

Fremont Origin and Destination Study

A report for the City of Fremont



April 2004



FREMONT
Michigan

“NOW AND ALWAYS -- A Fine City • A Great Community”

101 East Main Street
Fremont, Michigan 49412

Fremont Origin and Destination Study

Prepared for:



FREMONT
Michigan

“NOW AND ALWAYS -- A Fine City • A Great Community”

City of Fremont
101 East Main Street, Fremont, Michigan 49412

Prepared by:

**MEAD
&
HUNT**

Chapters

Preface page P-1

Chapter 1 Introduction 1-5

Location

Study techniques

Summary

Chapter 2 Economics of the Area 2-8

Inventory

Forecast

Manufacturing

Service

Retail and wholesale trade

Labor force

Summary

Chapter 3 Population 3-14

Inventory

Forecast

Summary

Chapter 4 Land Use 4-16

Inventory

Forecast

Summary

Chapter 5 Developmental Factors 5-21

Transportation

Chapter 6 Traffic Analysis 6-22

Video survey

Internal traffic survey

Chapter 7 Forecast 7-30

Chapter 8 Summary of
Existing Bypass Studies 8-32

Chapter 9 Recommendations 9-32

Eastbound truck traffic movement

Westbound truck traffic movement

Summary

Appendices

A – Traffic count data

B – Sample internal survey

C – Sample external survey

D – Southside and Northside alternate
crosstown routes - summary

E – Southside and Northside alternate
crosstown routes – implementation

F – Objectives for the SACR and NACR

Exhibits

Preface

P.1 Crosstown route location Page P-1

Chapter 1 Introduction

1.1 Detail of state resources 1-6

Chapter 2 Economics of the Area

2.1 Employment levels 2-9

2.2 Total effective buying income 2-10

2.3 Total retail sales 2-11

2.4 Resident labor force 2-13

Chapter 3 Population

3.1 Population growth 3-14

Chapter 4 Land Use

4.1 Existing land use 4-17

4.2 Future land use 4-19

Chapter 6 Traffic Analysis

6.1 Video station locations 6-23

6.2 Location traffic vs. pass through 6-23

6.3 Directional trip to Fremont 6-24

6.4 Directional trip from Fremont 6-24

6.5 Fremont zone map 6-25

6.6 Internal survey respondents by zone 6-26

6.7 Internal respondents working in Fremont 6-26

6.8 Analysis zone employment 6-26

6.9 Travel demand generated by zone 6-27

6.10 Trips generated by zone 6-27

6.11 Use of M-82 as primary route 6-27

6.12 Users' view of M-82 traffic 6-28

6.13 Times that M-82 is avoided 6-28

6.14 Most congested times on M-82 6-29

6.15 24-hour traffic volume 6-29

Chapter 9 Recommendations

9.1 Alternates to M-82 currently used 9-34

As outlined in the request for proposals for this study, an alternate truck route through the city of Fremont's downtown area is not a new idea. The city of Fremont first suggested the possibility of the Southside Alternate Crosstown Route (SACR) in its 1969 City Master Plan, and the need for the route was reaffirmed in the 1981 City Comprehensive Plan. The city and the Fremont public schools jointly commissioned the 1992 Crosstown Route Circulation Study by the traffic engineering firm of Ed Swanson & Associates. The surrounding townships of Dayton and Sheridan were also interested in this concept. In 2001, the three municipalities developed two plans that discussed and recommended consideration of an alternate route. These plans were the Fremont Area Joint Comprehensive Development and Growth Management Plan and the M-82 Corridor Study.

Community input was sought to gauge public opinion about the ideas being discussed. As a part of the planning process leading to the adoption of the 2001 plans, the community conducted a citizen opinion survey in 1999. In that survey, 86 percent of the respondents identified traffic congestion as a major concern in the Fremont area. This concern was also encountered during the Community Goals Workshop, where participants rated roads and traffic problems as the community's greatest challenges.

To address business owners' opinions on the proposed concept, the Fremont Area Chamber of Commerce commissioned a fax-back poll of its membership in 1999 and received 80 responses. When business owners were asked whether they felt their businesses would benefit, be negatively affected, or not affected by a reduction of traffic volumes on Main Street, 73 percent felt that the project would have no negative impact on their businesses. Of that group, 24 percent felt their businesses would benefit from a reduction of Main Street traffic because of improved traffic circulation and pedestrian safety. When asked about the importance of reducing the negative impact on local residential streets and providing better access to other key areas of the town (hospital, schools, industrial park, and Fremont Lake), 51 percent responded that this concern was of great importance to them, 31 percent felt it of little importance, and 18 percent had no opinion.

While the general route has been proposed for more than three decades, misconceptions about the objectives of the project still persist. Prior to the 2001 planning process, there were only a couple instances of public discussion of the project. These centered on specific instances where the SACR was involved, such as vacating Oak Street for the hospital, constructing Locust Street and Industrial Drive in the Fremont Industrial Park, and constructing the access road (Cedar Street) for the new Pine Street Athletic Complex parking lot.

To help clarify the project for the community, the Fremont City Council prepared a summary called the Objectives for the Construction of the SACR. These objectives were also included in both the new Joint Plan and the M-82 Corridor Study. The two plans contain newly created objectives for the construction of the Northside Alternate Crosstown Route (NACR): Hemlock Street and Market Avenue. Both sets of objectives are contained as Appendices in this report. Map 1 from the M-82 Corridor Study depicts the general planned routes for both the south and north crosstown arteries.

Exhibit P.1 Crosstown route location

Insert Exhibit P.1 (map) here and toss this page. Map should be a 11x17 z-fold

According to the summary adopted by the council, both crosstown routes are intended to perform the following functions:

- Improve traffic flow for both local citizens and visitors throughout the city.
- Provide a designated truck route for both local and through-shipping of raw and finished goods.
- Furnish access to other key areas of the city, alleviating the pressure on overloaded residential streets.
- Improve safety and reduce traffic stress for pedestrians and motorized vehicles by reducing congestion on M-82.
- Create a utility corridor to enhance public and private utility services.

Based on a high level of cooperation, the city called for this study in an effort to objectively define the needs for future traffic management based on existing data and projected trends. Fremont hopes to develop a street system that serves local, regional, and state residents, while simultaneously helping to implement the city's future development proposals. Through this study, the city has gathered data to define the status of the existing transportation network, as well as the predictable needs of urban areas. As with any transportation plan, this one consists of discussions of the local economic situation, land use patterns, population characteristics, traffic generation, and major thoroughfare systems. Local development plans, reflected in the Fremont Master Plan, are also considered in formulating the alternate truck route plan. These discussions form the basis for evaluating future transportation requirements of the area.

Introduction

Known as the Baby Food Capital of the World, the city of Fremont has a rich history. Fremont was first settled and became a township in 1855. By the mid-1870s, the Gerber family moved to the area and opened a tannery. The city's history and economic growth have been intertwined with the family ever since. By the 1920s, the Gerbers founded a baby food company using the area's rich agricultural resources. Due to the presence of Gerber Foods and the proven demand for its products, Fremont experienced gradual, controlled growth throughout the 20th Century. Due to this progressive growth, the city has been able to provide and maintain public services when and where they were necessary.

LOCATION

From a geographic standpoint, the city provides a point of services for Newaygo County. As the largest city in Newaygo County, it is located near the center of west Michigan, approximately 50 miles north of the region's largest city, Grand Rapids. Situated along the east-west state trunkline M-82, the community has access to all-season roadways, connecting it to US Highway 131 to the east and US Highway 31 to the west. M-82 provides the primary connection into the community. **Exhibit 1.1** illustrates the location of the city of Fremont within the state of Michigan and the west Michigan region. The city developed in such a way that the study area encompasses a square to rectangular area. This indicates more opportunities for crosstown travel since the development is reflected in a single linear stretch along M-82.

STUDY TECHNIQUES

Highway planning techniques used for this study are based on a thorough knowledge of the needs of the local communities and the requirements of the region and state as a whole. Balancing regional and local needs is delicate, but it can be achieved when the stakeholders all collaborate. The city of Fremont realizes that cooperation is necessary in planning, designing, constructing, and operating an efficient roadway network that best serves the public interest. As part of the continued assessment of the City Comprehensive Plan, it is important that transportation needs be reviewed. This study is a part of the continued assessment. It focuses on implementing a planning process to address transportation improvements to meet the existing and future transportation needs of the city, region, and state. This planning process also requires consultation between stakeholders, the public, industrial interests, developers, schools, businesses, and public services in order to provide a comprehensive assessment of the needs of the community as a whole.

