Neighborhood Planning for Community Revitalization

Neighborhood Transportation Planning Issues and Strategies in the Linden Hills Neighborhood

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by John Levin

September, 1995

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Neighborhood Transportation Planning Issues and Strategies in the Linden Hills Neighborhood of Minneapolis

Prepared for the
Linden Hills Neighborhood Revitalization Program
Steering Committee's Transportation Task Force
Under the Direction of
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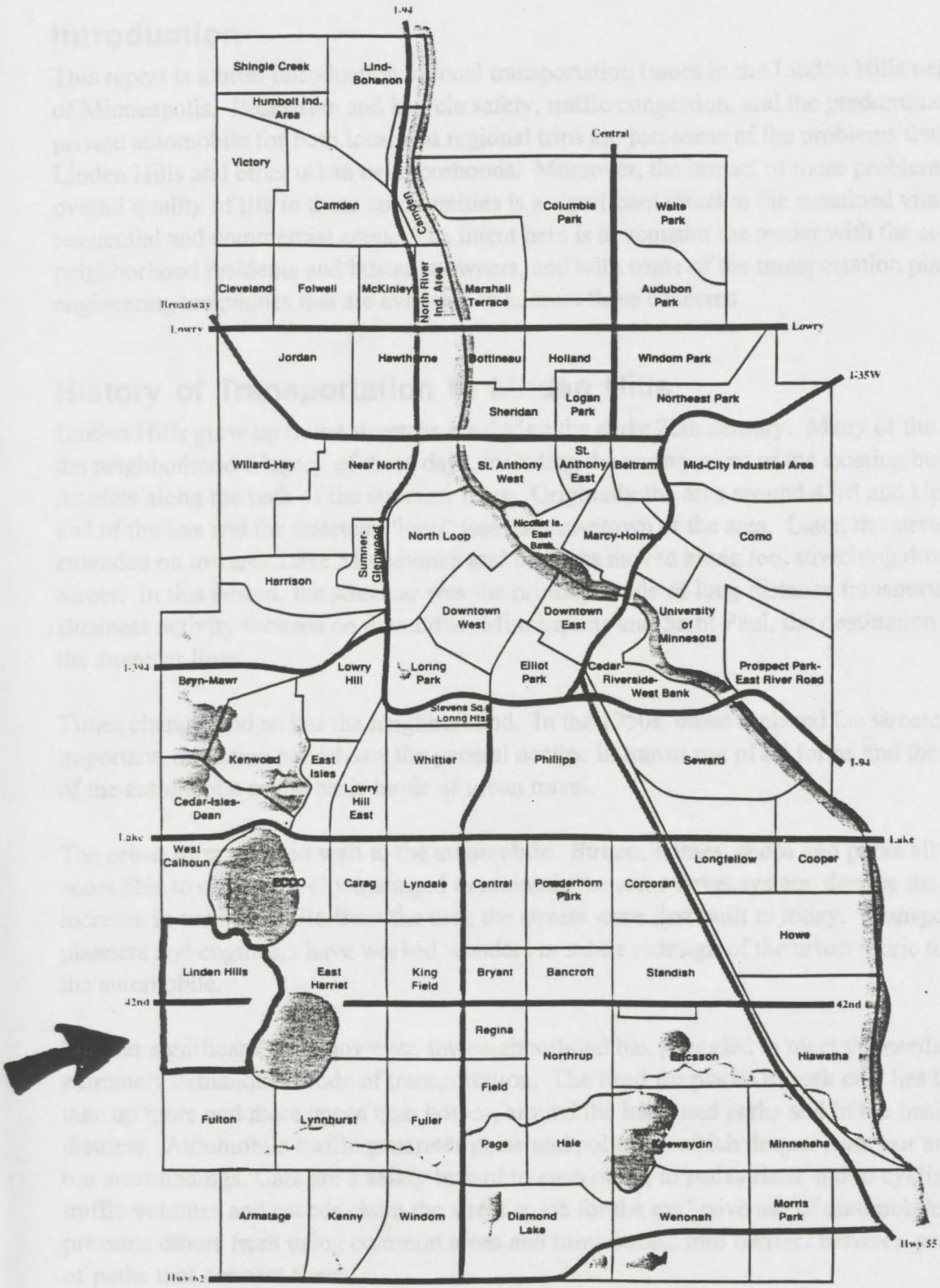


Figure 1: Linden Hills Neighborhood of Minneapolis

Introduction

This report is a brief introduction to local transportation issues in the Linden Hills neighborhood of Minneapolis. Pedestrian and bicycle safety, traffic congestion, and the predominant use of the private automobile for both local and regional trips are just some of the problems that confront Linden Hills and other urban neighborhoods. Moreover, the impact of these problems on the overall quality of life in these communities is a significant threat to the sustained vitality of both residential and commercial areas. The intent here is to acquaint the reader with the concerns of neighborhood residents and business owners, and with some of the transportation planning and engineering techniques that are available to address these concerns.

History of Transportation in Linden Hills

Linden Hills grew up in the streetcar era during the early 20th century. Many of the features of the neighborhood a legacy of those days, including the arrangement of the existing business districts along the path of the streetcar lines. Originally the area around 43rd and Upton was the end of the line and the streetcar "loop" was the downtown of the area. Later, the streetcar extended on towards Lake Minnetonka and business moved along too, stretching down 44th Street. In this period, the streetcar was the primary mode of long distance transportation. Business activity focused on downtown Minneapolis and Saint Paul, the destination of many of the streetcar lines.

Times change, and so has the neighborhood. In the 1950s, buses replaced the streetcar. More important, this same period saw the general decline in transit use of all forms and the ascendance of the automobile as the basic mode of urban travel.

The urban form adapted well to the automobile. Streets, homes, shops and parks all are accessible to cars. The city managed to maintain the same street system, despite the huge increase in vehicle traffic from the time the streets were first built to today. Transportation planners and engineers have worked wonders in subtle redesign of the urban fabric to adjust to the automobile.

In other significant ways however, the neighborhood has struggled to meet the needs of this extremely demanding mode of transportation. The need for places to park cars has forced us to take up more and more space near homes, around the lakes and parks and in the business districts. Automobile traffic generates noise and pollution which detract from our enjoyment of our surroundings. Cars are a safety hazard to each other, to pedestrians and to cyclists. High traffic volumes and speeds claim the street space for the exclusive use of automobiles. This prevents others from using common areas and turns streets into barriers between people instead of paths that connect them.

At the regional level, the impacts of the automobile age have been no less powerful. Government policies in support of road building and home ownership have contributed to a strong development philosophy that values large lot sizes, and separated land uses. These and various

other forces have led to the rapid suburbanization of the region, the dispersal of jobs and housing and the regionalization of commercial activities into mega-centers surrounded by seas of parking. This certainly is not the picture of what is happening in Linden Hills, but the effects of these changes are felt in Linden Hills. Changes to work patterns and consumer patterns have had a significant impact on travel behavior. Commuters and shoppers traveling into, through and from the neighborhood all generate automobile traffic, as they travel to destinations near and far.

The Linden Hills Community

As a community, Linden Hills has diverse transportation needs. Commuters, school children, seniors, shoppers, and many others from inside the neighborhood and beyond all travel in the area. They use cars, buses and bicycles or they travel on foot. Despite this broad range of users and uses, Linden Hills relies primarily on a single transportation network: the street and sidewalk system that has been in place since early in this century. As might be expected, conflicts among users -- between cars and bicycles and bicycles and pedestrians -- occur frequently. In addition, residents and businesses feel the effects of traffic, both in the streets and on sidewalks. These effects can be positive, in the form of a safe, friendly environment, or negative, in the form of noise, pollution and congestion. Meeting the needs of the many different groups while minimizing conflicts and the negative impacts of traffic has been the goal of the Linden Hills Transportation Task Force.

Transportation Concerns in the Neighborhood

In looking at concerns about transportation and traffic in the Linden Hills neighborhood, there are three principal areas to consider: residential, commercial and parks and recreation.

Residential Areas

Much of Linden Hills is residential. The neighborhood is predomoninently single family housing, with a scattering of duplexes and some higher density buildings around the business districts. Within all these areas, a common concern is the volume and speed of traffic in front of peoples houses, air and noise pollution and the loss of livability that result from this traffic. Many participants in neighborhood focus group meetings in early 1994 identified this as a concern. This has also been a common theme of meetings at NRP Transportation Task Force meetings. The perception, and in many cases the fact is that the volume of traffic on residential and collector streets is increasing as well as the speed of that traffic. Residents have raised concerns for their safety and for their children's safety. Pedestrians, in particular the elderly, worry about safety at crosswalks and increasing complications in getting about the neighborhood. More traffic also makes the street a less appealing place to interact with neighbors.

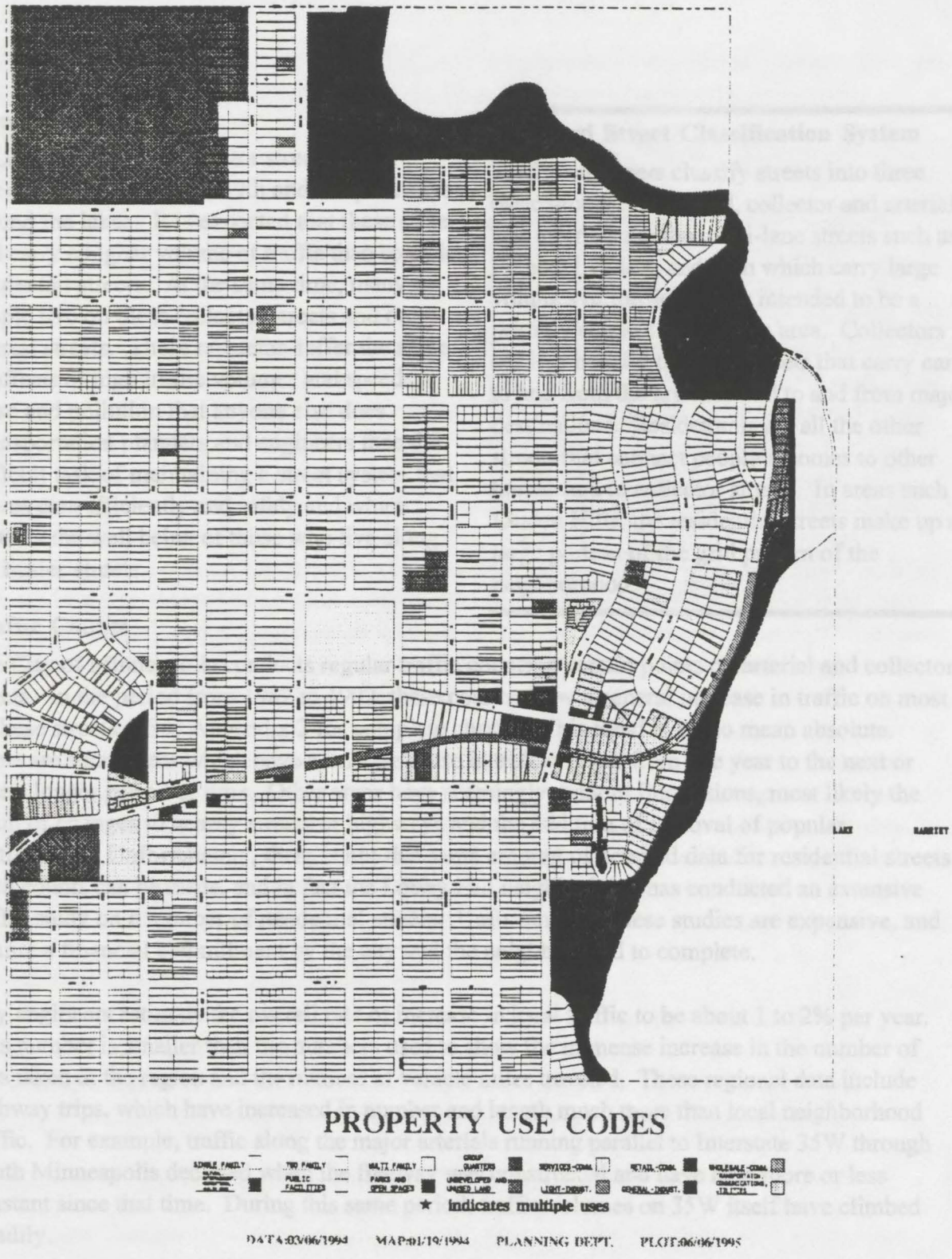


Figure 2: Linden Hills Land Use Map

Street Types

In Linden Hills, the collector streets are 44th Street, Upton, Sheridan, 39th and the parkways around the lakes. It is expected that these streets will carry a higher volume of traffic than so-called residential streets. At the same time, many people live on these collector streets and on arterial streets. These residents suffer the same ill effects of high traffic volumes and speeds, noise and pollution that anyone else does. Transportation planners and engineers face the difficult task of maintaining a street system that moves cars efficiently and safely and which protects the well being of those who live along the busier streets.

