 1320 feet N of 8MILE Crash ID: 5864351
Crash Date: 09/19/2004 **Day:** Sun **Hour:** 3pm **Weather:** clear **Roadway:** dry **Light:** day
Injuries K: 0 **Inj A:** 0 **Inj B:** 0 **Inj C:** 0 **Inj 0:** 1 **How:** unknown
CVT: Novi **Area:** straight **HBD:** N **Drugs:** N **Complaint No:** 0449819

Unit No	Veh Dir	Action	Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight		ran off road/r	culvert	none	none	none	car	rtside

UD-10: 041377870

#2 Location: ORCHARD HILL PL (0.19) 1000 feet N of 8 MILE Crash ID: 5869366
Crash Date: 12/28/2004 **Day:** Tue **Hour:** 7pm **Weather:** clear **Roadway:** slushy **Light:** dark/unltd
Injuries K: 0 **Inj A:** 0 **Inj B:** 0 **Inj C:** 0 **Inj 0:** 3 **How:** ss-opp
CVT: Novi **Area:** curved **HBD:** N **Drugs:** N **Complaint No:** 0467964

Unit No	Veh Dir	Action	Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight		cross ctrline/med	veh in transpt	none	none	left of center	car	lftfront
2	N	go straight		veh in transpt	none	none	none	none	car	lftside

UD-10: 041384011

#3 Location: ORCHARD HILL (0.38) 1320 feet W of HAGGERTY RD Crash ID: 6063290
Crash Date: 06/15/2005 **Day:** Wed **Hour:** 5pm **Weather:** clear **Roadway:** dry **Light:** day
Injuries K: 0 **Inj A:** 0 **Inj B:** 0 **Inj C:** 0 **Inj 0:** 2 **How:** head-on/lt
CVT: Novi **Area:** driveway **HBD:** N **Drugs:** N **Complaint No:** 0531217

Unit No	Veh Dir	Action	Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	enter rdwy		veh in transpt	none	none	none	failed to yeild	car	lftside
2	E	go straight		veh in transpt	none	none	none	none	car	rtrfront

UD-10: 055588619

#4 Location: ORCHARD HILLS PLACE (0.06) 300 feet N of 8 MILE Crash ID: 6239032
Crash Date: 01/05/2006 **Day:** Thu **Hour:** 5pm **Weather:** cloudy **Roadway:** wet **Light:** dark/unltd
Injuries K: 0 **Inj A:** 0 **Inj B:** 0 **Inj C:** 0 **Inj 0:** 3 **How:** angle
CVT: Novi **Area:** driveway **HBD:** N **Drugs:** N **Complaint No:** 061247

Unit No	Veh Dir	Action	Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	passing		veh in transpt	none	none	none	imprp passing	car	lftside
2	W	enter rdwy		veh in transpt	none	none	none	none	car	ctrfront

UD-10: 061004779

#5 Location: ORCHARD HILL DR (0.25) 1320 feet N of 8 MILE RD Crash ID: 7089787
Crash Date: 09/14/2008 **Day:** Sun **Hour:** 9pm **Weather:** rain **Roadway:** wet **Light:** dusk
Injuries K: 0 **Inj A:** 0 **Inj B:** 0 **Inj C:** 0 **Inj 0:** 1 **How:** single
CVT: Novi **Area:** driveway **HBD:** N **Drugs:** N **Complaint No:** 80049119

Unit No	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	leaving parking	ditch	none	none	none	none	car	lftfront

UD-10: 080432102

#6 Location: ORCHARD HILL DR (0.25) 1320 feet N of 8 MILE RD Crash ID: 7089788
 Crash Date: 09/14/2008 Day: Sun Hour: 9pm Weather: rain Roadway: wet Light: dusk
 Injuries K: 0 Inj A: 0 Inj B: 0 Inj C: 0 Inj 0: 1 How: single
 CVT: Novi Area: driveway HBD: N Drugs: N Complaint No: 80049117

Unit No	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	leaving parking	ditch	none	none	none	none	car	lftfront

UD-10: 080432104

#7 Location: ORCHARD HILL PLACE (0.56) 350 feet W of HAGGERTY RD Crash ID: 7132618
 Crash Date: 10/30/2008 Day: Thu Hour: 4pm Weather: clear Roadway: dry Light: day
 Injuries K: 0 Inj A: 0 Inj B: 0 Inj C: 0 Inj 0: 2 How: angle
 CVT: Novi Area: driveway HBD: N Drugs: N Complaint No: 080058826