Exhibit 1.1 Detail of state resources to/from Fremont, GR, and Musk

INSERT EXHIBIT 1.1 (MAP) HERE AND TOSS THIS PAGE.

A comprehensive plan must include a study that addresses existing statistical data such the economics of the community, the population of the area, and current land use issues, and also addresses actual traffic trends and travel patterns. Reviewing each of these elements individually, within the larger context of the growth and development of the community, is essential to defining the need for an alternate truck route through the city of Fremont's downtown area.

The city of Fremont realizes that cooperation is necessary in planning, designing, constructing, and operating an efficient roadway network that will best serve the public interest. As a result of this plan, the city developed a street system that serves local, regional, and state residents, and simultaneously helps to implement the city's future development proposals. By molding community land development patterns and the roadway network into a cohesive unit, sound residential areas, a prosperous central business district, and a healthy industrial climate can be encouraged. The provision of traffic service routes that are logically related to land uses can act to stabilize land values.

The planning process was developed so that the program of transportation improvements is periodically adjusted to meet changing transportation needs of the city, region, and state. These adjustments require ongoing consultation between stakeholders, the public, industrial interests, developers, schools, businesses, and public services. Presently, the recommended alternative route appears necessary as Fremont grows; however, since unforeseen changes often occur in the development of cities, implementation of portions of the plan may become more urgent. Each segment of the proposed plan will combine to form a total street network that will integrate with orderly city development to satisfy transportation needs.

SUMMARY

This study is focused on delineating the specific traffic patterns currently observed within the city of Fremont. These patterns can be used to focus potential areas for alternate truck routes through the city. Because Fremont is a destination for many Newaygo County residents, providing safe and efficient transportation through the city is essential.

Economics of the area

Understanding the economics of the area is important for two reasons. First, it helps in reviewing the economic vitality of the area, and second, it outlines the types of businesses and services in the community. These businesses and services help to shape the type of travel activities that take place within the community. For example, if an economic analysis reveals that service-related and retail businesses dominate within a community, it may suggest that the area is a bedroom community and that most residents travel outside of the community to other manufacturing or higher-level service jobs. This would be significant in a study because it might indicate that the roads leading to and from the community should be improved. Conversely, if there is significant economic diversity within the community, intra-city or crosstown travel may be more important. As these examples show, assumptions about transportation patterns can be made based on the economic picture of a community.

INVENTORY

Fremont has outlying areas that are primarily devoted to agricultural production and it also has diverse manufacturing establishments. The economy benefits from both of these sectors, and Fremont has a vested interest in serving their needs. Due to its size and location, Fremont can be classified as a “complete market center”. This means it is the primary shopping hub for the surrounding areas and supplies food, drugs, and clothing, etc. Muskegon and Grand Rapids, located 27 and 47 miles away respectively, are attractive shopping areas for durable goods. These larger cities also provide cultural, entertainment, and recreational facilities that are not readily available in Fremont. With the improvement and expansion of the statewide transportation network over the last few decades, a trend toward longer daily commuting distances is also evident. A growing percentage of the population of Fremont is making the daily drive to the larger labor markets.

To better understand the economic growth potential of this area, several economic indicators must be analyzed. These include employment, retail trade characteristics, and effective buying income. **Exhibit 2.1** illustrates the employment levels of various service sectors within the city of Fremont and Newaygo County. Nearly 83 percent of Fremont's employed labor force is employed in three major categories – services, manufacturing, and retail/wholesale trade. Service-related business is the backbone of employment in Fremont. In 2000, 42.2 percent or 773 of those employed found work in this category. Gerber Memorial Health Services is the largest single employer in this category and is the fourth largest employer in Newaygo County.

Exhibit 2.1 Employment levels in various categories

Group	Newaygo County Resident Employment				Fremont Resident Employment			
	1990	Percent of total	2000	Percent of total	1990	Percent of total	2000	Percent of total
Services (non-govt.)	4,001	26.4%	6,894	33.5%	669	40.3%	773	42.2%
Manufacturing	4,551	30.1%	5,609	27.3%	491	29.6%	428	23.4%
Wholesale and retail trade	2,849	18.8%	2,932	14.3%	295	17.8%	317	17.3%
Other	3,738	24.7%	5,134	25.0%	205	12.3%	314	17.1%
Employed	15,139	92.1%	20,569	94.2%	1,660	94.3%	1,832	94.1%
Unemployed	1,302	7.9%	1,261	5.8%	101	5.7%	115	5.9%
Total civilian labor force	16,441		21,830		1,761		1,947	

Source: United States Department of Commerce, Bureau of the Census Reports for 1990 and 2000

The other two primary areas include manufacturing and wholesale and retail trade. The manufacturing sector employed 428 Fremont residents in 2000, representing 23.4 percent of the resident labor force. Manufacturing in Fremont is quite diversified and includes the processing and production of food products and automotive parts. Wholesale and retail trade employed 317 Fremont residents in 2000, accounting for 17.3 percent of the labor force. An analysis of receipts from retail sales reveals that Fremont is the primary market center for non-durable goods in southern Newaygo County and the surrounding rural area.

Unemployment has not been a serious problem in the Fremont area during the past 10 years. In 1990, unemployment averaged 5.8 percent of the labor force. The figure was 7.9 for Newaygo County, while the state as a whole had a rate of 8.2 percent. In 2000, the figures were a steady 5.9 percent for Fremont and 5.8 percent for both Newaygo County and the state as a whole. Fremont's relatively low, steady unemployment rate is the result of diversified manufacturing industries, stability of employment at Gerber, and availability of employment opportunities in nearby communities like Muskegon and Grand Rapids.

Retail sales in Fremont (in ratio to the state of Michigan) have remained relatively constant, while the effective buying income of the residents, as a proportion of Michigan's, has slightly decreased. Comparative effective buying income figures for Michigan, Newaygo County, and Fremont are shown in **Exhibit 2.2**. Effective buying income (EBI) is defined as the aggregate income of the labor force (workforce) after taxes. It represents the total dollars that a community has to pay for goods and services, also referred to as a community's buying power. The Fremont EBI was estimated by taking Fremont's percent of the county workforce and applying it to the Newaygo County EBI.

Exhibit 2.2 Total effective buying income (millions)

Year	State EBI	Newaygo County EBI	County as a percent of the state	Fremont % of county population	Fremont EBI	Fremont as a percent of the state
1990	\$ 119,757,344	\$ 376,172	0.314%	11%	\$ 40,292	0.034%
1991	\$ 125,756,945	\$ 376,334	0.299%	11%	\$ 41,397	0.033%
1992	\$ 134,687,981	\$ 435,418	0.323%	11%	\$ 47,896	0.036%
1993	\$ 142,054,984	\$ 463,531	0.326%	11%	\$ 50,988	0.036%
1994	\$ 150,479,020	\$ 499,006	0.332%	10%	\$ 49,901	0.033%
1995	\$ 164,578,989	\$ 560,160	0.340%	10%	\$ 56,016	0.034%
1996	\$ 141,095,749	\$ 486,790	0.345%	10%	\$ 48,679	0.035%
1997	\$ 150,982,472	\$ 527,366	0.349%	10%	\$ 52,737	0.035%
1998	\$ 156,211,277	\$ 525,404	0.336%	9%	\$ 47,286	0.030%
1999	\$ 163,860,497	\$ 549,704	0.335%	9%	\$ 49,473	0.030%
2000	\$ 170,201,186	\$ 572,699	0.336%	9%	\$ 51,079	0.030%

Source: *Sales and Marketing Magazine, Annual Buying Power Survey, @1990-2000*

The ratio of retail sales to effective buying power illustrates the potential of the Fremont market area. On the state level, in 1991, retail sales constituted 54 percent of effective buying income. Fremont had retail sales representing 135 percent of effective buying income, while Newaygo County was 44 percent. By 2000, the state ratio was 75 percent while the ratio for Fremont was 191 percent. The excess of retail sales over effective buying income indicates that Fremont draws customers from the surrounding areas. Retail sales are shown in **Exhibit 2.3**.

