

GOVERNOR'S TRAFFIC SAFETY ADVISORY COMMISSION
RICHARD H. AUSTIN
2006 Outstanding Contributions to Traffic Safety Award

Introduction: Located three miles from our state's capitol, Michigan State University's (MSU) 5200 acre main campus includes 660 buildings, over 25,000 parking spaces and approximately 18 miles of streets. The MSU community consists of 45,000 students, 4,500 faculty and professional staff and 6000 employees. The MSU community and its visitors generate within the limits of the campus approximately 110, 000 trips per day. Unlike most communities with two peak hours of traffic per day, MSU has a "peak hour" of traffic every class change from 8 am until 10 pm.

In the early 1990's, 3 separate fatal accidents involving trains within the environs of the campus, precipitated an examination of traffic safety issues and in 1995 the MSU Department of Police & Public Safety reactivated the Office of the Traffic Engineer with the specific goal of reducing traffic crashes. Emphasis was placed on reducing personal injuries. Traffic safety was subsequently made a core part of the University's Master Plan, "2020 Vision", and thus institutionalized at the executive level.

In 1995, there were 507 crashes and 139 injuries, equating to approximately 28 crashes and 7.7 injuries per mile of campus road per year. The State of Michigan experienced 3.5 crashes and 1.2 injuries per mile of public road per year during the same period.

MSU's traffic safety improvement program:

- MSU's streets are not part of the Michigan Accident Location Index (MALI) system and there was no convenient means for locating and analyzing traffic accident reports. It took 3 years to develop a referencing system and a computer file for locating all traffic crashes. Every crash was also processed into an automated collision diagram.
- There are hundreds of traffic control signs on campus. Field reviews of all traffic control devices were conducted. Numerous signs were no longer current with the existing MMUTCD and were replaced; many others were relocated to improve their visibility. Most of the yield signs were replaced with stop signs. More than 1000 work orders have been issued in the upgrading of traffic control devices.
- Traffic volume counts and vehicular speed studies were taken on all of the streets and added to the data base. Engineering analyses of the traffic volume counts revealed that many of the intersections met numerous warrants for stop-and-go traffic signals. Many of these intersections were experiencing a profound pattern of right-angle crashes (attachments). Over a period of several years; an existing traffic signal at Farm Lane and East Circle Drive was removed and the intersection eliminated; traffic signals and geometric reconfigurations was provided at the intersections of Farm Lane at Auditorium Road, Farm Lane at Wilson Road, Farm Lane at Trowbridge, Shaw Lane at Red Cedar Road, and Shaw Lane at Chestnut Road; a traffic circle at Wilson Road and Bogue Street was reconstructed into a traditional intersection with a traffic signals.
- Trowbridge Road was extended eastward into the campus from its intersection with Harrison Road in order to reduce the traffic volumes on North campus.
- The enforcement of traffic laws has been increased to much higher levels, from a low of 770 citations in 1999 to 4,184 citations in 2005, an increase of 440% over that time period. Traffic enforcement efforts were targeted at high accident locations, locations with high vehicular-pedestrian conflicts, and locations where speed was an accident factor. Additional radar and laser equipment were put into service. A motorcycle unit became operational by using cycles leased from Harley Davidson, facilitating enforcement in congested areas.
- In the face of a major shortage in parking spaces, considerable on-street parking was removed at locations with an adverse crash history. Additional parking was provided at the periphery of the academic core, resulting in a significant reduction in traffic volumes by generating shorter trips. When a large parking lot was reconstructed its geometric design was changed to improve safety (early results are very encouraging). CATA bus services were expanded to enhance the use of

perimeter parking and reduce the number of trips. The accumulative effect of managing the parking on campus has greatly reduced and redistributed traffic volumes (attachment).