Standard Street Classification System

Traffic engineers classify streets into three basic groups: residential, collector and arterial. The arterials are the multi-lane streets such as France, Lyndale, and 50th which carry large volumes of traffic and are intended to be a primary conduit *through* an area. Collectors are less heavily traveled streets that carry cars to and from the arterials and to and from major destinations. Residentials are all the other streets that connect people's homes to other homes and to collector streets. In areas such as Linden Hills, the residential streets make up a large portion of the grid pattern of the neighborhood.

Traffic Counts

The City of Minneapolis conducts regular traffic counts at certain points on arterial and collector streets. In the period from 1982 to 1992, these counts show a general increase in traffic on most of these streets. (See Appendix 2 for complete charts.) This trend is by no mean absolute. There are some areas which have seen a decrease in traffic, either from one year to the next or over a longer period of time. Other areas have seemingly random fluctuations, most likely the result of changes to nearby streets or highways and the addition of removal of popular destinations. Unfortunately, there is not this same amount of detailed data for residential streets. Such counts can be made, and in fact the Lowry Hill neighborhood has conducted an extensive traffic study on a number of residential streets. Unfortunately, these studies are expensive, and require a financial commitment by the city and the neighborhood to complete.

City engineers estimate the overall rate of increase in local traffic to be about 1 to 2% per year. This number is smaller than the numbers used to show the immense increase in the number of trips taken in the region and the number of vehicle miles traveled. These regional data include highway trips, which have increased in number and length much more than local neighborhood traffic. For example, traffic along the major arterials running parallel to Interstate 35W through South Minneapolis declined when the freeway was constructed and have held more or less constant since that time. During this same period, traffic volumes on 35W itself have climbed steadily.

It is important, however, to recognize that it is not so much that actual numbers of cars on the streets that is of concern, but the perceived problems of traffic. When traffic detracts from residents' safety and quality of life, it becomes a problem. Some amount of traffic will always exist. The question is how much is enough and how much is too much. Also, just the count of cars does not tell us what the impact of the traffic is. How fast are the cars going? What time of

day is the traffic busiest? Does it come all at once or spread out over a period of time? Answers to these questions will help us better understand the perception of residential areas traffic problems.

Business Districts

At the heart of the Linden Hills neighborhood are the business districts. The three principal districts are at 43rd and Upton, along 44th Street between Zenith and Beard, and at 44th and France. These areas are home to many thriving stores and services. A common concern of business owners in these areas is access for customers. This includes being able to get to the area, park the car, and walk around easily and safely. Confusing, congested and dangerous streets and intersections do not promote a healthy business area. Unfortunately, easy access for automobile and a safe environment for bicyclists and pedestrians are often difficult to maintain at the same time.

The last few years has seen excellent growth for many of the neighborhood's businesses. It has also seen many new types of business. Many of the businesses in the area provide local services, for residents in the Linden Hills and adjoining neighborhood. There has, however, been a growth in regional oriented businesses, or businesses that draw customers from all over the region, both inside and outside the neighborhood. This means that more people are driving into the neighborhood from outside. This certainly contributes to an increase in traffic, both on through streets and in and around the business districts.

An informal survey was conducted in March 1995 to determine the principal transportation related concerns of the Linden Hills business community. Surveys were left with thirty four business and property owners in the three neighborhood business districts. Twelve surveys were returned for a response rate of about 35%. The survey was not designed to be a scientific tool nor does the sample size merit much statistical analysis of the results. The most valuable aspect of the survey responses was the set of written comments from each respondent.

Some general impressions from these data are:

- customer access, by car and by foot, is the most important issue for business owners
- parking is not a major concern except on Saturdays
- business owners are aware of, and concerned about traffic safety problems in the area
- many businesses draw customers from outside convenient walking/bicycling distance

Complete results from this survey are presented in Appendix 1.

Parks and Lakes

A major attraction in the Linden Hills area, both for residents and for people from outside the neighborhood are the recreational facilities that are available. Central among these are Lake Harriet and Lake Calhoun. There are also a number of parks, including Linden Hills Field at 43rd and Xerxes and Beard's Plaissance at 45th and Upton. Like the business districts, these areas are major traffic generators. The lakes have also been a regional attraction since the early days of Minneapolis. The number of visitors was at its peak earlier in this century. The increasing use

of cars, however, combined with the continuing popularity of the lakes has led to rising traffic problems. Recent measures to reduce congestion and other traffic and noise problems around Lake Calhoun are just one aspect of this problem. Residents all around the area have concerns about traffic and parking congestion, pollution, pedestrian safety and the annoyance of loud or rude visitors.

Particular areas of concern

The following points are particular areas of concern for neighborhood residents and business owners. Various people throughout the neighborhood have expressed concerns about traffic and access. The following list is a combination of complaints received by Councilmember Steve Minn, City Transportation Director Mike Monahan, and members of the various neighborhood organizations, including the Linden Hills Neighborhood Council (LHiNC), the NRP Transportation Task Force and the Linden Hills Business Association (LHBA).

The Park

The new playground at the park on 43rd St. between Xerxes and Zenith has recently become a concern. Its popularity has spread beyond Linden Hills, as it draws children and their parents from far and wide across the Southwestern portion of the Twin Cities region. The number of cars along 43rd Street between Xerxes and Zenith is a problem. Congestion on the street has increased. Moving cars are a danger to the children playing nearby and parked cars crowd out residents and are a danger to small children running between them.

Lake Calhoun

Increasing traffic levels and noise, particularly around the southern end of the lake inspired the city to implement various traffic control measures in the area.

44th and Upton

This intersection is a concern for both motorists and pedestrians and bicyclists. What had been a three-way stop at a four-way intersection was both confusing and dangerous. Nearby residents complained of difficulty crossing these streets. The presence of senior housing at the intersection compounded this problem. The recent change to a four-way stop improved the situation.

Upton Ave. South of 44th

Residents along Upton express concern about the speed of cars along this stretch of street. Crossing Upton at 45th or 46th to get to the park or Lake Harriet is a particular concern. City monitoring indicates that the traffic speeds along Upton are within legal limits. The perception of speeding problems here, however, is sufficient to merit consideration of various traffic control options.

43rd and Upton

The intersection of 43rd Street, Upton Avenue and Sheridan Avenue is a confusing three way mix. Cars must merge together and/or cross poorly marked lanes of traffic. This is a problem not just for drivers,

but also for pedestrians and bicyclists who are often confronted by cars coming from unexpected directions. A traffic study is currently underway to address the problems in this area.

39th and Sheridan

This busy intersection is a particular concern for Route 28 Metropolitan Council Transit Operations (MCTO) buses, which must negotiate a tight turn from Northbound Sheridan to Eastbound 39th Street. There is also often a long wait to turn from Westbound 29th to Southbound Sheridan.

Linden Hills Library

There is some concern that the proposed expansion of the library would lead to increased traffic in the vicinity as well as the need for more off-street parking. The possibility of removing houses to make room for surface parking lots is particularly troubling to many residents. Recent surveys indicate that the communicty does not want increased space or parking facilities at the library.

Southwest High School

Residents near the school are concerned about youth driving too fast and behaving recklessly on streets around the school area. This has heightened safety concerns among area residents.

44th and Sunnyside

This area, within the 44th and France business district is a concern for pedestrians, especially senior citizens from the neighborhood who walk here to shop. The high volume and speed of traffic make the intersections here difficult to cross. In general the area is not convenient or pleasant for pedestrians or bicyclists.

Other areas where residents have expressed concern about traffic (speed, volume, etc.)

42nd between Sheridan and Xerxes, 38th and Xerxes, 40th from Sheridan to Xerxes, 40th and Sheridan, 41st and Zenith, 41st and Sheridan, 43rd and Abbott, 45th and Abbott, 43rd and Beard, 43rd from Upton to Xerxes, 44th and Zenith, 44th and Drew, and Glendale Terrace. These are just the areas where residents or businesses have expressed specific concerns. Problems from traffic are present in many other places in the neighborhood.

Common Themes in Neighborhood Transportation Issues

There are three common themes that show up in the above examination of transportation related concerns in the Linden Hills neighborhood: mobility and access, economic vitality and neighborhood livability.

Mobility & Access

A key of transportation planning is to create a system that allows people to travel where they want to go when they want to go, quickly and comfortably. A basic goal is to ensure that everyone in the community, and outside the community, has this mobility. A related goal is to make sure that people have access to their homes, to stores, to libraries and churches and parks and all of the other places they want to go. This is the fundamental question for a transportation system. Unfortunately, it is not the only concern we must have.

Economic Vitality

Another vital aspect of transportation is its impact upon the economic vitality of local businesses. We all know what attracts us to a store or a shopping area. It is the stores themselves, the bustle of nearby activity, and a pleasant natural environment. Also important are the ease of getting to the stores, the availability of parking, the convenience of getting around the area, and so on. The business owners recognize this. They know that to survive they must attract you, the customer, in whatever way they can. This is a very important relationship, between the business owner and the customer, one which should not be overlooked in planning transportation.

It is important to recognize the balancing act between economic vitality and the capacity of the area to handle traffic. More stores and bigger stores will mean more customers. And more customers will mean more traffic unless the transportation system is appropriately designed and used. Also note how this issue connects to the commercial development efforts that have been going on in the neighborhood. Efforts to encourage business development, if they do not properly address transportation concerns, can come in direct conflict with efforts to improve the livability of the community. At the same time, business district improvements, such as planting flowers and trees, by enhancing the attraction of the neighborhood can potentially increase the problems of congestion. In understanding transportation issues, it is important to determine how transportation issues interact with and impact the viability of and the use of the business districts.

Livability

Perhaps the most important concern expressed by residents of the neighborhood refers to something called *livability*. This term means many things to different people. It means having a safe place to live. It means having a relatively peaceful neighborhood, free of excessive noise and congestion. It means having convenient access to necessities and amenities. It means having connections with neighbors and with local businesses.

The concept of livability applies to both residential areas and commercial areas. In all cases livability is something which is difficult to measure and yet tops most residents' lists of what is important to them about their surroundings.

While there are many things that degrade the livability of a neighborhood, an important element for this discussion is motor vehicles. Cars, trucks, and buses all can endanger pedestrian safety. High traffic volume pose a particular threat to livability. A study in the 1970s by Donald Appleyard in San Francisco measured the impacts of traffic on various aspects of livability.

Appleyard surveyed residents of high, medium and low traffic volume streets. He asked what they considered their "home territory." Their answers varied by the volume of traffic on their streets. (See Figure 4.) Residents of high traffic streets identified very small territories, sometimes limited to their apartments. Few of these residents identified any portion of the street space as part of their home territory. In contrast, on light traffic streets, residents' home territories were greatly expanded, including their front yards, the sidewalk and the street.