Exhibit 2.3 Total retail sales (millions)

Year	State	Newaygo County	County as a percent of the state	Fremont % of county population	Fremont	Fremont as a percent of the state
1991	\$ 67,784,930	\$ 163,968	0.242%	34%	\$ 55,749	0.082%
1992	\$ 67,760,980	\$ 171,143	0.253%	34%	\$ 57,333	0.085%
1993	\$ 73,196,982	\$ 196,092	0.268%	33%	\$ 64,710	0.088%
1994	\$ 79,235,964	\$ 220,290	0.278%	33%	\$ 71,594	0.090%
1995	\$ 87,883,991	\$ 227,044	0.258%	32%	\$ 72,654	0.083%
1996	\$ 91,523,947	\$ 253,165	0.277%	32%	\$ 79,747	0.087%
1997	\$ 94,786,918	\$ 276,738	0.292%	31%	\$ 85,789	0.091%
1998	\$ 98,233,876	\$ 285,966	0.291%	31%	\$ 87,220	0.089%
1999	\$ 104,412,012	\$ 295,120	0.283%	30%	\$ 88,536	0.085%
2000	\$ 128,394,952	\$ 331,182	0.258%	30%	\$ 97,699	0.076%
2001	\$ 135,390,676	\$ 351,039	0.259%	29%	\$ 101,801	0.075%

Fremont's retail sales are higher than might be expected considering its relative share of state population, but its per capita sales are declining. In 1990, Fremont had 0.082 percent of total retail sales in Michigan and 0.0419 percent of the population. By 2000, Fremont's retail sales were 0.076 percent while its population was 0.0425 percent of the state total. These trends indicate that per capita retail sales are declining in Fremont relative to the state.

The preceding economic inventory serves as the basis for estimating future economic developments in the Fremont area. This information will, in turn, be used to help determine future street network needs.

FORECAST

The economic future of Fremont is a mixture of positive and negative factors. The recently established Dura Automotive plant could be the forerunner of additional comparable facilities encouraged by the city's central location within west Michigan and its proximity to Muskegon. Fremont's lack of proximity to a major limited-access freeway is somewhat offset by direct rail access to the shipping hub in the Muskegon area. This access coupled with state trunkline M-82 would allow future companies in Fremont to distribute to a larger market area. Cost reductions are also realized when shipping large quantities via rail freight. With both trucking terminals and firms and rail service in the area, Fremont has the advantage of promoting economic growth in this direction.

MANUFACTURING

Employment in manufacturing, precluding the entry of a major new industry, is expected to slowly decrease primarily due to process efficiency gains and corporate mergers and acquisitions. The current industry trend toward just-in-time delivery of supplier parts could be a challenge for Fremont in attracting new manufacturing facilities since the proximity of markets is generally measured in travel time. Fremont has rail facilities provided by CSX with a direct link to Muskegon, a large market area available for economical shipment of large quantities of goods.

If Fremont is to effectively compete with cities that are located closer to major limited- access roadways, a smooth, efficient street network is imperative. The presence of long lines of truck traffic intertwined with other traffic in downtown Fremont will potentially deter prospective manufacturing interests from locating in the city or nearby.

SERVICE

Stability of the service industry employment is due, in part, to the needs of Gerber Memorial Health Systems. As the only hospital in Newaygo County, the demand for this 83 bed facility and its ancillary services has remained strong. With this facility as its centerpiece, the demand for services in Fremont is expected to continue to grow steadily, barring a severe downturn in the manufacturing sector.

Service industries rely on a very different transportation model than manufacturing interests. The service sector generally needs more frequent, smaller trips with shorter distances and durations; however, time is still of the essence. Conflicts with congested shipping trunklines can pose endless frustration for delivery-oriented services. In an ideal transportation system, a distinct separation is drawn between commercial shipping corridors and other traffic in the most congested areas. This separation allows both sectors adequate access to the type of transportation they need.

RETAIL AND WHOLESALE TRADE

Retail and wholesale trade employment is expected to increase beyond the demand necessary to serve city's population growth. An improved transportation system, of which an alternate truck route will be an important part, gives Fremont the potential to attract additional retail trade from the surrounding area.

LABOR FORCE

Fremont's historical share of Newaygo County's resident labor force was used in making 2020 labor force projections as shown in **Exhibit 2.4**. Using this technique, Fremont would add approximately 200 jobs if the past trend in the ratio of city to county employment is projected into the future. Key to this job growth will be the retraining and re-employment of Fremont area residents. If new employment prospects fail to materialize; however, individuals seeking jobs will be forced to move or commute to other locations where employment opportunities are available.

Fremont's location near an active railway and state trunkline is favorable with respect to the time and distance from Muskegon and Grand Rapids. The promotion of industry by an active industrial development group, the relative employment stability, and the general upward trend anticipated for Michigan's economy should be contributing factors to the community's economic growth during the next 20 years. If historic trends are a valid measuring stick, Fremont can expect a labor force of approximately 2,100 workers by 2020. Based on the present population to worker ratio, this level of employment would support a population of about 4,700 persons.

Exhibit 2.4 Resident labor force projections			
Year	Fremont	Newaygo County	Fremont as a % of Newaygo County
1990	1,761	16,451	10.7%
2000	1,947	21,838	8.9%
2020	2,153	28,989	7.4%

Source: Bureau of the Census, 1990 and 2000. 2020 estimate made by projecting 2000 data to 2020

SUMMARY

Fremont's vigorous industrial development program, its provision of urban services, and its proximity to major shipping hubs provide the potential for continued growth in population. This continued growth will place additional demands on the transportation system of the city. Acknowledging these potential demands and planning for them is essential to maintaining the transportation system's capacity and function.

Population

It is important to consider population in determining street network requirements for urban areas. As population grows, so do transportation demands. This is especially true in a community such as Fremont, where the population within the city and the outlying areas increases and thus requires the use of additional community services. Reviewing the population figures provides a reference for this growth.

INVENTORY

As shown in **Exhibit 3.1**, Fremont's population increased at varying rates during the period from 1980 to 2000. The population listed by the US Bureau of the Census in 2000 was 4,224. This represents an increase of 349 persons, or 8.3 percent over the 1990 population. This rate is slightly higher than the state's increase rate of 6.9 percent.

Exhibit 3.1 Population growth						
	1980	1990	% change 1980-90	2000	% change 1990-2000	% change 1980-2000
State of Michigan	9,258,344	9,252,691	-0.1%	9,938,444	6.9%	6.8%
Newaygo County	34,917	35,762	2.4%	47,874	25.3%	27.1%
City of Fremont	3,672	3,875	5.2%	4,224	8.3%	13.1%
Dayton Township	1,938	1,971	1.7%	2,002	1.5%	3.2%
Garfield Township	1,822	2,067	11.9%	2,464	16.1%	26.1%
Sheridan Township	2,465	2,252	-9.5%	2,423	7.1%	-1.7%
Sherman Township	1,810	1,866	3.0%	2,159	13.6%	16.2%
Fremont area	11,707	12,031	2.7%	13,272	9.4%	11.8%

Source: Bureau of the Census, 1980, 1990, 2000

During this same period, Newaygo County grew from a population of 35,762 persons to 47,874 persons, an increase of 25.3 percent. Analysis of this substantial county population increase reveals that a majority of this increase occurred in areas adjacent to urban concentrations. The populations of the townships of Dayton, Garfield, Sheridan, and Sherman, which surround the city of Fremont, increased 14.6 percent from 8,156 residents to 9,048 residents. This rate of increase was considerably greater than the city or the state rates. Much of this increase in population is on Fremont's urban fringe.

FORECAST

These census figures demonstrate that the Fremont area has a growth rate consistently higher than the state as a whole and somewhat below Newaygo County's. The county's higher growth rate may be explained by the abundance of available land and low density development in the unincorporated areas of the county and Fremont's relatively built-out environment. There is no reason to believe that the population ratio of Fremont to Newaygo County and state residents will change drastically over the next 20 years. This is especially true if the community continues to attract new businesses and provide the infrastructure necessary to support new developments. Based upon Census figures and unofficial population projections for the state of Michigan, and the assumption that the Fremont area will maintain its proportion of the state population, it may be expected that the urbanized area of Fremont will be approaching 16,000 residents by 2020¹.