- An intersection known as Sparty had this famous statue located in the center of the intersection and the resulting geometry was so confusing that no satisfactory traffic control was found. This intersection also experiences major pedestrian crossings. The intersection was reconstructed to have only 3 legs and an all-way stop sign control. A replica of the famous icon was relocated just south of the intersection.
- A standard design for bus stops was developed with help from CATA. The primary goal was to eliminate sight restrictions for pedestrians created by a stopped bus. Every bus stop was field reviewed and many were changed and/or relocated.
- A standard was developed for pedestrian crosswalks. Every crosswalk (over 150) was field reviewed. Many if not most of the crosswalks were modified to fit the standard. Others were eliminated and often chaining or landscaping along the street margin was provided to reduce the frequency of pedestrians crossing out side of a marked crosswalk.
- Cameras and communication hardware was provided for the traffic signals and a coordination plan was developed and installed. Traffic exiting campus is presently progressed at the expense of traffic entering campus, thus reducing vehicular backups in the presence of pedestrians.
- Of major concern was the paucity in the number of motorists yielding to pedestrians in crosswalks. A special sign was developed for MSU by Carrier & Gable. This “yield to pedestrian” sign is placed daily in the middle of the road in proximity to the crosswalk. The sign folds up when struck by a vehicle. There has been a noticeable improvement in motorists yielding to pedestrians and a very similar sign has since been added to the MMUTCD.
- Significant federal funding was obtained to provide grade separations for Farm Lane with its two railroad crossings. MDOT has agreed to oversee this complex project and at this time constructions plans are being prepared via an MDOT consultant.

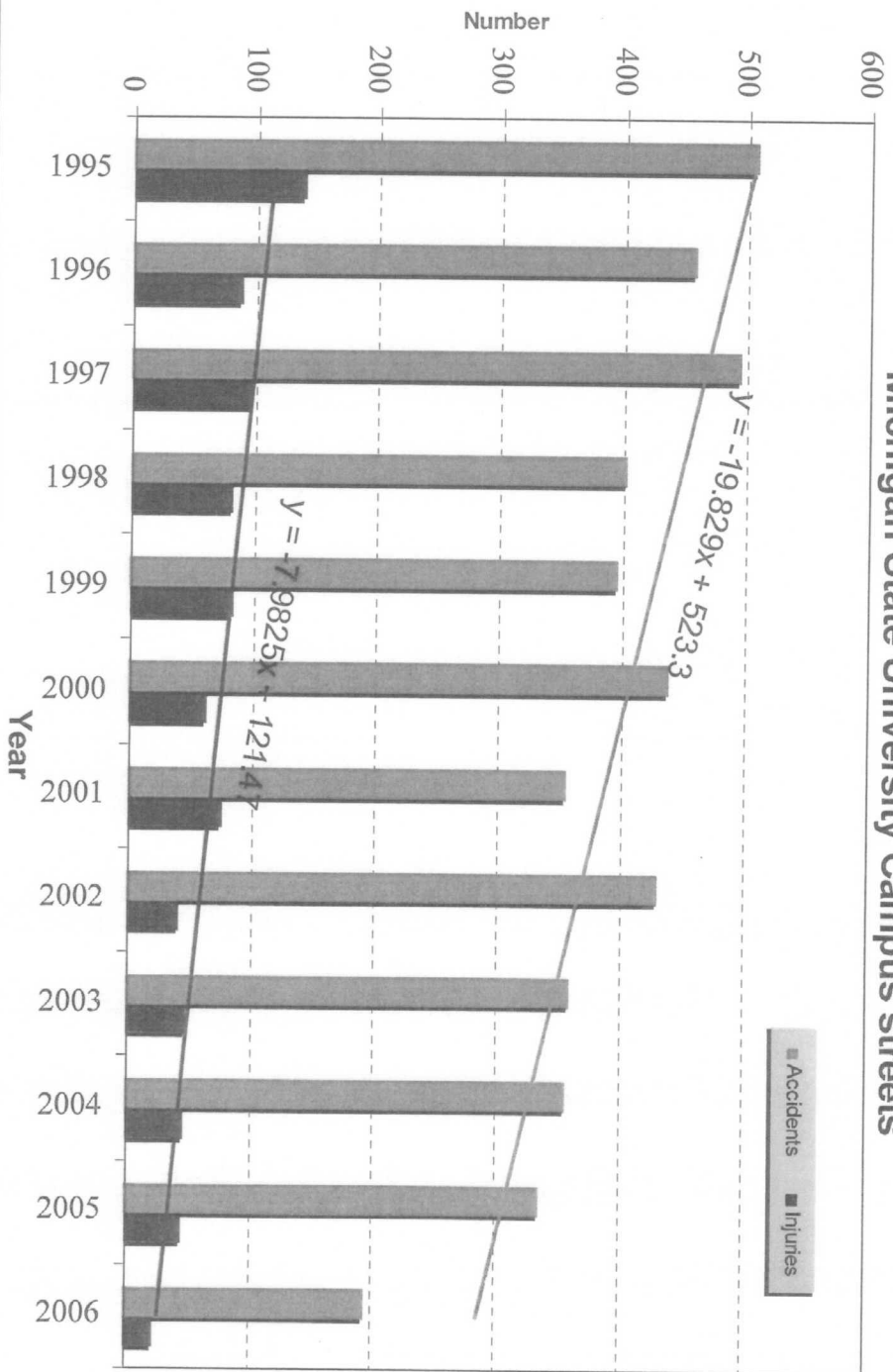
Program funding: The program is completing its 11th year. Not including the Farm Lane Railroad crossing project, approximately \$2.5 million of university funds have been spent on intersection improvements and \$1 million on traffic control devices and engineering-related functions. Approximately \$4 million in federal funds has also been obtained and spent. This investment does not include the thousands of man-hours spent nor the targeting of normal infrastructure funds towards projects with a safety benefit.