Appleyard also asked what connections individuals have with their neighbors. Again, answers varied by the volume of traffic on the streets. (See Figure 3.) On high traffic streets, residents rarely ventured across the street to visit neighbors, while on light traffic streets the connections between people along and across the street were much greater.

Private automobiles in particular, as the principal generator of traffic volume are a major concern in the area of community livability. There is no question that the automobile and truck traffic in this neighborhood are a vital component of mobility and access and of economic vitality. These must be balanced, however, against the impacts of automobiles and trucks on livability for neighborhood residents.

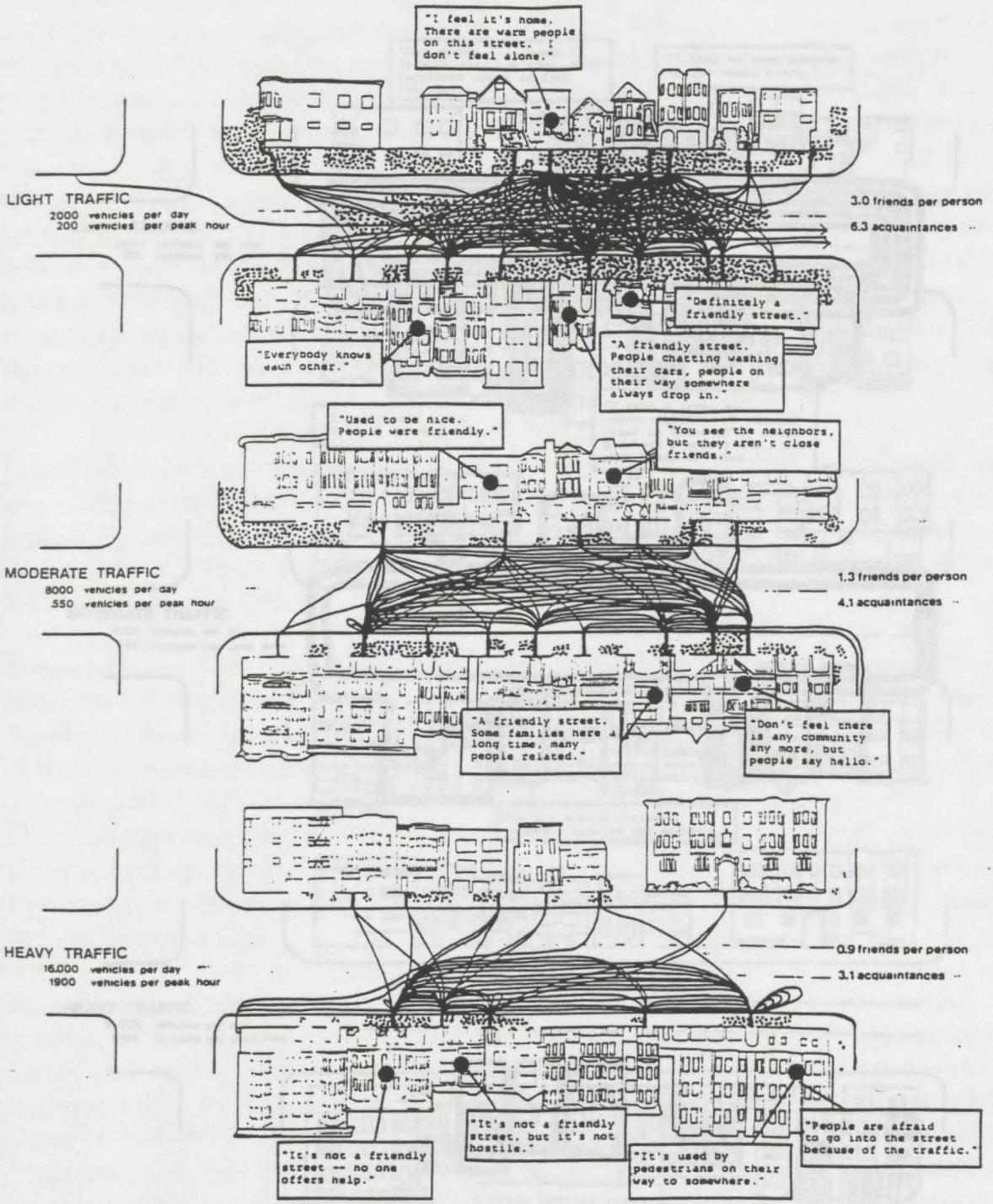


FIGURE 3.
San Francisco. Neighboring and visiting on three streets: lines show where people said they had friends or acquaintances. Dots show where people are said to gather

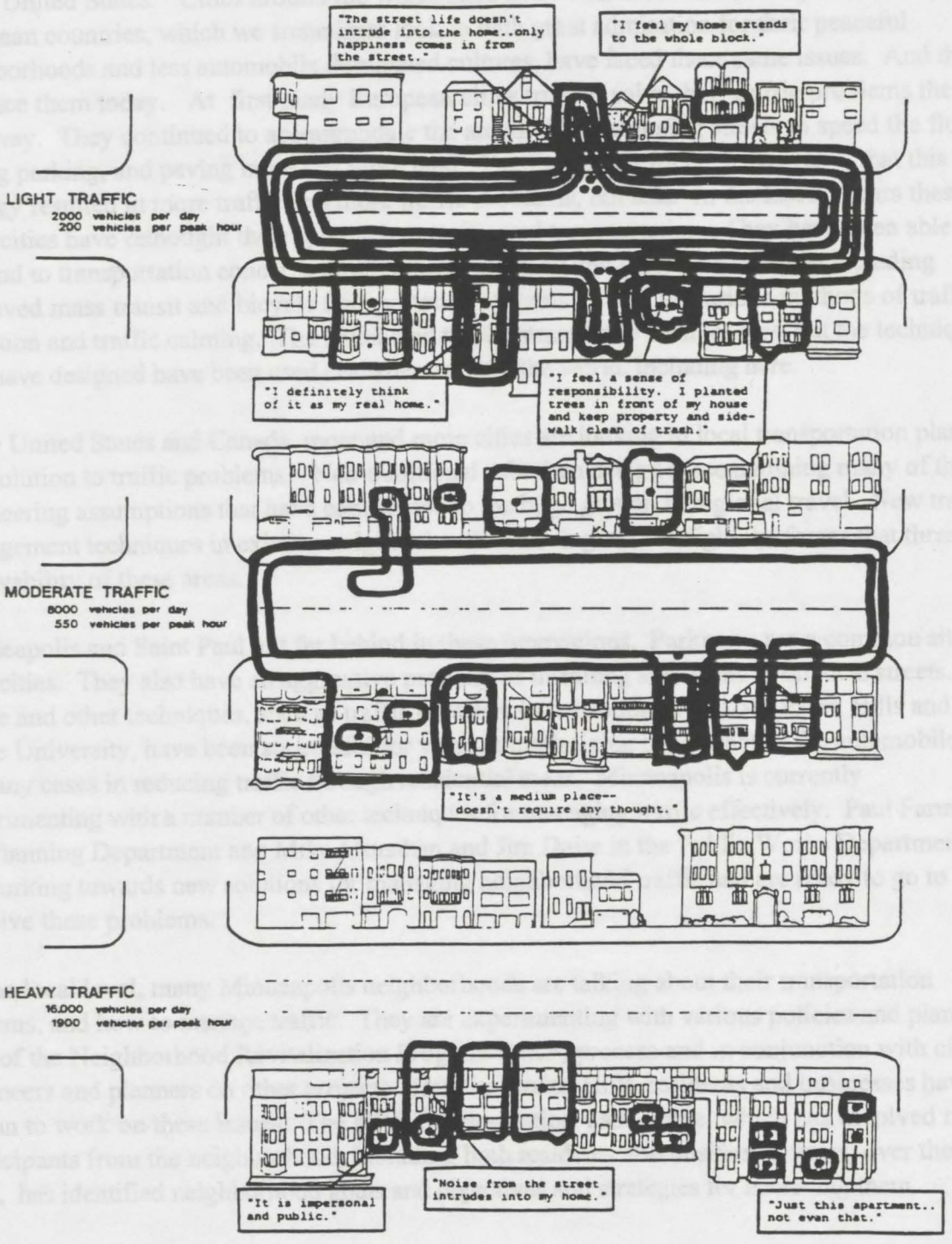


FIGURE 4.
San Francisco. Home Territory on three streets: lines show areas people indicated as their "home territory"

Neighborhood Transportation Planning

The problems faced in Linden Hills are not unique to this neighborhood, to Minneapolis or even to the United States. Cities around the world have dealt with these issues for years. Many European countries, which we sometimes look to with great admiration for their peaceful neighborhoods and less automobile dominated cultures, have faced these same issues. And they still face them today. At first many European cities tried to solve their traffic problems the U.S. way. They continued to accommodate the automobile, widening streets to speed the flow, adding parking, and paving more and more land. The Europeans found, as we have, that this strategy resulted in more traffic and more traffic problems, not less. In the last 30 years these same cities have rethought their approach to traffic and transportation. They have been able to respond to transportation concerns through local planning and various techniques including improved mass transit and bicycle transportation systems as well as various methods of traffic reduction and traffic calming. The Dutch and the Germans have been leaders, but the techniques they have designed have been used elsewhere around the world, including here.

In the United States and Canada, more and more cities are looking to local transportation planning as a solution to traffic problems. Neo-traditional suburban design is reexamining many of the engineering assumptions that have contributed to the huge growth in regional travel. New traffic management techniques in existing neighborhoods are being used to fight the forces that threaten the livability of these areas.

Minneapolis and Saint Paul not far behind in these innovations. Parkways are a common site in both cities. They also have an aggressive program of installing stop signs in on local streets. These and other techniques, such as traffic diverters in the southern end of Linden Hills and north of the University, have been successful for years at minimizing the impact of the automobile and in many cases in reducing traffic through residential areas. Minneapolis is currently experimenting with a number of other techniques for managing traffic effectively. Paul Farmer in the Planning Department and Mike Monahan and Jim Daire in the Public Works Department are all working towards new solutions for managing neighborhood traffic and are ready to go to work to solve these problems.

At the local level, many Minneapolis neighborhoods are talking about their transportation systems, and how to manage traffic. They are experimenting with various policies and plans as part of the Neighborhood Revitalization Program (NRP) process and in conjunction with city engineers and planners on other projects. Here in Linden Hills, residents and businesses have begun to work on these issues. The NRP Transportation Task Force, which has involved many participants from the neighborhood, including both residents and business owners, over the last year, has identified neighborhood goals and objectives and strategies for achieving them.

Goals and Objectives

The Transportation Task Force adopted the following goals and objectives for consideration as part of the neighborhoods overall NRP action plan. It is important to remember that these goals and objectives are not necessarily those that were integrated with the results of the other task forces. The neighborhood-wide survey currently underway will help determine which of these goals and objectives becomes part of the neighborhood's action plan.

Goal 1: Calm Automobile Traffic

This goal seeks to reduce the negative impacts of automobile traffic upon residents and businesses.

Objective 1: Slow down traffic
Objective 2: Implement traffic calming techniques
Objective 3: Encourage compliance with traffic regulations
Objective 4: Enforce parking regulations
Objective 5: Collaborate with Grand Rounds Committee
Objective 6: Educate community about traffic calming and awareness of personal automobile use

Goal 2: Reduce Automobile Traffic

This goal focuses on a single aspect of the traffic problem, the high volumes of traffic at certain times in certain places. There is not always too much traffic, so this goal requires clearly focused objectives and strategies.