SUMMARY

With a population increase between 1980 and 2000 that was greater than the total increase seen throughout the state, the city of Fremont can expect even larger numbers of residents well into the future. The abundance of available land and the trend of low density development lead to increases in population that not only attract new businesses and residents, but place additional demands on the city's transportation network.

¹ Figure based on an average of population projection percent increases for Newaygo County and Michigan for 2020 from the Program for Applied Demography and Ecology at Michigan State University.

Land Use

The types and distribution of various land uses within the city of Fremont determine the origin and destination of traffic and the number of trips. Land uses can produce congestion and interfere with the free and safe flow of traffic by causing increased vehicular volumes and potential conflicts from major traffic arteries. This condition will be aggravated if adequate segregation of traffic types is not addressed. Land use planning should guide the development of the community by protecting existing land values and enhancing new environments by logically relating land uses.

The development of an urban street system can also be a very important step in molding the character of the community. As land use affects the street system, the street system affects land use because, in many instances, streets provide the access necessary to open new areas for development. The street system is important to the progressive changes in land use in a community and it is important that both existing and future land use distribution be analyzed and related to the overall transportation plan.

INVENTORY

The pattern of existing land use in Fremont, as shown in **Exhibit 4.1**, is typical of that in many Michigan cities. The central business district (CBD) is located along a major state highway and due to the tremendous investment in property and structures; its location appears to be stable. Recently, however, additional commercial activity has taken place outside the CBD. To help strengthen its competitive position, the central area of the city has concentrated on providing adequate terminal parking facilities.

Exhibit 4-1 Existing land use

Insert Exhibit 4.1 (map) here and toss this page.

The existing transportation infrastructure in downtown Fremont was designed many decades ago to handle primarily private passenger vehicle traffic. Additionally, the general layout and spacing for the downtown area was based on much smaller commercial vehicles than are found on today's M-82. Moving commercial and industrial through-traffic away from the CBD would go a long way toward returning downtown Fremont to the scale of traffic for which it was originally laid out.

Existing industrial businesses are generally found on the south and near-west sides of Fremont. New establishments are being encouraged to locate in the industrial park development in the southwestern portion of the city. With an updated zoning ordinance, further industrial development is anticipated for this area.

Residential development is evenly distributed throughout the city, with the majority of these areas having retained pleasant characteristics. Some scattered residential development has taken place within the city limits in recent years, but most of the new dwellings in the Fremont area are in the surrounding townships, especially Garfield Township to the southeast.

FORECAST

Future residential growth is likely to occur in the north-central portion of the city near the Stone Road Corridor. Other residential development will occur in the surrounding townships. Future development, as shown on **Exhibit 4-2**, is likely to follow the public services such as sewer and water systems as they expand. The provision of these services and the attraction of the lakes to the south and northeast should stimulate residential growth. Most of southwestern Fremont is an industrial park precluding residential growth. The railroad also passes through this area, making it less desirable for residences.

Commercial and industrial growth is also expected. In the core area of the city, existing developments are expected to continue. The Gerber Products Company occupies the majority of the land on the near west side of the city, immediately north of M-82. This area is probably as fully developed as possible. The commercial areas to the south and west of the city along M-82 are likely to promote growth and the possibility of new residential development in the surrounding townships must be recognized. Industry in Fremont is primarily planned in the southwest quarter of the town. The industrial park in this area should provide sufficient stimulus to growth there. This will be especially true if the area is served by an alternate truck route.

Exhibit 4.2 Future land use

INSERT EXHIBIT 4.2 (MAP) HERE AND TOSS THIS PAGE.

As previously mentioned, steps have been taken to help strengthen the position of the CBD as the commercial center for Fremont. So long as such a policy is aggressively followed, the CBD will continue to vie for the title of predominant business center. The proposed alternate route will aid the implementation of this policy. Smaller retail areas that have developed in each part of town will grow to serve their respective neighborhoods. These commercial areas are currently highway-oriented, but should become neighborhood-oriented as more truck traffic uses the alternate route. The commercial center along M-82, west of town, holds a prime location for highway oriented business and is planned for such uses in the Master Plan.

The public service policy as outlined in the Master Plan for Fremont should provide an impetus for growth in areas outlined above. Schools, parks, and residential sewer and water services are proposed for the appropriate areas of town, while the added needs of industry should be provided in the industrial park. Commercial areas are basically related to accessibility and oriented to thoroughfares.

SUMMARY

The existing transportation network found in the city of Fremont reflects the land use decisions that have been made by city officials throughout the past decades. The transportation infrastructure in the central business district has handled private passenger vehicles in an efficient manner, yet as industry, manufacturing, and commercial development increased along M-82 in recent decades, the pressures on the local roadways also increased. This increase in pressure reduced the efficiency of the roadways in handling transport trucks and private passenger vehicles. The Joint Comprehensive Development and Growth Management Plan of 2001-2020 is instrumental in directing development in the city. The plan prescribes appropriate land areas for typical land uses that are expected in the city over the next 20 years, allowing for the correct planning of future transportation networks. Adequate accessibility to these future land uses is important for the economic viability of the city.

Developmental factors

As the result of the recently completed Master Plan, the city of Fremont is in an excellent position to assist in planning necessary highway improvements. With advance knowledge of the city's goals, highway plans can be coordinated and integrated with local development objectives. Many influences are at work that will shape the future development patterns of Fremont. Perhaps the most significant will be the completion of the alternate truck route. This, together with improvements on M-82, will give the area improved highway accessibility. The planning and development of school sites and recreational areas are important stimuli since these make surrounding areas much more desirable for residential growth.

The city's policy on the extension of water, sewerage, and other utilities to selected areas will influence future land use and development patterns of the community. The zoning ordinance, which regulates the use of land and the height, area, and bulk of structures to be placed on the land is another tool that can effectively determine Fremont's future land use distribution and population densities.

TRANSPORTATION

The major transportation artery connecting Fremont to Muskegon and US-131 is M-82. The route runs through the heart of the city: the point from which Fremont began to grow. West of the city, M-82 serves as a connection to Muskegon and its major freeway connections, including I-96 and US-31. East and south of the city, M-82 connects to M-37 in Newaygo and its southerly route to Grand Rapids. Further east, M-82 provides direct connection to US-131.

An important consideration to the effective operation of an urban street system is the integration of major streets with state trunklines. With proper coordination, the system of major streets can supplement the state trunkline in servicing major traffic attractors. It is in the city's best interest to reorganize the existing major street system to more adequately supplement M-82. These considerations will play an important role in determining the extent of Fremont's future street and roadway system. The Analysis section of this report addresses recommendations for forthcoming highway needs.

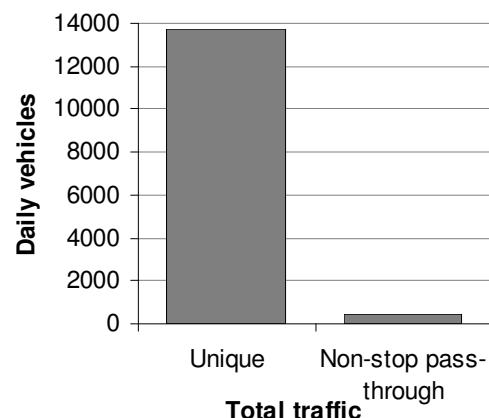
Traffic analysis

The transportation of goods and people between the various functional areas of the community creates vehicular movement and, in turn, the necessity for providing a street system that will permit interaction among these areas. The capacity of necessary facilities is closely related to the number of trips generated by these functional areas, i.e., residential, commercial, and industrial. Volumes of vehicular traffic on M-82 are recorded periodically for the Fremont area by the Michigan Department of Transportation. These traffic counts provide a good snapshot of the total traffic volume using the state trunkline on a given day, but they do not provide any insight into the origin and destination of this traffic. To gain a more accurate and complete picture of traffic in Fremont, a detailed video traffic study and mail survey were conducted in 2003. The results of this study are summarized in this section.

