CITY OF MOVI cityofnovi.org

CITY of NOVI CITY COUNCIL

Agenda Item F November 23, 2009

SUBJECT: Approval of Traffic Control Order 09-10 for the implementation of a 45 mph speed limit on Beck Road between Eight Mile Road and Grand River Avenue, and approval of Traffic Control Orders 09-11 and 09-12 to rescind Traffic Control Orders 79-02 and 90-15, respectively for the previous speed limit.

SUBMITTING DEPARTMENT:

Department of Public Services, Engineering Division 310

Police Department

CITY MANAGER APPROVA

BACKGROUND INFORMATION:

Speed limits are governed by the Michigan Vehicle Code (MVC) and the Michigan Manual of Traffic Control Devices (MMUTCD). The MVC provides a standard "prima facie" speed based on the number of access points on a roadway. The MVC allows the local agency to adjust the speed limit based on a traffic engineering study. The MMUTCD requires an engineering study to determine the speed limit in accordance with established traffic engineering practices, and that the limit must be adopted by the local agency in the form of a traffic control order. The engineering study identifies the 85th percentile speed, or the speed at which 85 percent of the traffic is traveling at or below that speed. The MMUTCD further recommends that speed limits should be reevaluated at least once every five years on roadways that have undergone significant change in roadway characteristics or land use since the last review.

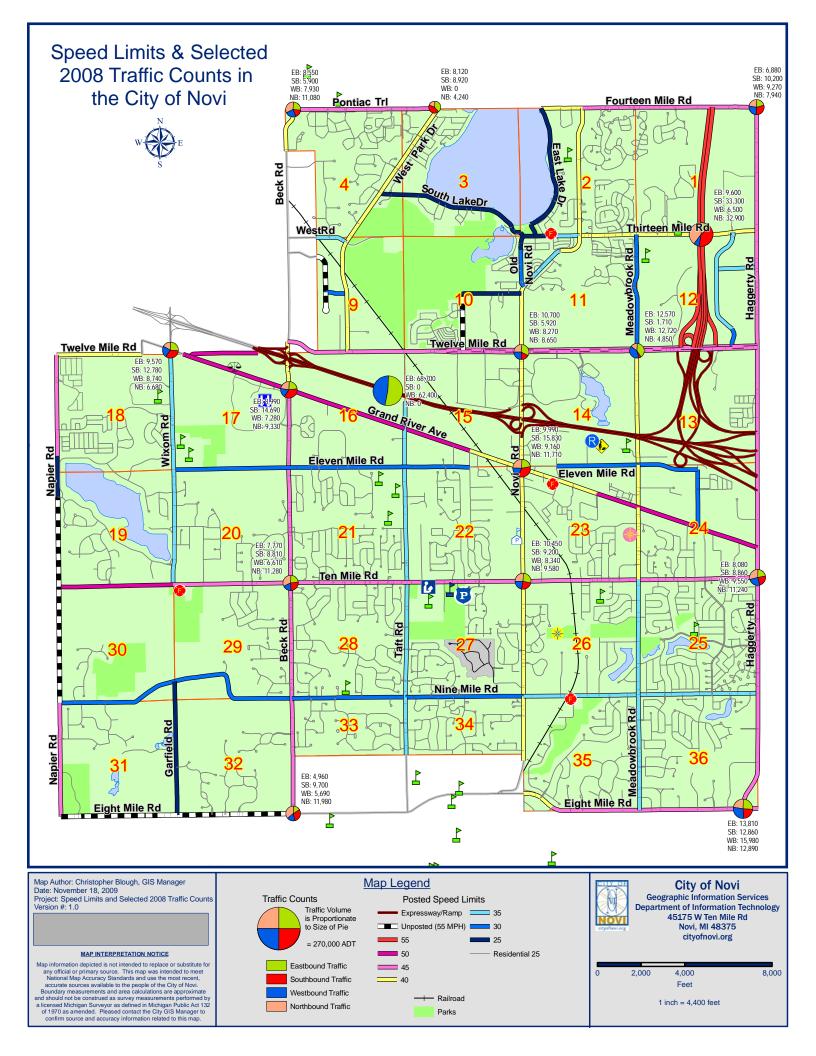
The speed limits were set on Beck Road more than 20 years ago and in that time development has occurred and regional traffic patterns have changed. Therefore, an engineering study was conducted in 2007 to reevaluate the speed to determine a proper legal speed limit for Beck Road. The study recommended that the 85th percentile speed for Beck Road from Eight Mile Road to Grand River Avenue is between 45 and 48 miles per hour, therefore a posted speed of 45 miles per hour was recommended by the traffic consultant (see OHM's April 27, 2007 report). A 45 mile per hour speed limit was temporarily installed for the past three months for the purpose of monitoring speed and conducting a follow-up study to determine if speeds increased significantly as a result of a posted higher speed. The second study indicates that the posted speed limit of 45 mph only resulted in a minimal speed increase of one mile per hour (see Birchler Arroyo's October 30, 2009 report, attached). Therefore, a 45 mile per hour speed limit is recommended along with the rescission of two traffic control orders currently in place.