Program impacts: The following table shows the reductions in the number of accidents over the life of this program. An attached chart illustrates the impacts with the regression lines indicating that there has been a decrease of 20 accidents and a decrease of 8 injuries per each year of the program. The projected 2006 crash data indicates a 62% reduction in the number of accidents and an 83% reduction in the number of injuries since 1995. Using data provided by the National Safety Council on the societal costs of traffic crashes, approximately \$10 million in savings will be realized in 2006 (compared to 1995) alone.

Acknowledgements: The entire MSU community has participated in and supported this program. MSU has benefited from the assistance of its friends and neighbors; such as, the Lansing Board of Water and Light, the Ingham County Road Commission, the Tri-County Planning Commission, CATA and the private sector. The Michigan Department of Transportation and its transportation service center continually provide immeasurable assistance. Senators Stabenow and Levin and Congressman Rogers have provided an invaluable service in obtaining federal funding.

Year	Number of accidents	Number of Injuries
1995	507	139
1996	458	89
1997	494	97
1998	403	82
1999	397	83
2000	438	63
2001	356	75
2002	430	42
2003	360	48
2004	358	47
2005	337	46
2006 (Jan-Sept)	147	18
Projected 2006	195	24

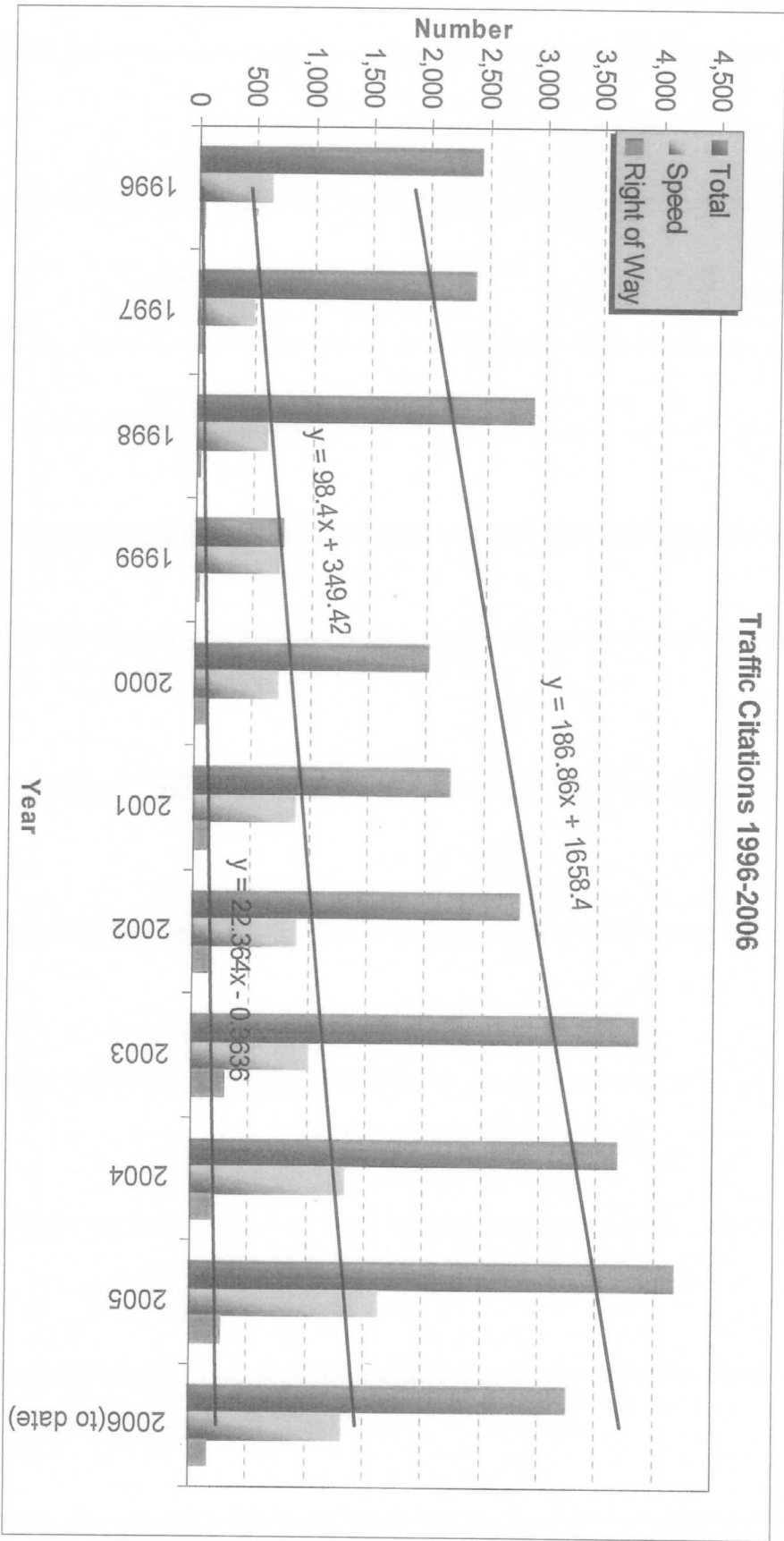
The total number of accidents and the total number of injuries Michigan State University Campus streets