Video survey

The video study allowed detailed analysis of specific vehicles as they progressed from one video monitoring station to the next. For the study in Fremont, seven stations were used. All of the stations simultaneously recorded and time-stamped more than 90 percent of the license plates passing the cameras. As certain plates were illegible, improperly mounted, or otherwise obscured from the camera's view 10 percent was not recorded. The seven stations were situated around the perimeter of the city. The station locations are summarized in **Exhibit 6.1**.

Exhibit 6.2 Local traffic vs. non-stop pass-through traffic on M-82



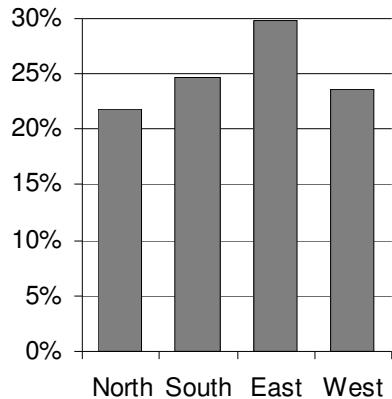
With this time-stamped, vehicle specific data, it is possible to analyze traffic patterns independent of any mail surveys. Through this analysis, it's evident that a very large percentage of the traffic passing into and out of the city had a destination within the city. By defining a set time period for a given vehicle to travel from one station to the next, and separating these vehicles out from the data set, it can be determined that the overwhelming majority of traffic entering Fremont stays within the Fremont area for a time period greater than 20 minutes. This 20-minute time period is double that of the typical non-stop travel period between two video stations. In other

words, this analysis assumes that any vehicle taking more than 20 minutes to travel between stations must have stopped and conducted some type of transaction within Fremont. A transaction is defined as any goods and services interaction within Fremont, such as a delivery, going to work, stopping for gas, etc. **Exhibit 6.2** summarizes the number of vehicles

Exhibit 6.1 Video station locations

M-82 at Green Avenue
Stone Road at 32nd Street
Osborn Avenue at 32nd Street
Ramshorn Drive at Rolling Acres Road
Main Street at Luce Avenue
M-82 at 56th Street
Lake Drive at Green Avenue

6.3 Directional trip demand to Fremont

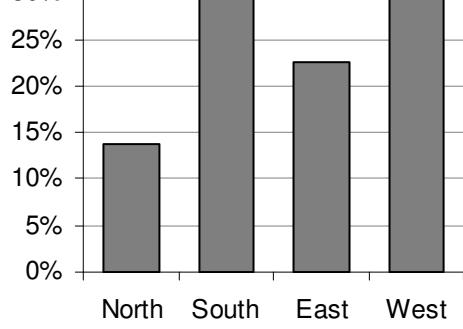


that traveled in Fremont versus the number of vehicles that stopped to conduct a transaction in Fremont.

The video data analysis shows that Fremont is a destination for traffic in the vicinity. It would then logically follow that most motorists entering the city have a specific destination already in mind and are looking for the most efficient route to that destination. The data suggests that Fremont businesses do not get a large percentage of customers from “pass-by” traffic.

Through the video study and through a mail survey to over 3000 Fremont motorists, it has been determined that Fremont attracts traffic relatively equally from all directions, as shown in **Exhibit 6.3**. The south and east contributed slightly more traffic than did the north and west.

Exhibit 6.4 Directional trip demand from Fremont



Interestingly, travel from Fremont was more differentiated. **Exhibit 6.4** illustrates the directions motorists from within the city most frequently travel. Most motorists are south or westward bound. The skew toward these directional demands is likely explained by daily commuter and delivery traffic to the nearest large metropolitan areas of Grand Rapids (south) and Muskegon (west). There is very little demand to travel north from Fremont.

Traffic survey

While the video survey helped evaluate traffic entering and exiting the city of Fremont, an internal survey was conducted to assess the movement of traffic by residents within the city itself. Surveys were sent randomly to 3,000 residents to assess typical traffic movements within the city. In order to determine more specific traffic patterns within Fremont, the city was divided into nine traffic analysis zones (TAZ). The TAZ borders were drawn to divide the city into some broad functional areas such as residential, industrial and commercial. The percent of survey respondents from Fremont's traffic analysis zones are shown in **Exhibit 6.5**.