RECOMMENDED ACTION: Approval of Traffic Control Order 09-10 for the implementation of a 45 mph speed limit on Beck Road between Eight Mile Road and Grand River Avenue, and approval of Traffic Control Orders 09-11 and 09-12 to rescind Traffic Control Orders 79-02 and 90-15, respectively for the previous speed limit.

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Mayor Landry				
Mayor Pro Tem Gatt				
Council Member Crawford				
Council Member Fischer				

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Council Member Margolis				
Council Member Mutch				
Council Member Staudt				



CITY OF NOVI TRAFFIC CONTROL ORDER

X	SPEED
	PARKING
	OTHER

DATE OF ORDER:

November 13, 2009

CONTROL NUMBER: 09-10

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, SENIOR CIVIL ENGINEER, 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.

BECK RD

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 BECK RD FROM EIGHT MILE RD NORTH TO SOUTH OF GRAND RIVER TO BE 45 MPH

TRAFFIC ENGINEER-BRIAN COBURN

DATED: 11-13-09

APPROVED BY CITY COUNCIL

TRAFFIC CONTROL ORDER NUMBER 09-10 HAVING BEEN PRESENTED TO THE COUNCIL OF THE CITY OF NOVI, MICHIGAN FOR STUDY AND APPROVAL, IS HEREBY APPROVED AND IT IS HEREBY ORDEED AND DIRECTED THAT THIS ORDER BE FILED IN THE OFFICE OF THE CITY CLERK AND A COP THEREOF IN THE OFFICE OF THE CHIEF OF POLICE OF SAID CITY.

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

SPEED LIMIT FOR BECK RD FROM EIGHT MILE RD NORTH TO SOUTH OF GRAND RIVER TO BE 45 MPH

ADOPTED AT THE REGULAR MEETING	BY:
OF COUNCIL ON	Mayor - David Landry
	By:
	City Clerk - Maryanne Cornelius

CITY OF NOVI TRAFFIC CONTROL ORDER

X SPEED
PARKING
OTHER

DATE OF ORDER:

November 13, 2009

CONTROL NUMBER: 09-11

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, SENIOR CIVIL ENGINEER, 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.

BECK RD BETWEEN TEN MILE AND GRAND RIVER

AND AFTER SAID INVESTIGATION, IT IS HEREBY ORDERED AND DIRECTED THAT THE DEPARTMENT OF PUBLIC SERVICES ERECT AND MAINTAIN THE <u>SPEED LIMIT</u> 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:

TO RESCIND THE TCO NO. 79-02 40 MPH SPEED LIMIT ON BECK NORTH OF TEN MILE RD AND SOUTH OF GRAND RIVER AVE

TRAFFIC ENGINEER, BRIAN COBURN

DATED: 11-13-09

APPROVED BY CITY COUNCIL

TRAFFIC CONTROL ORDER NUMBER <u>09-11</u> HAVING BEEN PRESENTED TO THE COUNCIL OF THE CITY OF NOVI, MICHIGAN FOR STUDY AND APPROVAL, IS HEREBY APPROVED AND IT IS HEREBY ORDEED AND DIRECTED THAT THIS ORDER BE FILED IN THE OFFICE OF THE CITY CLERK AND A COP THEREOF IN THE OFFICE OF THE CHIEF OF POLICE OF SAID CITY.