TRAFFIC CITATIONS 1996-2006

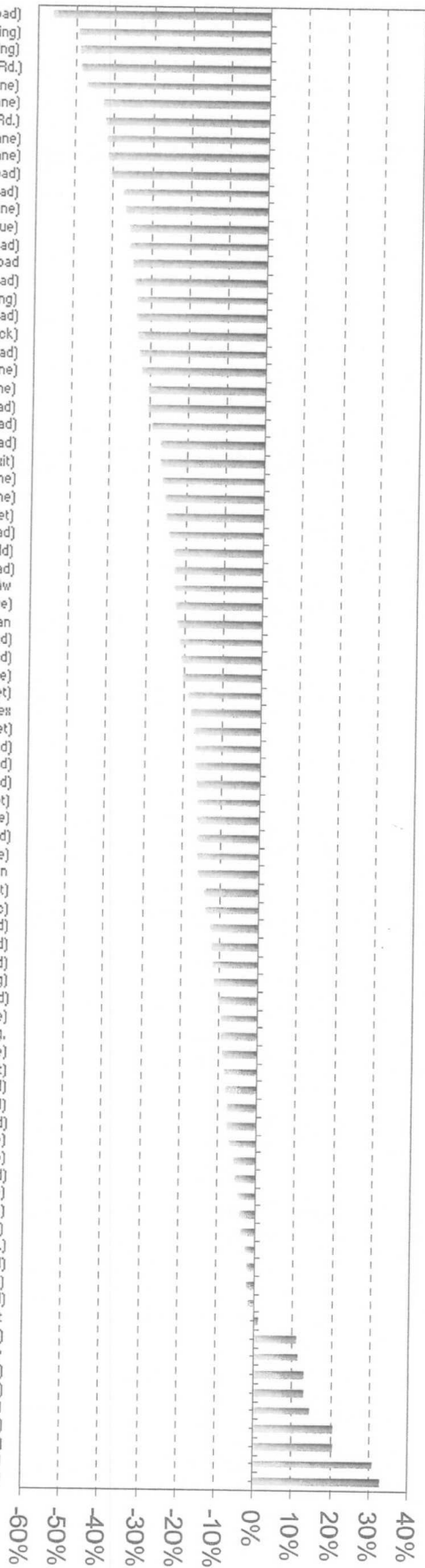
TRAFFIC TICKETS WRITTEN	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 (to date)
RECKLESS DRIVING	24	7	2	5	2	1	0	0	0	4	0
SPEED VIOLATIONS	641	493	629	736	727	900	903	1,021	1,336	1,626	1,326
TRAFFIC CONTROL DEVICES	327	279	292	304	212	101	106	250	213	148	91
RIGHT OF WAY	44	46	39	34	106	143	165	280	190	265	160
TURNING MOVEMENTS	91	88	72	61	39	35	43	59	74	60	67
PASSING & LANE USAGE	10	18	12	17	8	19	17	29	28	36	25
ONE WAY VIOLATIONS	18	18	14	7	0	0	0	0	0	0	2
OTHER MOVING VIOLATIONS	45	72	36	49	48	95	112	180	132	33	17
LICENSE & REGISTRATION VIOLATIONS	697	737	839	793	478	669	846	1,068	958	1,154	812
DEFECTIVE EQUIPMENT	164	112	92	84	61	96	72	92	87	169	133
LEAVING THE SCENE - FATAL ACCIDENT	0	0	0	0	0	0	0	0	0	0	0
LEAVING THE SCENE - PERSONAL INJURY	0	0	1	2	0	0	0	0	0	1	0
LEAVING SCENE/FAIL TO REPORT - PROPERTY DAMAGE	9	12	16	12	11	6	6	14	8	6	1
PEDESTRIAN VIOLATION	3	0	0	0	3	0	1	2	5	1	0
BICYCLE VIOLATION	0	0	0	1	0	0	0	0	0	0	0
SEATBELT VIOLATION	0	0	0	94	242	149	533	852	630	661	608
OTHER NON-MOVING VIOLATIONS	373	517	853	504	88	4	21	18	31	20	12
TICKET TOTALS	2,446	2,399	2,897	2,703	2,025	2,218	2,825	3,865	3,692	4,184	3,254