Exhibit 6.5 Fremont zone map

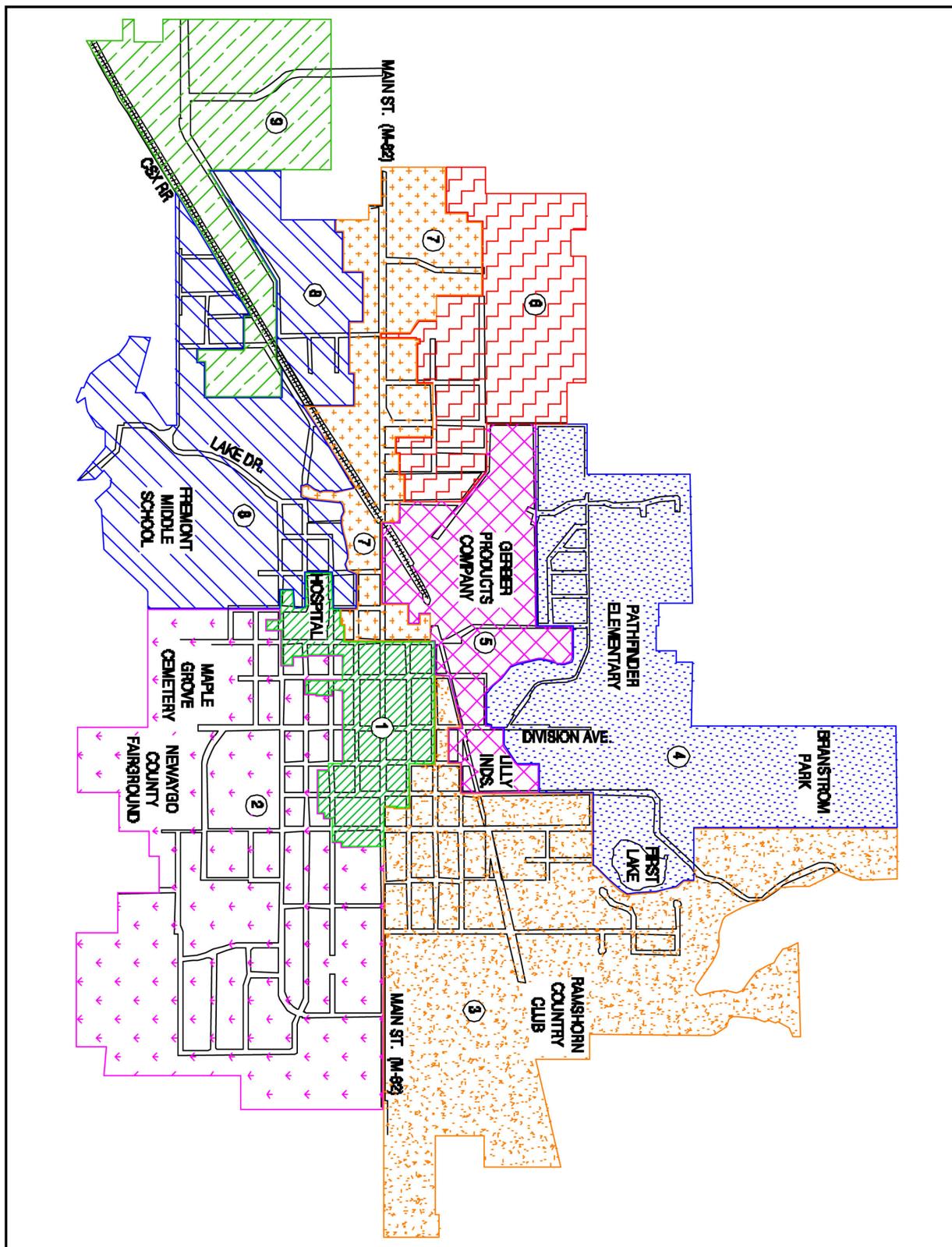


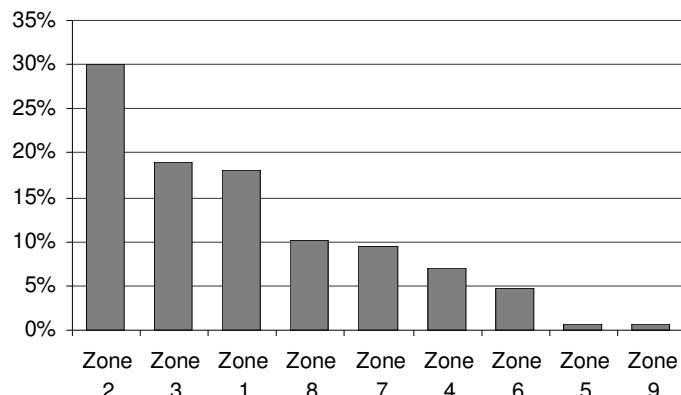
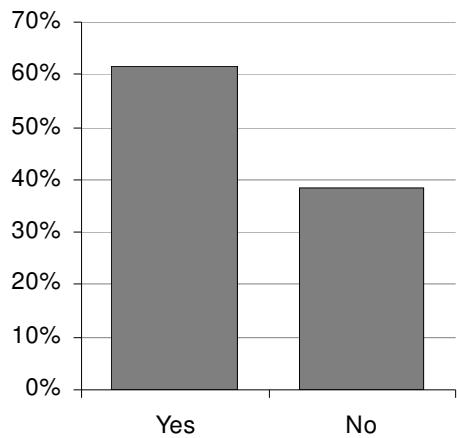
Exhibit 6.6 Internal survey respondents by zone

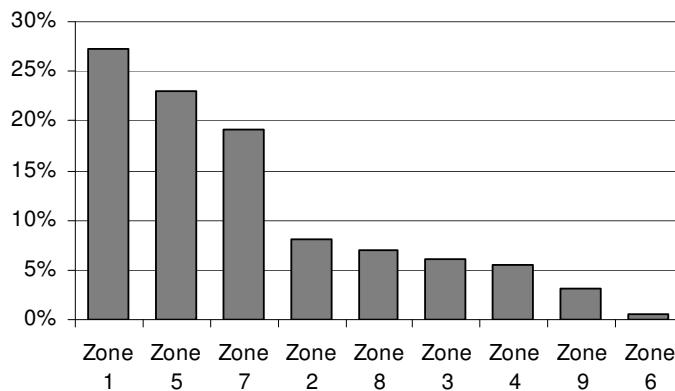
Exhibit 6.6 summarizes where the survey respondents live by TAZ. At first glance, it may appear that the survey was skewed toward certain zones. However, when taking residential population densities into account, the residential zones 1, 2, and 3 provided the most respondents, as expected. The more commercial and industrial oriented zones provided fewer respondents because they contain fewer residents.

Exhibit 6.7 Internal respondents that work in Fremont

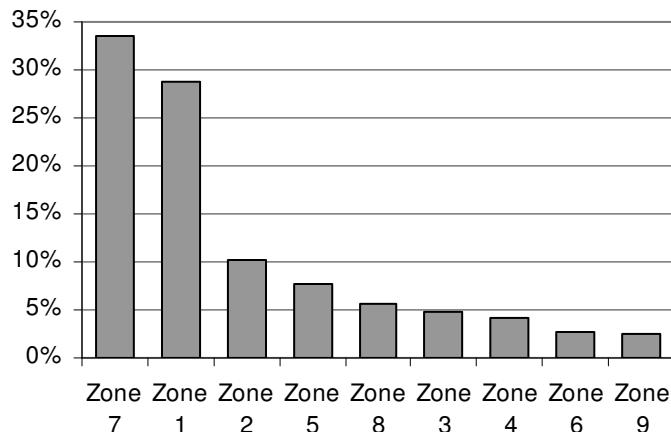
To determine the demand for daily commuter traffic from Fremont to another location, the survey asked respondents to state if they worked within the city.

Exhibit 6.7 summarizes these findings, which indicate that most Fremont residents work in Fremont.

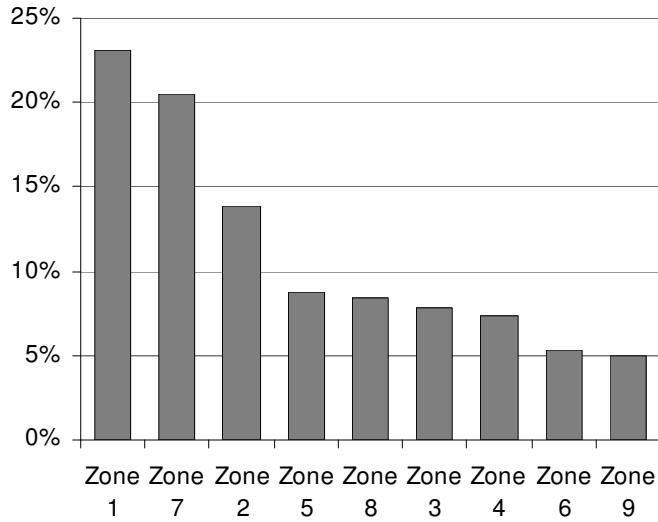
The survey also asked residents to identify which zone they work in. **Exhibit 6.8** summarizes this data. The developed commercial and industrial zones are heavily represented here, again, as expected. More than half of the employment in Fremont is within the combined areas of the central business district, the M-82 commercial corridor west of downtown and the Gerber industrial area. As is shown next, these areas also generate a significant amount of traffic demand.

Exhibit 6.8 Analysis zone employment

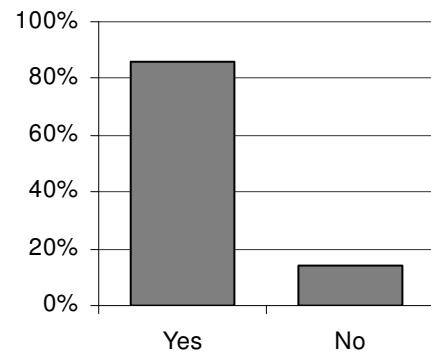
For the next portion of the analysis, two key terms are used: trips generated and travel demand. The two terms are related, but differ subtly. "Trips generated" is used to define the actual number of times in a given period a vehicle enters or leaves a zone. Travel demand is a less concrete indicator of how many times during a given period motorists desire to enter or leave a zone.

Exhibit 6.9 Travel demand generated by zone

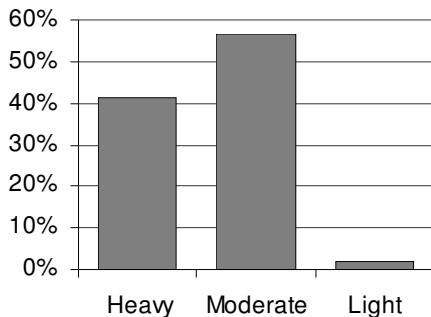
Exhibits 6-9 and 6-10 summarize the traffic demand and number of trips generated by each of the TAZ. Again, the vast majority of the trips and travel demand are in the commercial and industrial areas. One interesting fact is that Zone 2 ranks ahead of Zone 5. This may be due to the fact that the high school is located in Zone 2 and may generate many student and student drop-off trips. In Zone 5, the Gerber industrial area generates only two trips per day per employee.

Exhibit 6.10 Trips generated by zone

As Fremont's primary route, the study had to determine what level of importance the motoring public places on M-82. We asked vehicle owners who use street and highway facilities in the Fremont area if M-82 was the primary route for traveling in and through the city. **Exhibit 6.11** summarizes these results. Clearly, M-82 plays a vital role in the movement of vehicles in the Fremont area.

Exhibit 6.11 Use of M-82 as the primary route

Next, the survey asked if there is a perceived problem on the roadway in question. More than 3000 Fremont area motorists were asked about their perceptions of traffic problems on M-82. **Exhibits 6-12 and 6-13** summarize the general perception that M-82 does indeed pose a problem for most motorists in the Fremont area. The vast majority of those polled believe M-82's traffic volumes are moderate to heavy, with about one-third falling in the heavy category. Further, the problem has advanced to the point that most people actually avoid M-82 at one time or another during an average day.