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

TO RESCIND THE TCO NO. 79-02 40 MPH SPEED LIMIT ON BECK NORTH OF TEN MILE RD AND SOUTH OF GRAND RIVER AVE

ADOPTED AT THE REGULAR MEETING OF COUNCIL ON	BY: Mayor - David Landry
	By:City Clerk - Maryanne Cornelius

CITY OF NOVI TRAFFIC CONTROL ORDER

X SPEED **PARKING OTHER**

DATE OF ORDER:

November 13, 2009

CONTROL NUMBER: 09-12

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, SENIOR CIVIL ENGINEER, 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,

BECK RD BETWEEN EIGHT MILE RD AND TEN MILE RD

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:

TO RESCIND TCO NO. 90-15 40 MPH SPEED LIMIT ON BECK RD NORTH OF EIGHT MILE RD TO SOUTH OF TEN **MILE RD**

TRAFFIC ENGINEER-BRIAN COBURN

DATED: 11/13/2009

APPROVED BY CITY COUNCIL

TRAFFIC CONTROL ORDER NUMBER 09-12 HAVING BEEN PRESENTED TO THE COUNCIL OF THE CITY OF NOVI, MICHIGAN FOR STUDY AND APPROVAL, IS HEREBY APPROVED AND IT IS HEREBY ORDEED AND DIRECTED THAT THIS ORDER BE FILED IN THE OFFICE OF THE CITY CLERK AND A COP THEREOF IN THE OFFICE OF THE CHIEF OF POLICE OF SAID CITY.

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

TO RESCIND TCO NO. 90-15 40 MPH SPEED LIMIT ON BECK RD NORTH OF EIGHT MILE RD TO SOUTH OF TEN MILE RD

ADOPTED AT THE REGULAR MEETING	BY:
OF COUNCIL ON	Mayor - David Landry
	By:City Clerk - Maryanne Cornelius

April 24, 2007

Mr. Rob Hayes, P.E. Novi City Engineer 45175 W. Ten Mile Road Novi, MI 48375



Re:

Beck Road Speed Limit Study

Dear Mr. Hayes:

We are pleased to report the results of our reviews and studies on Beck Road within the City of Novi. As requested, we are providing recommendations on the establishment of realistic speed limits along this roadway.

SPEED LIMIT ON BECK ROAD

The speed data was collected using traffic data collection machines (road tubes stretched across the pavement). The data collected was spot speed information for each of the three mile-long roadway segments between 8 Mile and 11 Mile Roads. We have verified that there are sufficient readings to achieve statistical significance to the results and conclusions.

The collected data was processed to calculate key speed statistics, the most important being the 85th percentile. It represents a speed at which 85 percent of the traffic is traveling at or below, and is sometimes know as the prevailing speed. As you know, this number is the key to establishing realistic speed limits. Its use is recommended by traffic safety professionals throughout the United States, by organizations like:

- Federal Highway Administration.
- National Safety Council,
- Institute of Transportation Engineers,
- AAA Foundation for Traffic Safety.
- International Association of Chiefs of Police, and
- Michigan State Police

The other main statistic we checked against is called the pace. It represents a ten-mile per hour band which encompasses the largest percentage of travelers. The top of the pace should fall within just one or two mph of the 85th percentile. More importantly, the larger the percentage of vehicles traveling within the pace, the safer a roadway usually is. As you are aware, absolute speed usually has little to do with crashes. Rather, it is the differential in speeds that poses problems. Thus, it is better for traffic to all be traveling at about the same speed, rather than if there are great differences between them.

Existing Conditions:

We note that the existing speed limit is 40 mph throughout the corridor. Moreover, Beck Rd. is experiencing significant violation rates of this modified speed law limit. The character of the corridor is of a two-lane roadway with auxiliary turn lanes at select locations. The adjacent land use is primarily

April 24, 2007 Mr. Rob Hayes Page 2 of 4

residential. The older homes tend to have direct driveway access to Beck Rd. The newer homes are in developments that tend to back lot to Beck Rd, with access from side streets.

We conducted a field review of the area, to note pedestrian activity, the relative density of driveways and side streets, and other considerations such as intersection sight distance for the side streets along Beck Road. Regarding pedestrian activity, we made allowances for the season (spring) and weather (clear and warm), relying on our knowledge of the area.

Regarding the issue of the access density, we note the recent enactment of Act. 85, Public Acts of 2006. This legislation sets a relationship between 'vehicle access points' and prima facia speeds. The table below shows the various segments of Beck Rd and how the legislation would impact the 'default' or prima facia speed limit.