Traffic Citations 1996-2006



Percent Change

- Location
- 1-Wilson Road (Red Cedar Road,Chestnut Road)
 - 2-Bogue Street (Service Road, Life Sciences parking)
 - 3-Farm Lane (Auditorium Road, Red Cedar pedestrian crossing)
 - 4-Auditorium Rd. (Farm Lane, Physics Rd.)
 - 5-Farm Lane (Red Cedar pedestrian crossing, North Shaw Lane)
 - 6-South Shaw Lane (Red Cedar Road, Farm Lane)
 - 7-Wilson Road (Red Cedar Road, Chestnut Rd.)
 - 8-Service Road (Harrison Avenue, Farm Lane)
 - 9-Service Road (Harrison Avenue, Farm Lane)
 - 10-Shaw Lane (Bogue Street, Wilson Road)
 - 11-North Wilson Road (Akers Road, East Wilson Road)
 - 12-Wilson Road (Birch Road, Cherry Lane)
 - 13-Wilson Road (Cherry Lane, Harrison Avenue)
 - 14-Chestnut Rd. (Shaw Lane, Wilson Road)
 - 15-Shaw LaneChestnut RoadRed Cedar Road
 - 16-Wilson Road (Chestnut Road, Birch Road)
 - 17-Service Road (Harrison Avenue, University Housing)
 - 18-Bogue Street (rail road track, Service Road)
 - 19-Bogue Street (Wilson Road, rail road track)
 - 20-Wilson Road (Farm Lane, Red Cedar Road)
 - 21-Wilson Road (Bogue Street, Farm Lane)
 - 22-North Shaw Lane (Red Cedar Road, Farm Lane)
 - 23-Bogue Street (Grand River Avenue, Dormitory Road)
 - 24-Shaw Lane (Birch Road,Chestnut Road)
 - 25-Shaw Lane (Bogue Street, Wilson Road)
 - 26-"North" East Circle Drive (West Circle Drive, Clin Exit)
 - 27-Birch Rd. (Kalamazoo Street, Shaw Lane)
 - 28-Wilson Road (Bogue Street, Farm Lane)
 - 29-South Shaw Lane (Planetarium Road, Bogue Street)
 - 30-Shaw Lane (Harrison Avenue, Birch Road)
 - 31-Wilson Road (South of IM-East athletic field)
 - 32-Farm Lane (South Shaw Lane, Wilson Road)
 - 33-Bogue Street (Business Complex pedestrian signal, Shaw)
 - 34-Bogue Street (Dormitory Road, Waters Edge Drive)
 - 35-Red Cedar Road (North Shaw Lane, Chestnut Road (Spartan
 - 36-South Shaw Lane (Farm Lane, Planetarium Road)
 - 37-Farm Lane (Trowbridge Road, Service Road)
 - 38-Farm Lane (Grand River Avenue, East Circle Drive)
 - 39-South Shaw Lane (Science Rd., Bogue Street)
 - 40-Bogue Street (Waters Edge Drive, Business Complex
 - 41-Service Road (Farm Lane, Bogue Street)
 - 42-Shaw Lane (Wilson Road, Hagadorn Road)
 - 43-Chestnut Rd. (Shaw Lane, Wilson Road)