Exhibit 6.12 Users' view of M-82 traffic


The next step in refining the picture of traffic on M-82 was to more clearly define when the most congested times were and to see if those times correspond to the times that motorists are avoiding the route. Clearly, Fremont motorists know there is a problem with traffic on M-82 and know when the traffic problems tend to occur and avoid the route. **Exhibits 6.13 and 6.14** show s the close correlation between congested times and M-82 avoidance. This places additional traffic on city streets that are not necessarily designed to handle through traffic. This also moves traffic away from the commercial districts that generate the most demand for traffic.

After establishing the importance of M-82 and acknowledging a problem with traffic on this route, be it real or perceived, it is time to take a closer look at more objective numbers on the user characteristics than presented previously. The overwhelming majority of M-82 motorists are bound for Fremont. Only a small fraction of the total vehicles pass completely through the city. This allows us to focus on the type of user that M-82 serves: a motorist that uses the roadway on a repeat basis and is interested in conducting some type of transaction within the city. This transaction may consist of any number of tasks including taking kids to school, retail trade, industrial deliveries and pick-ups, and commuting to and from work. Whatever the specific reasons for traveling to Fremont, the bottom line is that the majority of the people using M-82 in Fremont are very familiar with the city and the roadway.

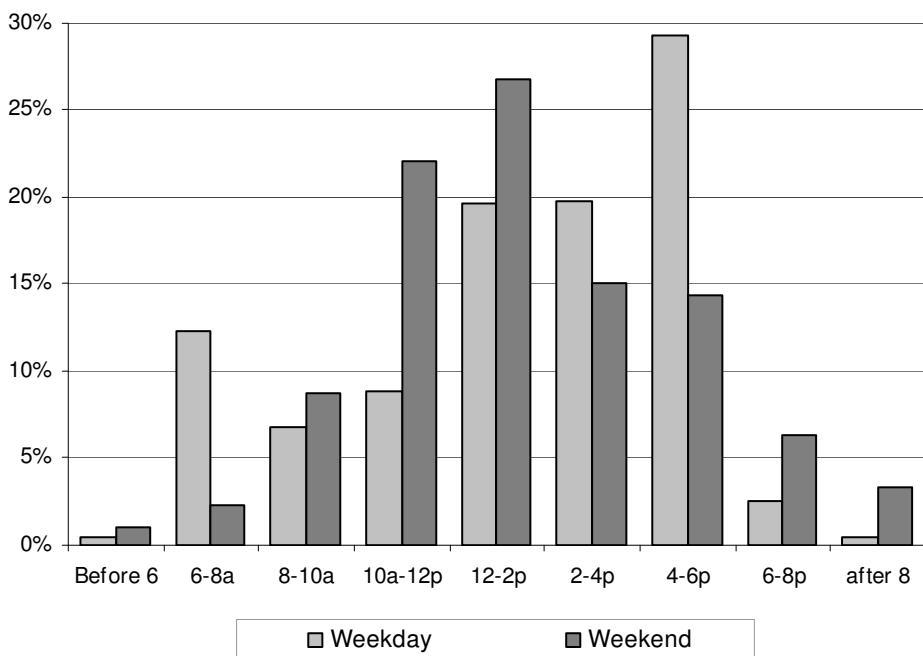
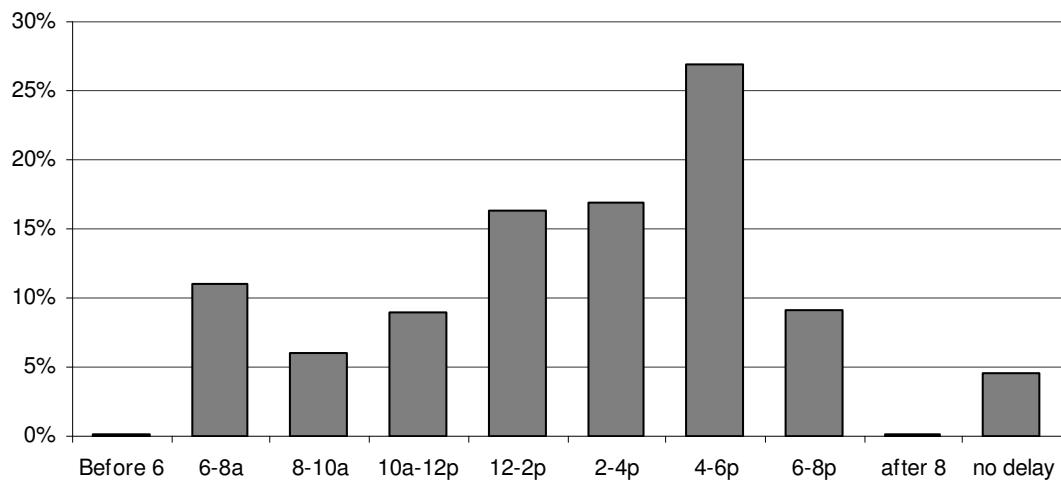
Exhibit 6.13 Times that M-82 is avoided


Exhibit 6.14 Most congested times on M-82**Exhibit 6.15 24-hour traffic volumes**

Location	Volume	% trucks
M-82 between Mulder and Gerber	17872	8.6%
Weaver between Elm and Hemlock	3056	6.6%
Pine east of Gerber	2029	7.3%

Counts taken on 6/4/03

Truck survey

To assist in determining the overall truck traffic demand in and around Fremont, a survey was conducted with 18 companies that perform shipping operations in the Fremont area.

Representatives from these companies were phoned and asked a standard set of questions regarding the shipping needs and habits of their business. A copy of the trucking survey questionnaire is included in the appendix.

The firms in the survey represented each of the Traffic Analysis Zones except the more residential zones (1, 4, and 6). 6 of the firms were not located within the city limits. In discussing the shipping needs of each company, a total of 519 daily truck trips (301 receiving and 218 sending) were accounted. The apparent discrepancy in receiving versus sending may be explained by the presence of the CSX railroad facility and the finished products that are sent via rail from Fremont.

24 hour traffic counts indicate that we should expect a total truck volume within and through Fremont of 1882 truck trips per day. Comparing the traffic count to the total survey truck trips we find that approximately 28% of the total truck trips were accounted for in the truck survey.

An analysis of the total daily directional trucking shipments indicates that, as would be expected, the predominant shipping directions are on eastbound and westbound M-82. In fact, just over 71% of the total truck shipments leave Fremont on M-82. The split between east and west M-82 is relatively equal at 38% and 34% respectively. The remaining shipments leave Fremont via the north (14%) and south (14%) equally.

When examining the receiving operations, M-82 plays an even more predominant role. Nearly 85% of all truck shipments arrive in the city via M-82. Interestingly, the split between shipments from the east and west on M-82 are not as equally split as the outgoing trucks. Approximately 46% all shipments enter Fremont from the west on eastbound M-82. Westbound M-82 carries 36%. The remaining inbound trucks are equally split between northbound and southbound routes into the city, at 11% and 12%.

When asked if they had difficulty using M-82 as their primary shipping route due to traffic congestion problems, 4 of the 18 firms indicated that they did have shipping problems. These 4 firms represent 13% of the total surveyed truck shipments. These firms also had a high percentage of local deliveries, possibly increasing their use of and frustration with M-82.

6 of the 18 firms surveyed indicated that their business would benefit from a separate truck route away from downtown Fremont. These 6 firms represent 18% of the total daily truck trips in Fremont. When all firms were further asked what their location preference would be for an alternate truck route, 6 indicated south of downtown, 2 preferred north of downtown, and 8 had no opinion. Two firms voiced strong opposition to the construction of any alternate route and refused to make a selection. When viewed in terms of the number of trucking shipments each firm's opinion represents, 41% are opposed, 23% have no opinion, 19% prefer the south route, and 17% prefer the north route.

Forecast

Forecasting traffic volumes for the existing roadways within the city and possible alternate truck routes are essential elements of the planning process. In this situation, it is difficult to estimate the level of use of an alternate route since there is no existing data to use for reference other than the various survey results. Defining a specific route for either the north and/or south route could have multiple impacts that are difficult to understand at this point without a specific route identified.

Truck Volume Forecasts

The most important issue to contend with when making traffic forecasts is the establishment of a valid and reasonable overall growth factor for the region in question. For this purpose, a detailed analysis of the Fremont area population, economic and land use trends is necessary. Local factors such as job creation, business climate, road construction, and population are combined with factors from the state and nation as a whole to obtain a best estimate of the growth for the Fremont area.