	Beck Road Segments			
	8 to 9 Mile Roads	9 to 10 Mile Roads	10 to 11 Mile Roads	
Residential Drives	16	14	13	
Commercial Drives	0	0	2 .	
Side Streets	2	9	6	
Total Points of Access	18	23	21	
Appropriate PRIMA FACIA Speed Limit per MCL 257.627	55 MPH	55 MPH	55 MPH	

To evaluate the safety considerations, we obtained summary of crash data for 2004 through 2006 from the Traffic Improvement Association (TIA) of Oakland County. This information is summarized below:

OD A CITY TYPE		Beck Road Segments		
CRASH TYPE	8 to 9 Mile Roads	9 to 10 Mile Roads	10 to 11 Mile Roads	
Single Vehicle	6	2	6	
Right-angle	0	1	1	
Rear End	6	7	16	
Other	2	2	3	
TOTAL CRASHES	14 in 3 years	12 in 3 years	26 in 3 years	
CRASHES/MILE/YEAR	4.7	4.0	8.7	
CRASH RATE#	63.4	66.2	141.2	

Note #: Rate expressed as crashes per hundred million vehicle miles of travel

We determined that the segments of Beck Road from 8 to 11 Mile Roads are experiencing a number and rate of crashes considerably below average when compared to other major roadways in Oakland County. By way of comparison, the county-wide average crash frequency is about 12 crashes per mile, and the average rate is about 320 crashes per hundred million vehicle miles of travel.

We also had speed data for Beck Road collected at three locations: between 8 Mile and 9 Mile Roads, between 9 Mile and 10 Mile Roads, and between 10 Mile and 11 Mile Roads. The table below shows the

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summary of the speed information collected, the statistics calculated, and the alternative speed limits we considered.

A 10	Beck Re	oad Speed Limit Stu	dy	
		Segment #1 From 8 Mile To 9 Mile	Segment #2 From 9 Mile To 10 Mile	Segment #3 From 10 Mile To 11 Mile
Exis	sting Conditions			
	Speed Limit	40	40	40
	Existing Violation Rate	68%	74%	50%
	Crash Rate	Below Avg	Below Avg	Below Avg
	Pedestrian activity	V. Low	V. Low	V. Low
	Access conflicts	V. Low	V. Low	Low
Spot Sp	eed Study Statistics	·		····
	85th percentile speed	47	48	45
	Pace upper limit	45	47	45
	Percentage in pace	72%	73%	75%
Alternatives	Speed Limit	40	40	40
	Anticipated Violation Rate	68%	74%	50%
	Speed Limit	45	45	45
	Anticipated Violation Rate	22%	24%	12%
	Speed Limit	50	50	50
	Anticipated Violation Rate	6%	6%	4%
Recommendat	ion Spéed Limit		45	

Options Considered:

The data indicates that driver behavior along Beck Road is rather consistent along its length, with slightly elevated speeds south of 10 Mile Rd compared to north of that point. It would thus be reasonable to consider one speed zone for its entire length.

We note that the 85th percentile speed ranges from five to eight mph higher than the existing speed limit. The table above provides anticipated violation rates for potential speed limits ranging from 40 mph up to 50 mph. Please note that even small digressions from the prevailing speed points to very significant violation rates. Enforcing speed limits that are not realistic will pose substantial demands on police. With violation rates from 50 to 74 percent for the existing 40 mph speed limit, there is no question that the Novi Police Department may never be able to dedicate sufficient resources to force the prevailing

April 24, 2007 Mr. Rob Hayes Page 4 of 4

speed of traffic into substantial compliance. The distribution of speeds are such that traditional practices of setting speed limits would point to increasing the speed limit to obtain a 'best fit' of the data.

Recommendations:

We believe that the data clearly points to changing the existing 40 mph zone for Beck Road from 8 Mile to 11 Mile Roads, and we so recommend. We recommend one 45 mph zone for this entire distance.

I would be happy to answer any questions you may have regarding the speed study, the considerations evaluated, or my recommendations.

Sincerely,

ORCHARD, HILTZ & MCCLIMENT, INC.

Stephen B. Dearing, P.E.

Manager of Traffic Engineering

October 30, 2009

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





Subject: Follow-Up Speed Study of Beck Road, 8 Mile to Grand River

Dear Mr. Coburn:

In response to a standing recommendation from the City's prior traffic consultant (see attached copy of that consultant's April 2007 report), the City temporarily raised the speed limit along the above road section from 40 mph to 45 mph. At your request, we have evaluated current speeds to see whether or not they reflect a significant change from those before the speed limit increase.

Recommendations

The 45-mph speed limit previously recommended and implemented should be made permanent and supported by an appropriate Traffic Control Order. The "Temporary" supplemental sign should be removed from each of the existing speed limit sign posts.

Supporting Analysis

New speed data were collected in mid-October this year at the following locations recommended by Birchler Arroyo Associates (listed from north to south):

	North of 11 Mile Road, at the southbound speed limit sign approximately midway between the 11 Mile traffic signal and the Central Park traffic signal.
	About ½ mile south of 11 Mile Road, at the southbound speed limit sign approximately midway between Cider Mill and Kirkway.
	About ½ mile south of 10 Mile Road, at the utility pole on the east side of the road 200 ft north of White Pines Drive.
0	About ½ mile south of 9 Mile Road, at the southbound speed limit sign near R. Bush Ct.

