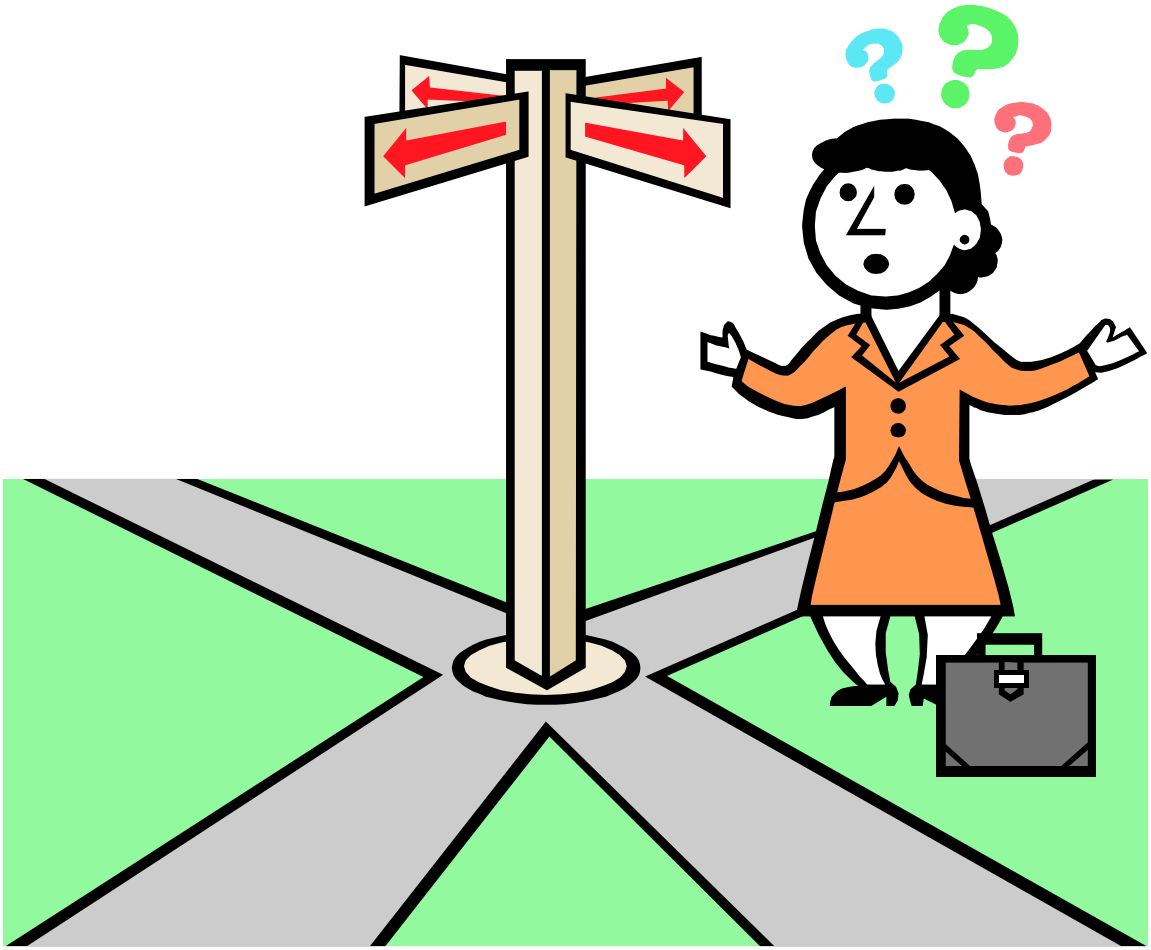

MY MATC INTERNSHIP

Prepared by Shannon DeVivo

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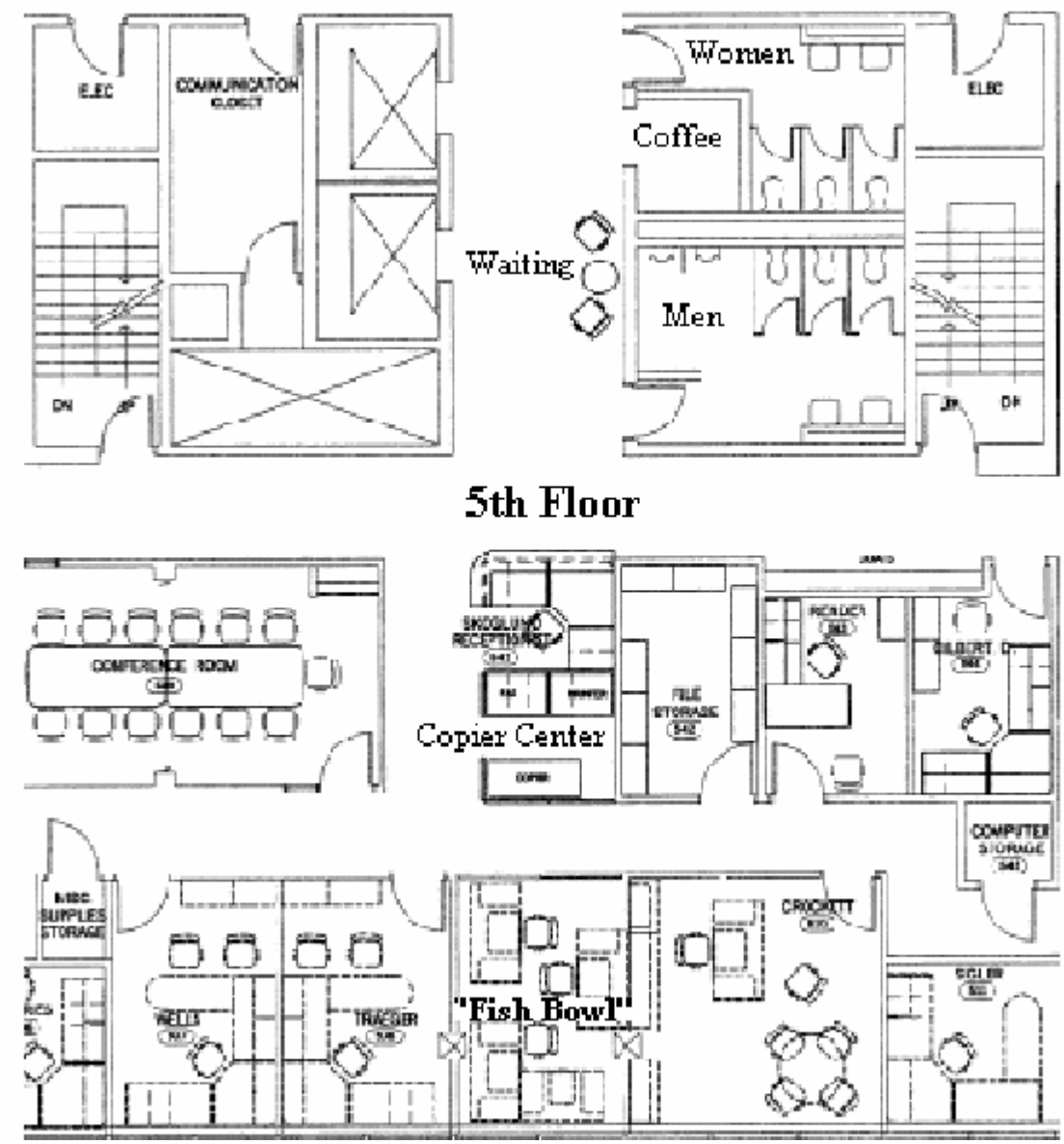
PROJECT PURPOSE

With the many classes that the University of Nebraska at Omaha has to offer in its Civil Engineering Department, I know it will be hard for me to choose which would be best for me; I am interested in all aspects of engineering, as each one appeals to me in some way. I have always been interested in traffic engineering and roadway design, for most of my pet peeves are somehow related to those two categories, from signal timing to roadway alignment. This summer, I decided to participate in the Mid-America Transportation Center's (MATC) summer internship program to determine if traffic engineering intrigues me so much, that I would like to dedicate my life to it.