Assuming that the business climate has no drastic changes, and the city adheres to its current master land use plan, a reasonable overall annualized growth factor for the Fremont area would be 0.95%. This is based on examining both the labor force population trends for the state, county, and city since 1980 and the overall population for the same period. There is no compelling evidence to suggest that the Fremont area's growth will deviate from these historic trends.

There is also no reason to believe that the future split between commercial and passenger-car traffic will be significantly different than the 2004 figures. The forecasts will assume the overall commercial truck percentage will remain at approximately 8.5%. This figure represents the current city-wide average.

Utilizing these figures, the total estimate commercial traffic on the proposed truck route will be slightly over 2000 trucks per day. This analysis assumes that 90% of all trucks in the city will utilize the truck route. The total anticipated citywide truck volume per day would be approximately 2300 trucks.

Pine Street, which today, as a residential street, carries an inordinately high percentage of trucks at 7.3%. This translates into 150 trucks per day in 2004 and, without any action taken, is estimated at just over 200 trucks per day in 2020. With a properly designed, maintained, signed, and enforced truck route, it is entirely feasible that the percent of commercial traffic on Pine Street would drop to below 1%. This would result in an anticipated 23 trucks per day

in 2020, or an 89% reduction in truck traffic on Pine Street. An examination of the 2020 traffic on Weaver Street reveals a similar reduction from 302 trucks daily in the no-action scenario to 36 trucks in the truck route scenario. Although not performed for this study, similar results would be expected for other residential streets in Fremont, especially those that parallel M-82.

Truck traffic through the downtown area of Fremont was also examined. If no action were taken, it could be reasonably anticipated that 1770 trucks per day would use M-82 through downtown. If we assume that, through construction of an alternate truck route, the total commercial traffic could be reduced to 2% of overall traffic in the downtown area (allowing for local deliveries), the total trucks in downtown would be anticipated to be 415 trucks per day. This represents a reduction of over 1100 trucks per day from the present volume, and an anticipated reduction of over 1350 trucks per day in 2020.

Summary of existing bypass studies

According to two documents, *Summary of Bypass Studies* by the Wisconsin Department of Transportation and Economic Development Group, and *Economic Impact of Freeway Bypass Routes on Medium Sized Cities* by Economic Development Research Group, the construction of a highway or freeway bypass typically creates the same predictable impacts on communities across the country. Positive effects include the expansion of industrial growth along the bypasses and the removal of heavy truck traffic from downtown areas. Negative effects include suburban sprawl with high environmental and infrastructure costs.

Other impacts worth noting include:

- The removal of truck traffic from downtown areas causes an increase in passenger vehicle traffic, so while the types of vehicles may change, traffic levels are rarely decreased after the construction of a bypass.
- With smaller cities, bypasses cause sprawl on a much more long-term basis, taking up to 20 years in some instances for a development boom to happen along a bypass due to lack of pre-existing infrastructure.
- Cities must continually reinvest and upgrade their infrastructure to attract businesses to the downtown if a bypass is constructed because it is hard to compete with greenfield development along bypass corridors.
- Economic impacts to the broader community are typically small (negative or positive). A bypass can cause some businesses to fail, yet it can open up new business opportunities as well. If the downtown has a strong identity and there is clear signage to the bypassed downtown area, the local economy will usually be strengthened due to increased passenger vehicle traffic in the area.

Recommendations

This section presents the recommendations for street system modifications resulting from the collaborative efforts of the city and stakeholders. Implementation of the recommendations will aid materially in relieving present congestion by promoting the safe and efficient movement of traffic within the Fremont area.

The primary proposal that was studied was for the SACR. This proposal analyzed traffic service capability, service to major traffic generators, minimal disruption of existing and proposed patterns of development, and project costs. The advantages and disadvantages of the route are explained so that the best possible justification for its selection is available to city officials.

After the SACR was selected, consideration was given to the choice of another alternate route: the NACR. As presently envisioned this facility is planned for future development. If sufficient data were available at a later date to justify implementation or other financial arrangements were available, then the NACR could become a reality. At this time however, the SACR remains the primary focus.

EASTBOUND TRUCK TRAFFIC MOVEMENT

A regulatory road sign citing a local traffic ordinance would be installed along eastbound M-82 east of Green Avenue. The sign would instruct truck traffic to turn right on Industrial Drive unless a local delivery is made. This marks the entrance to the industrial park. Trucks would be routed south along Industrial to Locust Street, where they would turn left (east). The existing roadways in the industrial park (Industrial and Locust) are adequate to carry truck traffic both in the pavement section and geometric cross section. At the intersection of Connie Avenue and Locust, the SACR would continue on a new roadway, crossing the railroad and proceeding east-southeast past the Dura Automotive plant, across the school property (Fremont Middle School) and north of Maple Grove Cemetery. The exact alignment of this roadway requires further study. At this point the future roadway will tie into Cedar Street, which was recently constructed. The eastbound truck traffic will then rejoin M-82 at the Cedar and Stewart intersection.

WESTBOUND TRUCK TRAFFIC MOVEMENT

A regulatory road sign citing a local traffic ordinance would be installed along westbound M-82 south of Cedar Street. The sign would instruct truck traffic to turn left on Cedar unless a local delivery is made. Trucks would be routed in the opposite path to the eastbound

movement, rejoining M-82 at the intersection of Industrial and M-82. Note that the westbound movement requires trucks to make left turn movements at locations where there are no provisions for a protected left turn movement now. With the anticipated increase in left turn movements at northbound Stewart to westbound Cedar and northbound Stone to westbound Locust, traffic control devices and /or dedicated left-turn lanes should be analyzed for warrants. The left turn from Industrial onto M-82 is not of as great concern because of the

planned installation of a traffic signal as a part of the Wal-Mart Superstore project now under construction.

Exhibit 9.1 Alternates to M-82 currently used

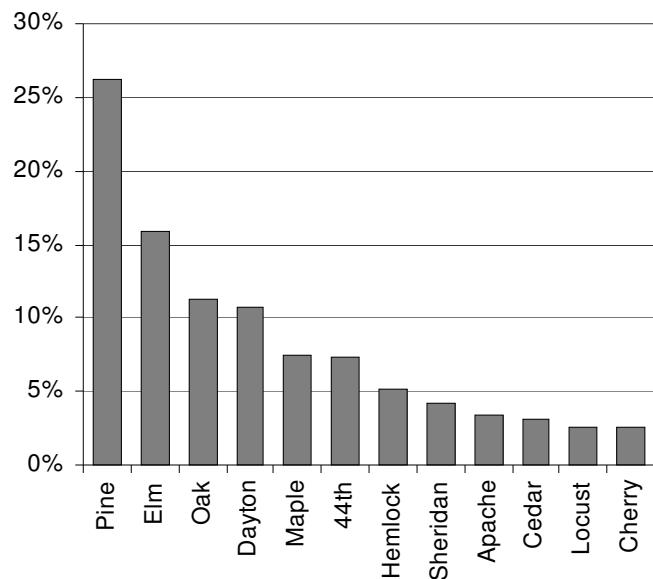


Exhibit 9.1 represents the roadways that motorists are currently using to bypass downtown and M-82 during peak hours. If the alternate truck route were instituted thus reducing the demand on M-82 during peak hours, then a reduction in people using these impromptu alternate routes would be experienced. The surrounding residential areas traversed by these roads would benefit from less traffic.

SUMMARY

As stated previously, the SACR is the immediate focus of this report. It would provide excellent service for industrial concerns requiring easy access to major shipping trunklines while improving the character of traffic in the CBD. Commercial truck traffic destined for the industrial park on the southwest side of Fremont would completely bypass the CBD, an obvious advantage for the efficiency of shipping. This same type of traffic bound for the existing industrial concerns north of M-82 would only cross Main Street in the CBD, thus greatly reducing its impact on the character of the downtown. The overall traffic volume on M-82 in the CBD would be expected to decrease and the goal would be to achieve close to zero commercial truck traffic from Pine Street to Locust Street. This would allow the CBD to focus attention on the type of traffic that it most often serves: passenger vehicles.