Objective 1: Reduce transient/through traffic
Objective 2: Keep commuter/through traffic on main routes
Objective 3: Discourage additional parking in the business districts

Goal 3: Encourage Alternative Modes of Transportation

Disincentives to automobile use must be accompanied by improvements and incentives to use alternative transportation modes such as bicycling, walking, and mass transit.

Objective 1: Plan, design, and implement a year-round bicycle transportation system
Objective 2: Support improved regional transit that includes Linden Hills
Objective 3: Encourage non-auto-dependent businesses
Objective 4: Assess adequacy and frequency of transit service
Objective 5: Increase convenience/improve transit service
Objective 6: Explore/create a neighborhood shuttle service
Objective 7: Educate community about transit and pedestrians/cyclists rights

Goal 4: Promote a safe and pedestrian-friendly environment

This is a fundamental element of enhancing the livability of the neighborhood, and at the same time improving the transportation system by discouraging driving and encouraging walking.

Objective 1: Promote safe pedestrian crossings in high pedestrian traffic areas
Objective 2: Enforce traffic regulations on bicycles
Objective 3: Improve street lighting
Objective 4: Create an environment conducive to pedestrians
Objective 5: Limit geographic size of business districts to under seven acres

Strategies and Options for the Neighborhood

The above goals and objectives were included in survey conducted by the Linden Hills Steering Committee in the Summer of 1995. Initial results show strong general support for the direction that the task force has taken in addressing transportation concerns in the neighborhood. The next step of the NRP process will include formation of detailed strategies to implement the objectives adopted by the community. This section contains a short description of some of the transportation planning tools that are available to the neighborhood and the city for this purpose. It is through careful, coordinated application of these tools that residents can exert some influence over the future of transportation, traffic, and livability in the area.

The Zoning Process

As already noted, the business districts are among the major traffic destinations in the neighborhood. What determines how much traffic a business generates? — the nature of the business, its size, its trade area and how customers travel to the store. Some of these factors are controlled by the city's zoning code. This regulates what types of businesses can locate in the area and where they can locate. Most of the Linden Hills business districts are zoned B2S, for basic, day-to-day neighborhood services. This is intended for businesses which cater to local residents.

The basic approach of using zoning techniques as a part of transportation planning is to ensure that the types of businesses that move in will not generate too much traffic. It is not an attempt to be anti business, but instead is an attempt to guide the types of businesses that are allowed so that they fit with the community and do not degrade the community by, in this case, generating too much automobile traffic.

The city is currently revising it zoning code. One planned change is to take greater account of the traffic impacts of various businesses in determining where they are allowed to locate. Suitable zoning of the Linden Hills business districts will make this another tool in managing traffic in the neighborhood.

Zoning is an especially difficult form of neighborhood planning. It's tough to get the type of community you want. Residents only have so much control over which businesses decide to locate in the neighborhood. Just because the desired businesses are allowed, does not mean that they will come. Moreover, it is sometimes difficult to distinguish between desirable and undesirable businesses before they arrive.

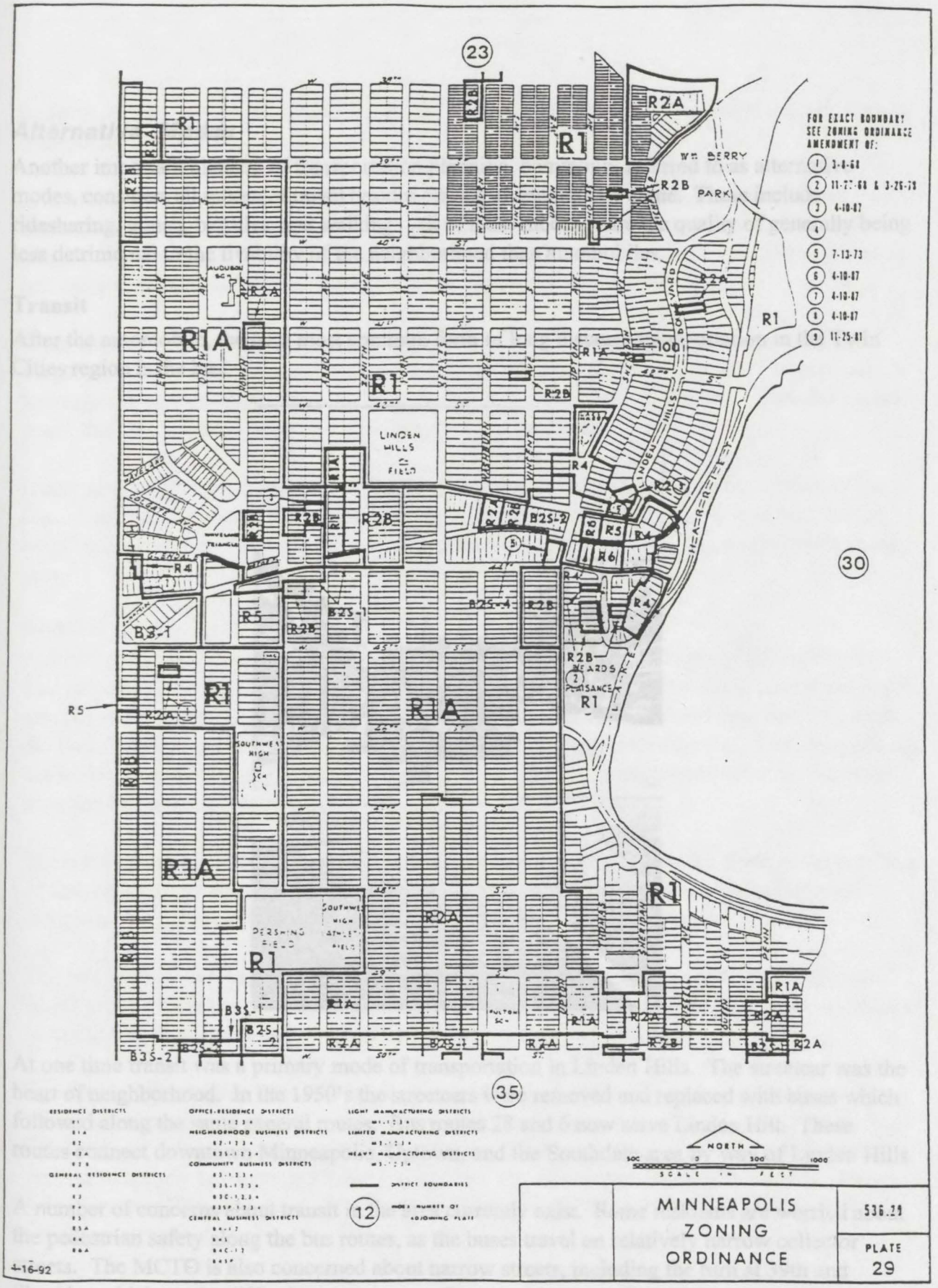


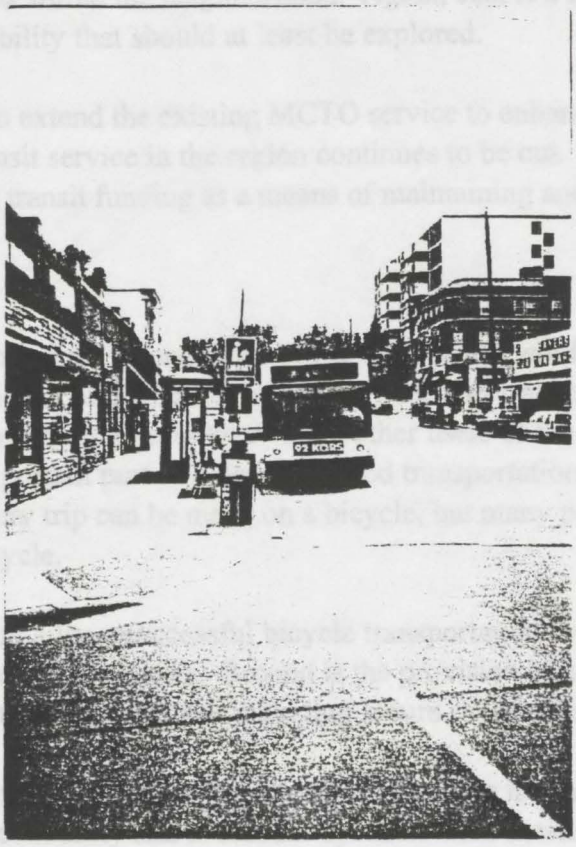
Figure 5. Linden Hills Zoning Map

Alternative Modes

Another important element of transportation planning, commonly referred to as alternative modes, considers all modes of travel besides driving an automobile alone. These include ridesharing, transit, bicycles, and walking. All of these modes share the quality of generally being less detrimental to the livability of the neighborhood than automobiles.

Transit

After the automobile, the next most common form of long distance transportation in the Twin Cities region is the bus.



At one time transit was a primary mode of transportation in Linden Hills. The streetcar was the heart of neighborhood. In the 1950's the streetcars were removed and replaced with buses which followed along the same general routes. Bus routes 28 and 6 now serve Linden Hill. These routes connect downtown Minneapolis, Uptown, and the Southdale area by way of Linden Hills.

A number of concerns about transit in the area currently exist. Some residents are worried about the pedestrian safety along the bus routes, as the buses travel on relatively narrow collector streets. The MCTO is also concerned about narrow streets, including the turn at 39th and Sheridan which can be difficult to maneuver. Some residents are disturbed by the noise and exhaust fumes that buses create. Others residents are worried about the level of transit service. It is not clear whether there is unmet demand in the neighborhood for more routes or more

frequent service. This is an area which should be explored in planning the neighborhood transportation system.

There are a number of other possibilities for transit in Linden Hills. Some have suggested extending the streetcar line up to Upton Ave. This would be very expensive and of limited general use. But it might also serve an important symbolic role and enhance the image of transit and other non-automotive transportation in the business district along Upton.

Other ideas are to create a neighborhood shuttle service. This would improve the mobility of neighborhood residents without cars as well as providing an alternative mode of transportation for residents on local trips within the neighborhood. Again, cost is a concern. But there is no doubt that this is a possibility that should at least be explored.

It may also be possible to extend the existing MCTO service to enhance transit service in the area. Unfortunately, transit service in the region continues to be cut. It is important for the neighborhood to support transit funding as a means of maintaining and improving transit in the area.