STUDY AREA

This summer, I was lucky enough to be placed with HDR's Traffic Section; ever since construction on the West Dodge Project began, I have wanted to work for HDR. The magnitude of the projects they receive lets me know that every experience will be new and challenging. I was placed with two other interns in a conference room that had been converted to three small cubicles. With its big window and sliding-glass door, it has been dubbed the "fish bowl". While my cubicle was located on the fifth floor of HDR's gold building, the rest of the traffic section was located on sixth floor of the gold building. These two floors were the main locations where I carried out my study.



The Central Area of the 5th Floor of HDR's Gold Building

STUDY PROCEDURE

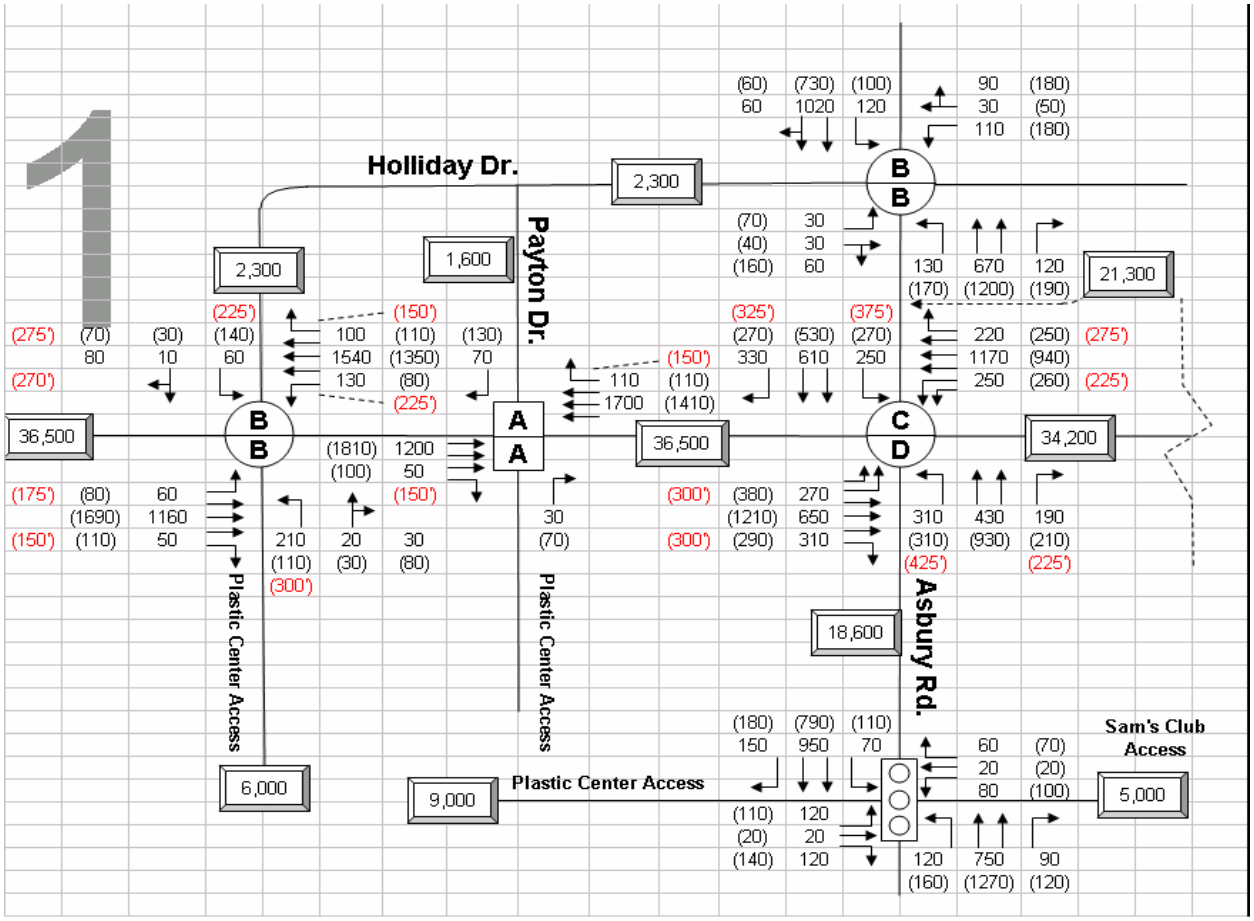
Like all new employees, the first day included orientation and introductions in the morning. I was then shown to my desk, which was one of three small "cubicles" in a conference room. My first task was to read several reports from previous projects to get an understanding of the scope of HDR's work. Within two days, I became involved in one of the hottest-debated issues in Omaha right now; I performed a traffic study, entered the collected data into Excel spreadsheets for further evaluation by the project engineers, and even assisted in recreating Synchro files for review and analysis. This project made me realize that traffic can be very political; when I watched newscasts covering the story, I got a sense of pride knowing that I was involved in that project. Over the course of the summer, I was asked to do research for several different topics: guidelines for the spacing between interchanges and intersections for a project on NE-36, warrants for pedestrian grade-separated crossings, and information on several types of unconventional intersections. All of these research assignments made me realize that after college there is so much more to learn, and even professionals that have been in this field for many years are unfamiliar with aspects of traffic and roadway engineering being developed today. Aside from research, the majority of the tasks I was given for projects included creating or editing Excel spreadsheets and/or diagrams. These diagrams consisted mostly of peak-hour or Average Daily Traffic (ADT) volume flow-maps, which often included levels-of-service for intersections. I also input data into a report draft and checked the input of other engineers. I gained a great appreciation for double-checking one's work, as accuracy is very important in engineering. An online tutorial, as well as several hours of practice familiarized me with Microstation.