Table 1 summarizes the 85th-percentile speeds observed at the above locations (rounded to the nearest mile per hour). The associated 2009 data are detailed by location, direction, and date in Table 2 (attached). Note that the 85th-percentile speed at all four sampling locations was found to be within 5 mph of the current (45-mph) speed limit, confirming the appropriateness of that limit (per Section 2B.13 of the *Michigan Manual of Uniform Traffic Control Devices*).

Table 1. Summary of Current 85th-Percentile Speeds Along Beck Road

	85 th Percentile Speed (mph)			
Location	Location 2007 (40-mph Limit)			
11 Mile - Grand River	Not sampled	47		
10 Mile – 11 Mile	45	49		
9 Mile – 10 Mile	48	46		
8 Mile – 9 Mile	47	49		

Sincerely,

BIRCHLER ARROYO ASSOCIATES, INC.

Rodney L. Arroyo, AICP

Vice President

William A. Stimpson, P.E.

William A- Stimpson

Director of Traffic Engineering

Table 1. Summary of October 2009 Speed Statistics for Beck Road (Analysis by Birchler Arroyo Associates, Inc.)

iaa	Dir.	Date	Sample	mple Speed (mph)	ed (mph)		
Loc.	EUG. DII.		Size	Average	85th %tile	10-mph Pace	% in Pace
		10-13-09 (>3 pm)	2974	41.1	46.6	35-45	71.5%
	ND	10-14-09	8221	40.2	45.7	35-45	71.4%
1	NB	10-15-09 (<3 pm)	5200	40.3	45.1	35-45	73.0%
11 Mile		Average Day	8198	40.4	45.7	35-45	71.9%
to Grand		10-13-09 (>3 pm)	3732	41.8	47.3	35-45	70.3%
River	SB	10-14-09	7337	42.0	47.5	35-45	69.4%
	96	10-15-09 (<3 pm)	3576	43.0	48.2	40-50	73.9%
		Average Day	7323	42.2	47.6	35-45	70.7%
	Both	Average Day	15520	41.2	46.6	35-45	71.4%
	140	10-13-09 (>3 pm)	3653	43.7	48.5	40-50	81.6%
	NO	10-14-09	7810	43.6	48.5	40-50	80.9%
	NB	10-15-09 (<3 pm)	4203	43.8	48.6	40-50	79.6%
10 Mile		Average Day	7833	43.7	48.5	40-50	80.7%
to		10-13-09 (>3 pm)	3219	45.6	49.9	40-50	79.4%
11 Mile	SB	10-14-09	7666	44.9	49.6	40-50	78.2%
		10-15-09 (<3 pm)	4341	45.0	49.6	40-50	78.9%
		Average Day	7613	45.1	49.7	40-50	78.7%
	Both	Average Day	15446	44.4	49,1	40-50	79.7%
		10-13-09 (>3 pm)	2394	42.6	48.1	40-50	74.9%
	NB	10-14-09	5601	42.2	47.9	40-50	72.4%
		10-15-09 (<3 pm)	3160	42.6	48.2	40-50	75.2%
9 Mile		Average Day	5578	42.4	48.0	40-50	73.7%
to		10-13-09 (>3 pm)	1889	34.3	44.3	35-45	61.3%
10 Mile	SB	10-14-09	4412	33.3	44.3	35-45	56.1%
	ac	10-15-09 (<3 pm)	2322	32.2	44.3	35-45	53.4%
		Average Day	4312	33.2	44.3	35-45	56.5%
	Both	Average Day	9889	38.4	46.4	40-50	66.2%
		10-13-09 (>3 pm)	3288	44.2	49.1	40-50	80.8%
	MD	10-14-09	8513	43.6	48.5	40-50	79.7%
	NB	10-15-09 (<3 pm)	5249	43.7	48.5	40-50	80.0%
8 Mile		Average Day	8525	43.7	48.6	40-50	80.0%
to		10-13-09 (>3 pm)	3641	43.7	48.6	40-50	80.7%
9 Mile	SB	10-14-09	7243	43.5	48.5	40-50	78.7%
ļ	GD	10-15-09 (<3 pm)	3450	43.9	48.8	40-50	79.8%
		Average Day	7167	43.6	48.6	40-50	79.5%
	Both	Average Day	15692	43.7	48.6	40-50	79.8%