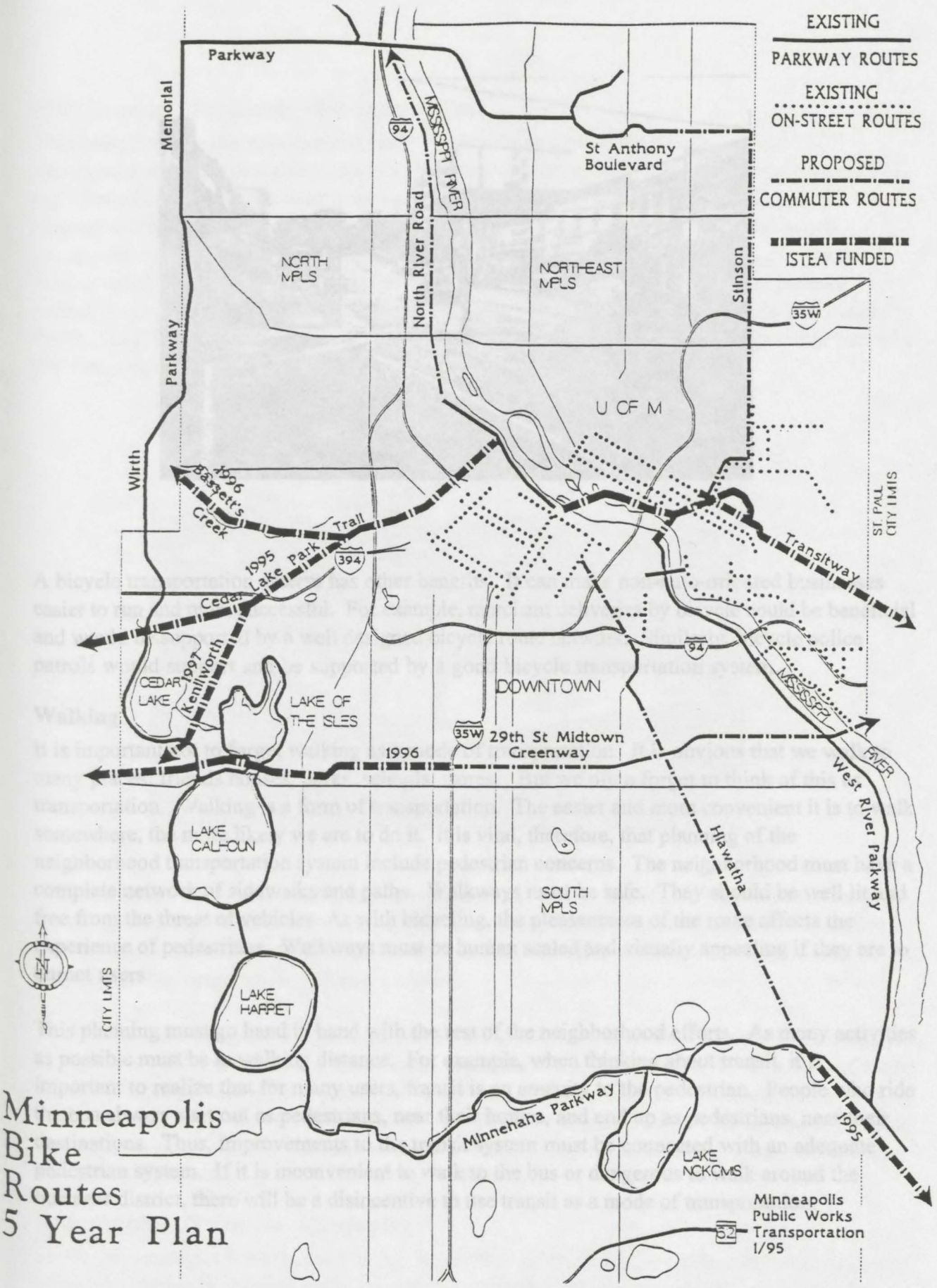
Bicycles

The bicycle is widely recognized as one of the world's most efficient forms of transportation. The bicycle is clean, efficient and quiet. It is a healthy form of transportation. And it has much less negative impact upon the environment or upon other users of the road than cars. As such, the bicycle can be an important part of a neighborhood transportation system. Not everyone can use a bicycle and not every trip can be made on a bicycle, but many people can ride and many trips can be made by bicycle.

There are two requirements for a successful bicycle transportation system. First is the provision of fast, safe, and pleasant bicycle routes. Second is the provision of adequate facilities and amenities for cyclists at their destinations: including secure sheltered storage.

The provision of fast, safe, and efficient bicycle routes includes having a bike route network which provides adequate mobility and access for cyclists. This means having a dense network of routes that goes where people want to travel, for business and pleasure.

The city of Minneapolis has established a 5 year bike route plan. This provides a city-wide backbone of routes. Within this system, each neighborhood will be able establish its own route networks and connect those up with adjacent areas. This neighborhood level bicycle planning process is already being piloted in the Loring Park and Marcy-Holmes neighborhoods. These will provide an excellent source of information for Linden Hills to construct a similar bicycle route network here.



Minneapolis Bike Routes 5 Year Plan

Figure 6: Minneapolis Bike Route Plan

A bicycle transportation system has other benefits. It can make non-auto-oriented businesses easier to run and more successful. For example, merchant deliveries by bicycle could be beneficial and would be supported by a well designed bicycle route network. Similarly, bicycle police patrols would support and be supported by a good bicycle transportation system.

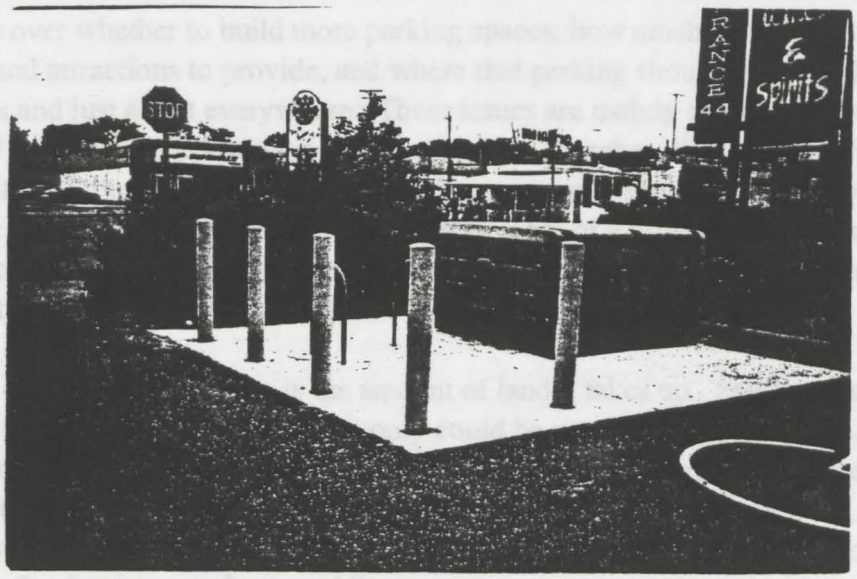
Walking

It is important not to forget walking as a mode of transportation. It is obvious that we walk to many places: friends houses, parks, schools, stores. But we often forget to think of this as transportation. Walking is a form of transportation. The easier and more convenient it is to walk somewhere, the more likely we are to do it. It is vital, therefore, that planning of the neighborhood transportation system include pedestrian concerns. The neighborhood must have a complete network of sidewalks and paths. Walkways must be safe. They should be well lit and free from the threat of vehicles. As with bicycling, the pleasantness of the route affects the experience of pedestrians. Walkways must be human scaled and visually appealing if they are to attract users.

This planning must go hand in hand with the rest of the neighborhood efforts. As many activities as possible must be in walking distance. For example, when thinking about transit, it is important to realize that for many users, transit is an amenity to the pedestrian. People who ride the bus always start out as pedestrians, near their homes, and end up as pedestrians, near their destinations. Thus, improvements to the transit system must be connected with an adequate pedestrian system. If it is inconvenient to walk to the bus or dangerous to walk around the business district, there will be a disincentive to use transit as a mode of transportation.

Multimodal/Intermodal Transportation

This brings up two last important elements of alternative modes: intermodalism and multimodalism. Intermodalism refers to using two or more modes of transportation on the same trip. For example, walking to or from the bus, using a park & ride lot, and bicycling to the bus stop are all forms of intermodalism. Creating opportunities for people to mix and match transportation options like this increases their mobility and creates greater incentives for not relying solely on the private automobile. To do this, it is crucial to have safe and pleasant pedestrian and bicycle paths in the community, secure bicycle parking at bus stops and major destinations, bicycle racks on buses, and convenient ways to use an automobile for only part of a trip rather than the whole trip.



In Linden Hills, the bike racks and lockers available at the Park & Ride lot near 44th and France are an excellent example of what is needed. It is not reasonable to expect people to bicycle until they are provided with adequate facilities such as these that allow the bicycle to be used in conjunction with other modes of transportation.

Another key to having a truly functional transportation system is to have many different means of getting around, known as multimodalism. If the car is the only way you have, or the only way you know of to go somewhere, the choice is obvious. If, however, it is convenient and safe to ride your bike, walk, take the bus, or drive, your decision is not so easy. Just making it possible for people to get around by alternative modes is the first step towards reducing our reliance on the private automobile.

Automobile Oriented Strategies

The above strategies have focused on increasing the opportunities for citizens to travel by means other than their cars. Nevertheless, it would be a mistake not to recognize the automobile has achieved a central role in our society, that our current transportation system is designed to serve

the private automobile and that it continues to be developed towards this end.. A significant portion of all urban land is devoted to motor vehicles in the form of roads and parking lots. Addressing how much land is dedicated to the automobile and how that land is shared with other transportation and non-transportation uses is an important piece of exploring the role of the automobile in the neighborhood.

In considering the role of the automobile in the transportation system, there are two principle factors that we must take into account. The first is the allotment of space for parking and roads, and the second is the design of streets for their various uses of carrying traffic and providing access to businesses and homes.

Parking Policies

The debates over whether to build more parking spaces, how much parking to require new businesses and attractions to provide, and where that parking should be located continue in Linden Hills and just about everywhere. These issues are mainly a concern in the business districts and other popular destinations such as parks, churches, libraries, etc. There are three concerns with parking. First parking lots are dangerous places. Just about anytime, moving cars are a danger, especially to children. This becomes more of a problem when people interact with cars, in parking lots, at street corners and crosswalks and in alleys. Large or confusing parking areas in particular can be very inhospitable places for pedestrians.

The second concern with parking is the amount of land it takes up. Parking spaces and parking lots require a lot of room. This area not only could be used for other purposes, such as greenspace or more buildings, but also acts as a psychological barrier against pedestrians. It is unlikely that the massive parking lots of suburbia are going to be replicated in Linden Hills. Nevertheless, it is still the case that parking lots here may reduce the pedestrian feel of the area and increase the dominance of automobiles.

A final concern with parking is the concept that more parking attracts more automobile traffic. In other words, the availability of convenient free parking is a real incentive to drive to a destination. This may be exacerbated if the presence of parking makes it harder to walk, bike or take transit to the destination. Thus a fundamental part of the parking question is how much parking is enough. It is important not to get caught in the cycle where increased automobile traffic to the business districts leads to more parking which leads to still more traffic and calls for still more parking.

Traffic Calming

Traffic calming is a general term for the rearchitecture of street spaces in order to reduce the volume and speed of traffic and to restore the street as a shared space among pedestrians, cyclists and cars. The general idea is to redesign the streetscape to return it to a human/pedestrian scale and to force drivers to slow down and pay attention to more than just the other cars on the street. This entails placing obstacles in the road, such as changes in pavement and changes in the curbline. The goal is not to prevent automobile traffic, but to slow it down, to calm it. Another important element of traffic calming is the reclaiming of the street space for use by pedestrians and bicyclists. This is achieved by widening sidewalks, creating bikeway, creating a greener more pleasant environment and maintaining a human scale to the physical elements of the street. In this way traffic calming can be part of the process of supporting alternatives modes.

Extreme forms of traffic calming, such as the Dutch *woonerf*, or living yard, blur the distinctions between the front yard, the sidewalk and the street. Cars, pedestrians, bicycles and children at play all share the same space. Automobiles are forced to slow down by the presence of obstacles and people in the street and by the sheer psychological effect of driving in a shared space. It is important to remember that automobiles are not mindless machines but are driven by humans who are subject to psychological forces.

> "Traffic calming was initially applied primarily in residential areas but is now starting to be extended to whole cities. It is an attempt to mix the different transport modes and create a form of "peaceful coexistence" between them which will vary according to the character of the built-up area and the road. The result is that in most cases the urban environment is considerably improved." Hass Klau, *An Illustrated Guide to Traffic Calming*, Friends of the Earth, 1990, London.

Despite these benefits, when traffic calming is discussed as an option for traffic management in an area, it often concerns residents. First, residents worry that traffic calming on one street may merely move the traffic problem from one place to another. This brings up two points. One is that traffic calming is at its best when it is applied over a whole area, not just a single street or a single intersection. A general application of traffic calming, with variations depending on the specific nature of the streets, will calm traffic through the whole area and will benefit everyone. This is all the more true because studies have shown that traffic calming not only slows traffic down, but it also reduces the overall number of automobile trips in an area.