I then utilized this program several times to create cell libraries for roadway engineers to utilize for future projects. I also attended two meetings this summer. The first one was for a roadway design project at UNO. This meeting let me see how much consideration and compromise must go into the design of a road; while one design may be the easiest and least expensive, alternatives may need to be developed due to landmarks or other items of interest that cannot be moved. The second meeting was at the Metropolitan Area Planning Agency (MAPA) to discuss their travel demand model. Upon completion, this model will be able to predict daily trip rates for most of the major streets in Omaha. They invited a few consultants to discuss how they can improve the model. I was amazed to discover all of the procedures that one must go through to develop a model of that size. I also discovered that traffic engineers may never perform trip generation analysis or never work with Microstation; there are a variety of ways to specialize in traffic engineering. While all of these tasks exposed me to the different areas of traffic engineering, I did typical intern duties as well, such as making copies, scanning documents, and even returning reports to the City of Omaha Office. One day I even colored plots with highlighters so they were easier to present at public meetings.

FINDINGS AND RECOMMENDATIONS

Throughout this process, I discovered that I am extremely interested in traffic engineering. This type of engineering will always be needed as the demand for quicker and better means of travel increases, and the challenge of always developing new ideas is something I look forward to. I also discovered that I no longer have an interest in roadway design. I worked near, and with, several roadway engineers, and their discussions did not appeal to me.

For me, traffic engineering is the most important aspect of transportation engineering, because if a road is not utilized, what's the point in creating it? HDR reached beyond all of the expectations I had: the projects are very important, it allows for a flexible schedule, and provides great opportunities for personal growth. The people are great to work with as well: they are always helping you learn how to do things better, and provide positive feedback and criticism when needed. I am grateful for this internship, because it showed me that there is so much more to traffic engineering than what can be taught at school. While I did not work on one project from start to finish, I got an understanding of everything traffic engineers do, from trip generation to levels-of-service, and how they are all very important to the complicated traffic systems found throughout the world. I recommend that anyone who is able to get hands-on experience like this take advantage of it.