Unit No	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	backing	veh in transpt	none	none	none	unknown	other	none
2	W	go straight	veh in transpt	none	none	none	none	car	lftside

UD-10: 080525716

#8 Location: ORCHARD HILL PLACE (0.30) 1584 feet N of EIGHT MILE Crash ID: 7203230
 Crash Date: 12/23/2008 Day: Tue Hour: 11am Weather: snow Roadway: icy Light: day
 Injuries K: 0 Inj A: 0 Inj B: 0 Inj C: 0 Inj 0: 2 How: angle
 CVT: Novi Area: curved HBD: N Drugs: N Complaint No: 0800070209

Unit No	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	speeding	car	lftfront
2	W	go straight	veh in transpt	none	none	none	none	car	

UD-10: 080674717

Crash Type

Count	Type
0	uncoded
2	single
0	head-on
1	head-on/lt
3	angle
0	rr-end
0	rr-end/lt
0	rr-end/rt
0	ss-same
1	ss-opp
1	unknown
Totals: 8	

Light Conditions

Count	Type
0	uncoded
4	day
0	dawn
2	dusk
0	dark/lt
2	dark/unltd
0	unknown
Totals: 8	

Weather

Count	Type
0	uncoded
4	clear
1	cloudy
0	fog/smoke
2	rain
1	snow
0	wind
0	sleet/hail
0	unknown
Totals: 8	

Road Condition

Count	Type
0	uncoded
3	dry
3	wet
1	icy
0	snowy
0	muddy
1	slushy
0	debris
0	unknown
Totals: 8	

Vehicle Type

Count	Type
0	uncoded
12	car
1	other
0	truck/bus
0	van
0	pickup
0	sm truck
0	motorcycle
0	moped
0	go-cart
0	snowmobile
0	off-rd veh
Totals: 13	

Crashes By Month

Count	Type
1	January
0	February
0	March
0	April
0	May
1	June
0	July
0	August
3	September
1	October
0	November
2	December
Totals: 8	

Hazardous Action

Count	Type
8	none
1	speeding
0	imprp/no signal
0	imprp backing
0	unable to stop
0	other
1	unknown
0	reckls driving
0	negl driving
0	spd too slow
1	failed to yeild
0	disrgd traffic cntrl
0	wrong way
1	left of center
1	imprp passing
0	imprp lane use
0	imprp turn
Totals: 13	

Unit Type

Count	Type
0	uncoded
13	vehicle
0	pedestrian
0	bicyclist
0	engineer
Totals: 13	

Crash Severity

	FATAL	A	B	C	No Inj	Total
Persons	0	0	0	0	15	15
Crashes	0	0	0	0	8	8

Alcohol in Crashes

	FATAL	PI	PD	Total
Drinking	0	0	0	0
Not Drinking	0	0	8	8
Total	0	0	8	8

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Unknown	Total
12a - 1a	0	0	0	0	0	0	0	0	0
1a - 2a	0	0	0	0	0	0	0	0	0
2a - 3a	0	0	0	0	0	0	0	0	0
3a - 4a	0	0	0	0	0	0	0	0	0
4a - 5a	0	0	0	0	0	0	0	0	0
5a - 6a	0	0	0	0	0	0	0	0	0
6a - 7a	0	0	0	0	0	0	0	0	0
7a - 8a	0	0	0	0	0	0	0	0	0
8a - 9a	0	0	0	0	0	0	0	0	0
9a - 10a	0	0	0	0	0	0	0	0	0
10a - 11a	0	0	0	0	0	0	0	0	0
11a - 12p	0	0	1	0	0	0	0	0	1
12p - 1p	0	0	0	0	0	0	0	0	0
1p - 2p	0	0	0	0	0	0	0	0	0
2p - 3p	0	0	0	0	0	0	0	0	0
3p - 4p	1	0	0	0	0	0	0	0	1
4p - 5p	0	0	0	0	1	0	0	0	1
5p - 6p	0	0	0	1	1	0	0	0	2
6p - 7p	0	0	0	0	0	0	0	0	0
7p - 8p	0	0	1	0	0	0	0	0	1
8p - 9p	0	0	0	0	0	0	0	0	0
9p - 10p	2	0	0	0	0	0	0	0	2
10p - 11p	0	0	0	0	0	0	0	0	0
11p - 12a	0	0	0	0	0	0	0	0	0
Unknown Time	0	0	0	0	0	0	0	0	0
Total	3	0	2	1	2	0	0	0	8