> "Traffic calming aims to reduce the dominance and speed of motor vehicles. It employs a variety of techniques to cut vehicles speeds. Normally traffic calming should be applied as an area-wide technique. To apply it only to a particular street is to run the risk of pushing accidents, pollutants and "rat-running" into neighboring areas." Cleary, *Cyclists and Traffic Calming*, Cyclists Touring Club, 1991, Godalming, U.K.

The second concern with traffic calming arises regarding its application in and around business areas. There is often a concern that traffic calming will reduce access for customers arriving in automobiles and thus hurt sales. Actual experience has proven just the opposite. Studies have

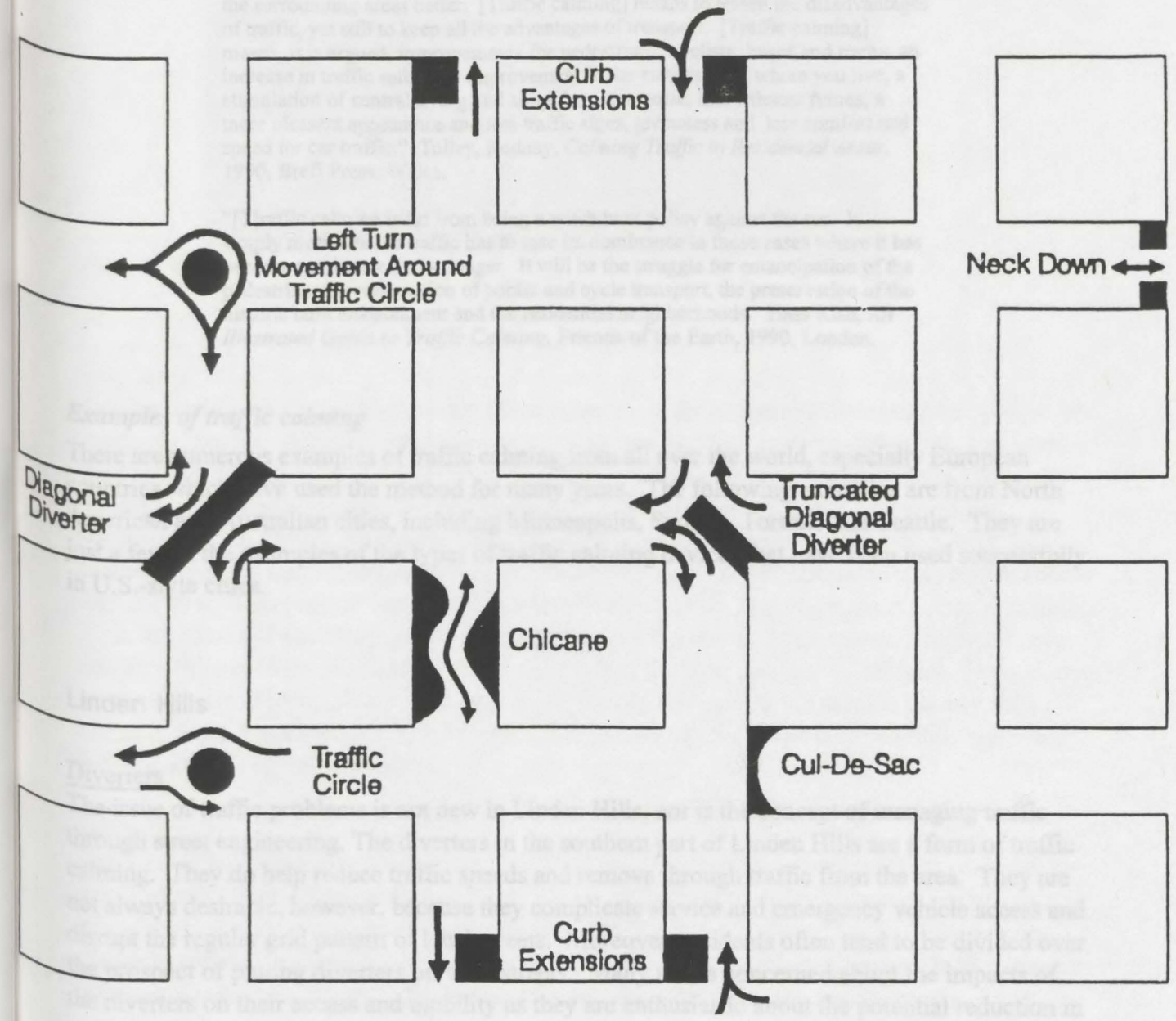


Figure 7. Some Basic Traffic Calming Measures

shown that traffic calming improves the physical environment of an commercial area, making it more conducive for customer to stop and shop. Thus, traffic calming in business districts enhances the image of the area and makes it easier to use not harder. Moreover, as with residential areas, improvements to the pedestrian, transit, and bicycling facilities will draw some drivers from their cars, especially for short local trips.

> "[Traffic calming] means more than making the traffic quiet, it means making the surrounding areas better. [Traffic calming] means to lessen the disadvantages of traffic, yet still to keep all the advantages of transport. [Traffic calming] means, it is argued, improvements for pedestrians, cyclists, buses and trams, an increase in traffic safety, an improvement in the environment where you live, a stimulation of central living and shopping, less noise, less exhaust fumes, a more pleasant appearance and less traffic signs, greenness and less comfort and speed for car traffic." Tolley, Rodney, *Calming Traffic in Residential Areas*, 1990, Brefi Press, Wales.

> "[T]raffic calming is far from being a witch hunt policy against the car. It simply means motor traffic has to lose its dominance in those cases where it has become a nuisance and a danger. It will be the struggle for emancipation of the pedestrian, the reclamation of public and cycle transport, the preservation of the historic built environment and the residential neighborhoods." Hass Klau, *An Illustrated Guide to Traffic Calming*, Friends of the Earth, 1990, London.

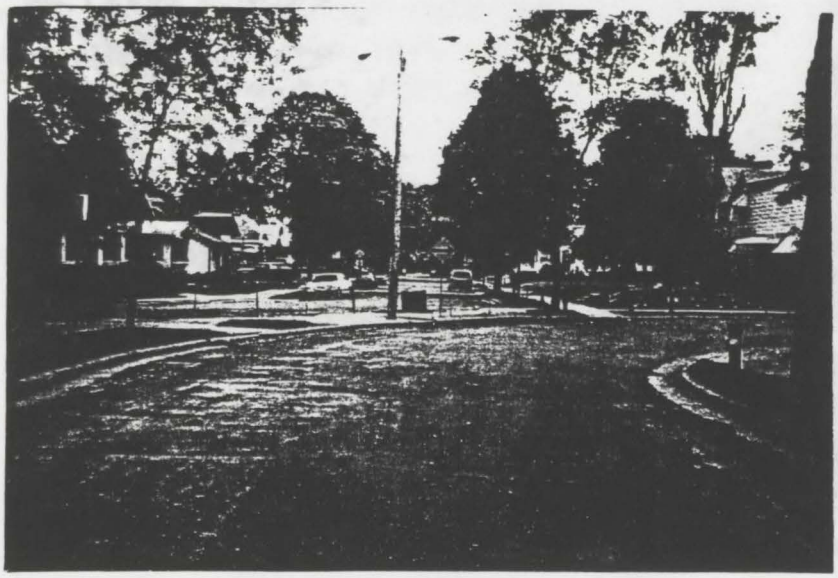
Examples of traffic calming

There are numerous examples of traffic calming from all over the world, especially European countries which have used the method for many years. The following examples are from North American and Australian cities, including Minneapolis, Sydney, Toronto and Seattle. They are just a few of the examples of the types of traffic calming devices that have been used successfully in U.S.-style cities.

Linden Hills

Diverters

The issue of traffic problems is not new in Linden Hills, nor is the concept of managing traffic through street engineering. The diverters in the southern part of Linden Hills are a form of traffic calming. They do help reduce traffic speeds and remove through traffic from the area. They are not always desirable, however, because they complicate service and emergency vehicle access and disrupt the regular grid pattern of local streets. Moreover, residents often tend to be divided over the prospect of putting diverters on their streets. Many are as concerned about the impacts of the diverters on their access and mobility as they are enthusiastic about the potential reduction in traffic levels.



Stop Signs

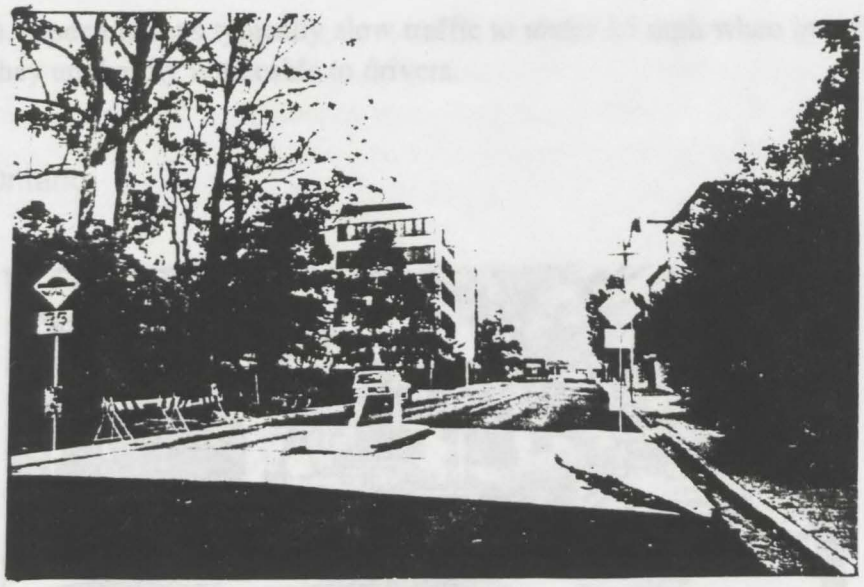
Another technique that is often placed in the category is the strategic placement of stop signs on residential streets. A basket weave pattern, where cars must stop every other block, has been used in both Minneapolis and Saint Paul to attempt to slow and calm traffic in neighborhoods. This is a cheap and somewhat successful method of traffic calming, especially when first implemented, as drivers are careful while adjusting to the new patterns. The effect, however, tends to wear off, and drivers learn how to proceed through the neighborhood with higher speeds and less care. There are, in fact, two major drawbacks to using stop signs alone as traffic calming. First, the continual speeding up and slowing down of cars at stop signs creates additional noise and air pollution in the neighborhood and also adds to the wear and tear on vehicles. Second, over time, drivers will just slow down at stop signs, instead of stopping (as there is usually little traffic at these intersections). This increases the speed of traffic in the neighborhood again and increases the threat to pedestrians.

Landscaping

The Linden Hills Business Association and local residents have also been working on a plan for the 43rd and Upton business district. This plan is an attempt to make the area more pedestrian friendly by creating amenities for pedestrians and calming traffic along Upton. This includes planting trees and flowers, designing neighborhood gather areas and working with local residents and business owners to reduce the impact of automobile traffic on the nearby homes.

Sydney, Australia

Australia is a world leader in addressing neighborhood traffic issues. A planner from Saint Paul on a recent trip to Sydney noticed these excellent example of traffic calming in an area where a busy business district and quiet residential neighborhood adjoin, a situation much like that in Linden Hills.



As cars leave the business district there is a clear differentiation made between the business district and the residential district. This is accomplished with a raised and narrowed intersection and special signage. Speed humps farther along the residential street (below) reinforce the effect of the entrance to the neighborhood (above).

Speed Humps

Note that this is a speed *hump* and not a speed *bump*. Speed *bumps*, typically 3 to 6 inches high and only 1-3 feet long, are annoying to drivers at both low and high speeds. *Humps*, are shorter and much longer, up to 12 feet, creating a gentle slope up and down rather than a jolting jump. (At high speeds, however, a speed hump is extremely unpleasant and can damage a vehicle's

suspension). Speed humps typically slow traffic to under 15 mph when installed properly. At this speed they are hardly noticeable to drivers.