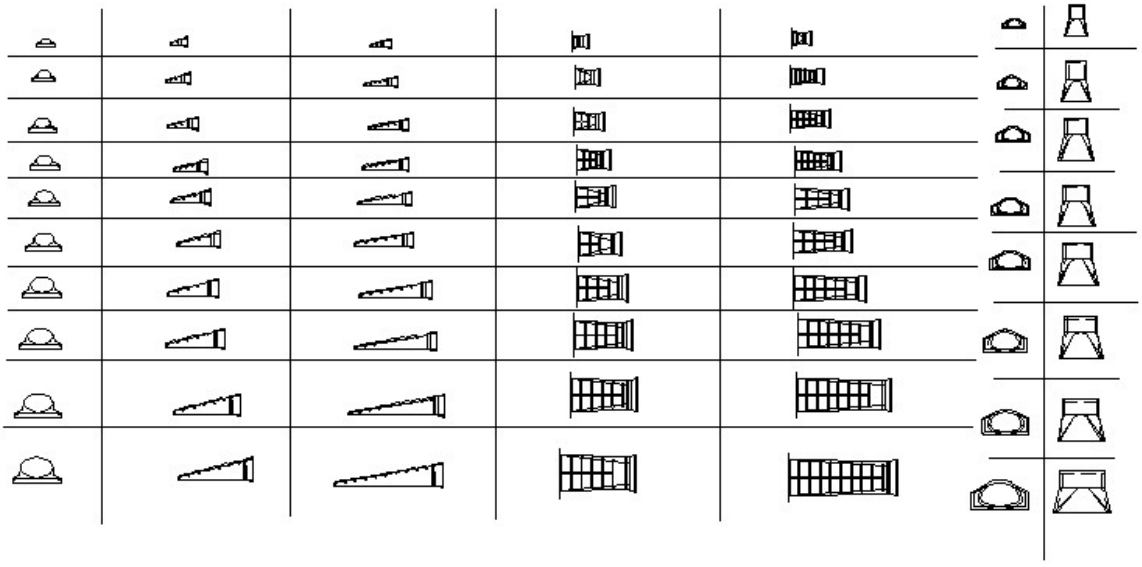


One Section of an Excel Peak Hour and Average Daily Traffic Volumes Flowmap

	5/17/2006	Wed.	Southbound			Westbound Entrance			Northbound			Eastbound Exit			Vehicle	HOUR
	Time Start	Time End	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total	Total
	7:00 AM	7:15 AM	0	0	0	0	22	0	0	0	0	0	18	0	40	
	7:15 AM	7:30 AM	0	0	0	0	19	0	0	0	0	0	29	0	48	
	7:30 AM	7:45 AM	0	0	0	0	24	0	0	0	0	0	15	0	39	
AM PEAK	7:45 AM	8:00 AM	0	0	0	0	29	0	0	0	0	0	18	0	47	174
AM PEAK	8:00 AM	8:15 AM	0	0	0	0	32	0	0	0	0	0	17	0	49	183
AM PEAK	8:15 AM	8:30 AM	0	0	0	0	26	0	0	0	0	0	15	0	41	176
AM PEAK	8:30 AM	8:45 AM	0	0	0	0	30	0	0	0	0	0	22	0	52	189
AM PEAK	8:45 AM	9:00 AM	0	0	0	0	52	0	0	0	0	0	23	0	75	**217**
			0	0	0	0	234	0	0	0	0	0	157	0		
	Peak Hour Totals		0	0	0	0	140	0	0	0	0	0	77	0		

	5/17/2006	Wed.	Southbound Entrance			Westbound Entrance			Northbound Exit			Eastbound Exit			Vehicle	HOUR
	Time Start	Time End	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total	Total
	4:00 PM	4:15 PM	0	0	0	0	69	0	0	0	0	0	57	0	126	
	4:15 PM	4:30 PM	0	0	0	0	78	0	0	0	0	0	53	0	131	
	4:30 PM	4:45 PM	0	0	0	0	61	0	0	0	0	0	50	0	111	
PM PEAK	4:45 PM	5:00 PM	0	0	0	0	51	0	0	0	0	0	46	0	97	465
PM PEAK	5:00 PM	5:15 PM	0	0	0	0	48	0	0	0	0	0	52	0	100	439
PM PEAK	5:15 PM	5:30 PM	0	0	0	0	66	0	0	0	0	0	46	0	112	420
PM PEAK	5:30 PM	5:45 PM	0	0	0	0	67	0	0	0	0	0	60	0	127	436
PM PEAK	5:45 PM	6:00 PM	0	0	0	0	83	0	0	0	0	0	51	0	134	**473**
			0	0	0	0	523	0	0	0	0	0	415	0		
	Peak Hour Totals		0	0	0	0	264	0	0	0	0	0	209	0		

Excel Traffic Count Summary



Some of the Microstation Cells I created for the Roadway Group