 - 44-Bogue Street (Shaw Lane, Wilson Road)
 - 45-North Shaw Lane (Science Rd., Bogue Street)
 - 46-Birch Rd. (Cherry Lane, South Wonders Entrance)
 - 47-Service Road (West of Hagadorn Road)
 - 49-West Circle Drive (Library Parking, East Circle Drive)
 - 49-Red Cedar Road (North Shaw Lane, Chestnut Road (Spartan
 - 50-North Shaw Lane (Planetarium Road, Bogue Street)
 - 51-Wilson Road (Wharton Center, Small Animal Clinic)
 - 52-Service Road (Clinical Center, Hagadorn Road)
 - 53-Farm Lane (Service Road, Mount hope Road)
 - 54-Kalamazoo Street (Dem Hall Road, Red Cedar Road)
 - 55-West Circle Drive (Kalamazoo Street, Library Parking)
 - 56-Shaw Lane (Wilson Road, Hagadorn Road)
 - 57-Red Cedar Road (Wilson Road, South Shaw Lane)
 - 58-"North" East Circle Drive (Student Services Faculty Parking,
 - 59-West Circle Drive (East Circle Drive, Abbott Entrance)
 - 60-"North" East Circle Drive (Clin Entrance, Exit)
 - 61-North Shaw Lane (Farm Lane, Planetarium Road)
 - 62-Chestnut Rd. (Dem Hall Road, Red Cedar Road)
 - 63-Chestnut Rd. (Shaw Lane, Wilson Road)
 - 64-West Circle Drive (Abbott Entrance, Beal Entrance)
 - 65-Service Road (Bogue Street, Life Sciences entrance)
 - 66-Chestnut Rd. (Shaw Lane, Dem Hall Road)
 - 67-Birch Rd. (Shaw Lane, Wonders North Entrance)
 - 68-West Circle Drive (East Circle Drive, East Circle Drive)
 - 69-Kalamazoo Street (Red Cedar Road, West Circle Drive)
 - 70-Auditorium Rd. (Farm Lane, Physics Rd.)
 - 71-Chestnut Rd. (Shaw Lane, Dem Hall Road)
 - 72-West Circle Drive (Beal Entrance, Kalamazoo Street)
 - 73-Farm Lane (Wilson Road, Trowbridge Road)
 - 74-"North" East Circle Drive (Collingwood Entrance, Student
 - 75-Kalamazoo Street (Birch Road, Dem Hall Road)
 - 76Auditorium Rd. (Parking Structure Entrance, East Circle
 - 77-Chestnut Rd. (Red Cedar Road, Kalamazoo Street)
 - 78-Kalamazoo Street (Harrison Avenue, Birch Road)
 - 79-Abbot Entrance (Grand River Avenue, West Circle Drive)
 - 80-Red Cedar Road (Trowbridge Road, Wilson Road)
 - 81-Beal Entrance (Michigan Avenue, West Circle Drive)
 - 82-Birch Rd. (South Wonders Entrance, East Wilson Hall Exit)
 - 83-Auditorium Rd. (Parking Structure Entrance, Farm Lane)



% Change in ADT
from 1997 to 2005