Toronto, Ontario

Here is traffic calming example from Toronto, Ontario. This residential street was scheduled for reconstruction. It was feared, though, that merely putting in new pavement would just allow cars to travel faster. In response to neighborhood concerns, the city incorporated a number of traffic calming strategies into the reconstruction. The techniques used include raised intersections, chokers, and serpentines.

Raised Intersections

Similar to a speed hump, a raised intersection places a physical barrier in the path of motorists, forcing them to slow down in order to maintain control of their vehicle. This calming effect on traffic speed is particularly desirable at intersections and other pedestrian crossings where there is the most interaction between cars and pedestrians. The raised intersection is usually brought up to the same level as the rest of the sidewalk. This is a signal to both drivers and pedestrians that the street is a shared space and that the pedestrian should be granted the right of way. Raised intersections also improve access for wheelchairs and bicycles, further improving the usability of the street space for all residents.

Chokers (or throating)

Years of traffic research have demonstrated that the width of a street has a direct impact upon the flow of traffic, including the speed and volume that is supported. The response of traffic engineers in many cases of traffic problems has been to widen streets in order to improve traffic flow, thereby increasing driver convenience and safety. Unfortunately, increasing the speed and

volume of automobile traffic has a dramatic impact on pedestrian safety and on neighborhood livability as a whole. Chokers, seen in the pictures of both Sydney and Toronto above, counteract the effects of wide streets by narrowing the pavement width. This forces cars to slow down to maneuver safely. The choker also adds greenspace to the neighborhood and reduces the distance across the street, making it easier to cross.

Serpentines

Like a choker, the serpentine, or chicane, narrows the width of the street and forces drivers to slow down and pay attention in order continue safely. A recent test of a serpentine along 31st Street in the Uptown area of Minneapolis was at least partially successful in reducing traffic speeds.

Seattle, Washington

Traffic Circles

A traffic circle (sometimes called a mini-roundabout) is an island built in the middle of an intersection. Cars do not usually have to stop at the intersection, but they must maneuver around the circle, yielding right-of-way to other vehicles already in the intersection. Traffic circles can be much more effective than stop signs at controlling vehicle speeds at intersections. They also reduce the amount of braking and acceleration required, thereby lowering noise and air pollution levels from the repeated braking and acceleration by cars. Finally, landscaping of the traffic circles improves the aesthetic appearance of the neighborhood and can serve as a focal point for local residents.

Seattle has an extensive program of traffic circles. They have been used for 10 years on residential streets as a form of traffic calming. They are put in at the request of the neighborhood, and most neighborhoods want them at just about every intersection where they are allowed. There is currently a long waiting list.

The City of Minneapolis is currently conducting a test of traffic circles in Linden Hills.

Linden Hills Strategies

This Fall the Linden Hills NRP Transportation Task Force identified a set of initial strategies to pursue. Although the following list does not include the detailed list of ideas, they represent the essential strategies identified at this stage of the planning process, which address the goals and objectives described above. The strategies are being using to shape the neighborhod's NRP action plan with regard to transportation issues. The action plan will lay out both short term and long term directions for the Linden Hills neighborhood. The strategies include:

- maintain sidewalks
- create east-west and north-south bike paths that connect with the Minneapolis bike route system
- install bike racks and/or lockers in heavily used areas
- encourage business home deliveries by bicycle or automobile and make pedestrian carts available
- install safe pedestrian crossings in high traffic areas using chokers
- support traffic calming efforts in the neighborhood, such as circles chokers and boulevards
- restrict through auto traffic from the trolley right-of-way and reserve for a greenway with walking and bicycle paths
- support education about traffic calming, and
- support a Southwest inter-neighborhood shuttle bus service.

Constraints

There are numerous constraints and limitations to successful implementation of this and other neighborhood plans. Most fundamental are the physical limitations of the existing urban infrastructure. Fifty years of building cities based on the automobile as the primary mode of transportation leaves us with a legacy of concrete that is difficult to overcome. Linden Hills has escaped many of the transformations and disruptions that have befallen other urban and suburban communities. Nevertheless, the growing volume of automobile traffic, both from within and from outside the neighborhood, presents a physical demand for space that cannot quickly be reduced without unwanted economic impacts.

A second constraint to change in transportation systems at the neighborhood level is the lack of funding that has been directed towards to the issue. Livable communities take planning and forethought, both in considering the direct needs of community residents and in areas, less direct but not less influential on the quality of life, such as commercial and economic development, education and libraries, and public works.

Perhaps the most significant barrier to real change in neighborhood transportation systems are the social patterns of travel that have evolved with the automobile and that continue to develop in ways counterproductive to reducing traffic or restoring neighborhood streets to the human scale. Most urban residents rely on cars for their economic livelihood. Notwithstanding their own

concerns about traffic, and access and mobility for all residents, these citizens are not able to adjust their own travel patterns to improve the operation of the transportation system for everyone.

The most powerful force in rethinking urban transportation systems cannot, however, be constrained by these factors. Our own personal decisions on how to travel and where to travel can have a significant impact upon the transportation (and traffic) problems described above. Walking, bicycling or taking transit to a destination instead of driving, shopping locally, planning trips to include multiple riders and multiple destinations, and adopting other travel patterns that reduce the impact of the automobile on the neighborhoods and which restore community building aspects of the streetscape are all actions which we all can, and should, do.

In other words, we will require a rethinking of our connection to the automobile, and seeing it as a servant to our transportation needs rather than a master of our transportation behavior. In this way we can begin to break down the psychological barriers that exist towards restricting, rather than increasing, the mobility of the automobile in urban neighborhoods. The most powerful, and at the same time most surmountable, constraint to significant change in urban transportation are our own beliefs and preferences, built up over a period of many years.

Making Change Happen

The intent of this report has been to present the basic transportation issues in the Linden Neighborhood and to provide some insight into the transportation planning process and possible strategies for addressing local concerns. It is all too easy to see transportation planning as the responsibility of the city government. Indeed, the activities of the Public Works departments are often seen as mystical activity, prescribed by the various civil engineering tomes that guide street planning.

The real situation could not be more the opposite. There is a role for everyone in planning for transportation in the Linden Hills community. In fact, in the end it all comes down to the citizens, the residents and business owners and other pieces of the neighborhood mosaic. They must be committed to their vision of the neighborhood if they truly want to make a change. Then, in cooperation and collaboration with city planners and engineers, they can develop that vision into a reality.

Commitment to improving mobility of all citizens, access to and enjoyment of commercial and recreational areas and livability for all residents can show in many ways. It can show in their participation in the planning process. It can show in how they decide to travel tomorrow. It can show in how they discuss these issues with your neighbors, in a constructive and forward-looking way. Linden Hills is working on these issues right now, through the NRP process, and you have the opportunity to get involved.

The power of citizen participation in transportation planning should not be underestimated. This example from New York City clearly shows that it is important to sometimes break the "rules" of the professionals to initiate fundamental change in the neighborhoods.

> "Many studies have demonstrated that new roads create new traffic. But much less work has been done to show the obverse: how the closing of existing roads can possibly eliminate existing traffic. Still, we have a few examples of such processes. Many years ago Jane Jacobs told the story of how, in the 1950s, the residents of Greenwich Village in New York were threatened with a plan to build a highway through Washington Park Square to replace the small local streets which were handling traffic flows.
>
> "The park commissioner at the time, Robert Moses, has the rather un-parklike idea of putting a major traffic artery through the center of the elegant square so beloved by Henry James. Instead, the residents managed, after a protracted battle..., to have even the existing road closed. The chaos that was to result on the surrounding streets, as predicted by the traffic engineers, never materialized. But there was a rather unforeseen result: traffic didn't increase, but actually diminished. Every traffic count taken around the park perimeter, and lower Fifth Avenue which led to it, showed a slight reduction. Nor was there any sign that traffic went on more distant alternate roads. Traffic had simply disappeared." From *End of the Road* by Wolfgang Zuckermann.

Opportunities for Further Research

This study has considered only some of the most basic transportation related issues of the Linden Hills Neighborhood. There are a number of more detailed analyses that can be undertaken to illuminate the transportation issues of the neighborhood and the options that are available for addressing these issues.

TBI data analysis

The Metropolitan Council has extremely detailed individual household travel information from its 1990 Travel Behavior Inventory (TBI). Analysis of this data can reveal significant insight into the travel patterns of residents of different areas or differences in travel patterns among various groups of people or at different times of the day. The data set for the Linden Hills neighborhood may be too small for rigorous statistical analysis, but some investigation of this data would provide a good picture of the neighborhood's travel patterns.

Market study

The perception that the nature of business in the commercial districts is changing or is a significant factor in traffic issues could be analyzed by conducting a market study of the area, including particular attention to where customers travel from and how they travel.

Transit survey

The recent study from the Center for Transportation Studies on bus amenity corridors is an excellent investigation of the environment for transit service. Further study into the actual and potential demand is needed to produce a complete picture of the role of transit in the neighborhood's overall transportation system

Elderly and disabled population needs

The specific needs of the elderly and disabled populations of Linden Hills come up repeatedly in discussions of transportation concerns and the impacts of traffic on the neighborhood. A clearer understanding of this population and its needs is required to adequately inform transportation planners and to make sure that these needs are made an integral part of the neighborhood plan. This research might be extended to include youth and adult residents who do not own cars.

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Appendix 1 -- Business Community Survey and Results

This is the survey conducted in the business community in March of 1995.

Dear Linden Hills Business/Property Owner,

The Linden Hills NRP Transportation Task Force is currently studying transportation issues in the neighborhood, including the business districts. I am a graduate research assistant helping the Task Force to assess the nature of transportation problems in the neighborhood and to identify potential solutions. My research cannot be complete without a clear understanding of the concerns of both the commercial and residential residents of the neighborhood. I hope you will take a few minutes to complete this questionnaire. If you prefer to talk to me in person, please feel free to call me at **724-3660** (home).

This is an not a scientific survey. Please feel free to answer these questions in whatever way you feel best conveys your concerns and visions for the area. Use the back of the page for any longer comments or observations. I will compile results and comments and return them to everyone who replies. (Please make sure your name and address are below.)

Note that the Linden Hills NRP Steering Committee will be conducting a formal survey this summer. That survey, which is a critical part of the NRP process should not be confused with this informal questionnaire.

John Levin
Graduate Research Assistant
Linden Hills NRP Transportation Task Force

Which of the following are significant concerns for you, your employees/tenants or customers?

83% Adequate parking

50% Automobile traffic volume and speed

17% Automobile traffic congestion

83% Pedestrian access or safety

17% Pedestrian traffic congestion

42% Bicycle access and safety

25% Transit service

Do you have any particular concerns with the above areas or other transportation and access issues within the business district?

- *Need for more seating (outdoor) for meeting the neighbors, more bike racks.*
- *Need to slow down traffic along Upton, particularly at 43rd St.*
- *Does not seem to be a parking shortage, except on Saturdays.*
- *Bike lanes leading through the districts would be productive for safety and access*
- *Cars don't stop at stop sign, they either don't see sign or just slow down to 10 mph and then fly through intersection*
- *It is important to us that our customers can easily get to use, park, shop and easily get out of area.*
- *Our main concern is easy access to our business.*
- *If some proposed street changes happen, it will restrict out access and our parking*
- *We need to be able to do business in area.*
- *We don't need any more bike or walking paths*
- *We support all efforts for traffic calming, but believe that access must be maintained*
- *The intersection is very confusing to some drivers due to the split in the road [43rd and Upton]*
- *When someone is heading North on Upton and turns on their left turn signal, it is impossible to tell whether they are turning on 43rd or Upton.*
- *Parking is a problem only on Saturdays.*
- *I'd like to see a crosswalk on the old trolley on Upton (by the bakery)*
- *At times 44th St. can be very busy and difficult to walk across*
- *A better lit 4-way stop would improve the safety of pedestrians*
- *Strange driving habits in parking lot. Speed of parking in the tight alley*
- *There is enough parking, need to advertise it better*
- *More bike racks needed*

How do you define your trade area? (Where do your customers come from?)

- *1-2 mile radius primarily*
- *20% < 1 mile, 40% 1-3 miles, 20% 3-6 miles, 20% 6+ miles*
- *We draw from the neighborhood, but do not rely totally on it to survive. Our customer come from all over the Twin Cities*
- *Local, business and residential*
- *Mostly Linden Hills (Region bounded by Lake Calhoun, France Ave, 50th St, and Lake Harriet)*
- *Linden Hills, Edina, Calhoun/Isles area*
- *All over*
- *Mostly Linden Hills*
- *Approx. 50% from surrounding neighborhood, 25% St. Louis Park area, 25% downtown and Uptown*
- *Local, and all areas both within metro area and outside metro area*
- *Most of business is from the area or lake traffic. (90% of mailing list is local)*

How do your customers get to your store? (Drive, walk, bike, bus, etc. ?)

- *car primarily, bike and walking*
- *95% cars*
- *Primarily they must drive because we are a [local large item service] and they are either bringing in something or picking something up. For our gift customers, many walk to our shop*
- *Most customers live here*
- *All of the above*
- *All of the above*
- *Most either drive or walk*
- *bus, drive and walk*
- *All of the above*
- *Mostly by care, some bike/walk*
- *All of the above*
- *walk-ins*

Other Comments:

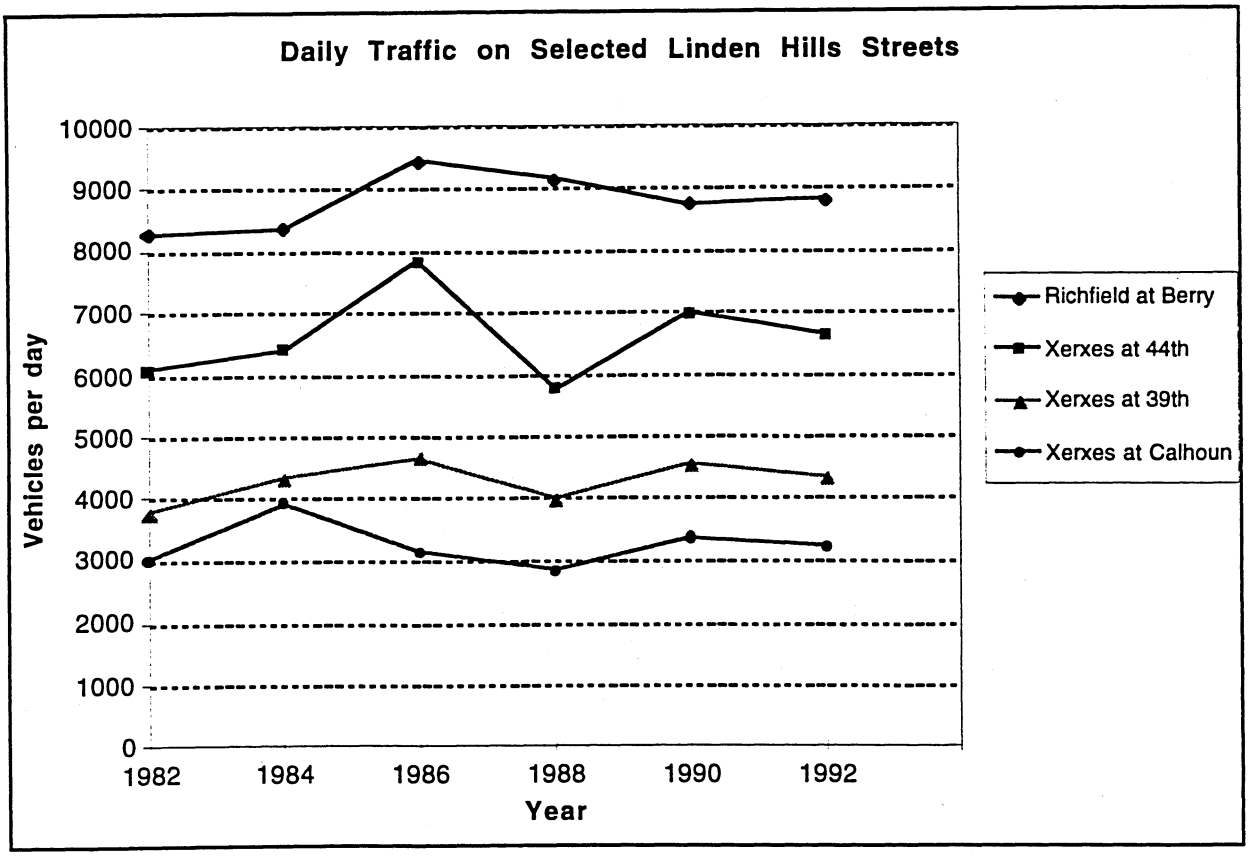
- *There has been a lot of talk about parking problems. It appears only Sat. is a potential problem. The block E. of Upton along 43rd St. is more difficult because of all the apts. There does not appear to be a lot of parking overspill except on Saturdays.*
- *Most customers drive our walk, many also bike*
- *We really need to keep small business and services alive in this area*
- *I have been here over 10 years and I have not noticed any particular change in traffic, speed and parking.*

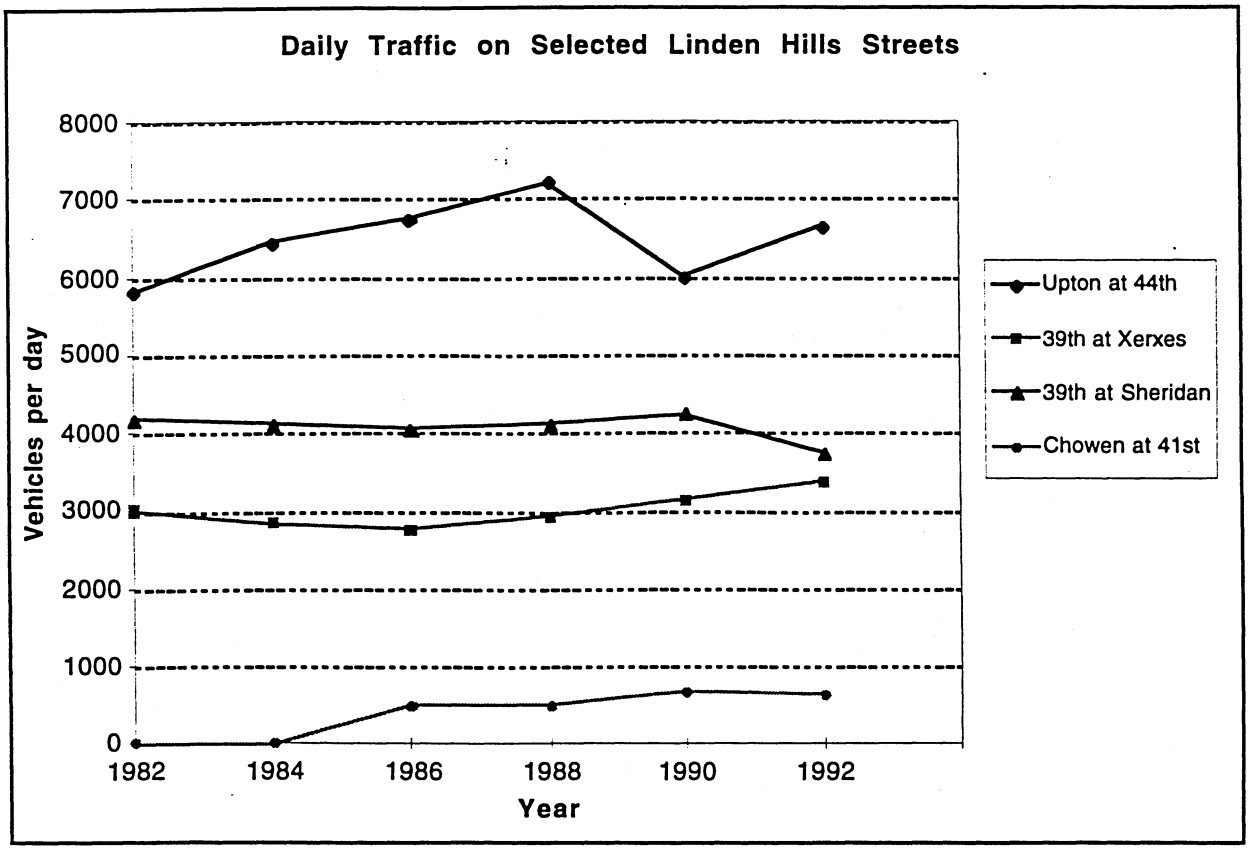
- *I would be interested in any information that would confirm some of the notions that various people seem to be putting out about "increased" traffic and parking problems*
- *Please make sure that all conclusions made in this study can be explained and are not based upon whining.*
- *When you buy a house on a busy street, the street may be busy.*
- *Our businesses between Abbott & Zenith on 44th have very low curb appeal and are often missed by drivers. Street lights and a tree or two would improve the look of this micro business district a great deal*
- *Diagonal parking on Upton: create more spaces, narrow road to slow traffic*
- *Put in a blinking light*
- *People don't use the cross walk*

Appendix 2 -- 1982 to 1992 Minneapolis AADT Counts for Selected Linden Hills Locations

Vehicles per Day

Location		1982	1984	1986	1988	1990	1992
Richfield at	Berry	8270	8355	9440	9145	8735	8810
France at	50th	10060	11105	10825	8895	10115	8860
France at	44th S	11090	9880	13845	11360	12675	12060
France at	44th N	8820	9815	10560	14430	8915	9390
France at	39th	6080	6705	7390	7850	6376	7150
50th at	Xerxes	12410	12355	11640	11640	12190	12590
50th at	Penn	12160	12985	12350	13235	14290	13740
Xerxes at	50th	7800	8770	8410	8410	8870	8520
Xerxes at	44th	6070	6400	7850	5755	6945	6630
Xerxes at	39th	3760	4315	4660	3965	4520	4340
Xerxes at	Calhoun	3000	3920	3140	2825	3355	3230
Upton at	50th S	1020	1345	1435	1435	1100	1400
Upton at	50th N	2860	3400	3590	3590	1985	3510
Sheridan at	44th	5810	6425	6730	7195	6000	6640
44th at	France	6290	6840	7380	7725	7835	7770
39th at	France	n/a	1815	2465	2275	2385	2400
39th at	Xerxes	3000	2825	2740	2935	3120	3360
39th at	Sheridan	4180	4115	4050	4110	4225	3750
Harriet at	SW	4450	4715	4715	4885	4695	4590
Harriet at	NE	2960	5390	5390	5265	5015	4560
Harriet at	SE	2290	4225	4225	5205	4850	4450
Calhoun at	SW	6250	4845	4845	6560	7980	5270
Calhoun at	S	9850	7740	7740	4670	7375	5870
Calhoun at	SE	13780	13870	11985	13095	14740	13260
Chowen at	41st	n/a	n/a	495	480	655	640
Sunnyside at		n/a	n/a	n/a	5170	4035	3640


Daily Traffic on Selected Linden Hills Streets
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Vehicles per day
1982
1984
1986
1988
1990
1992
Year
Richfield at Berry
Xerxes at 44th
Xerxes at 39th
Xerxes at Calhoun


Daily Traffic on Selected Linden Hills Streets
8000
7000
6000
5000
4000
3000
2000
1000
0
Vehicles per day
1982
1984
1986
1988
1990
1992
Year
Upton at 44th
39th at Xerxes
39th at Sheridan
Chowen at 41st