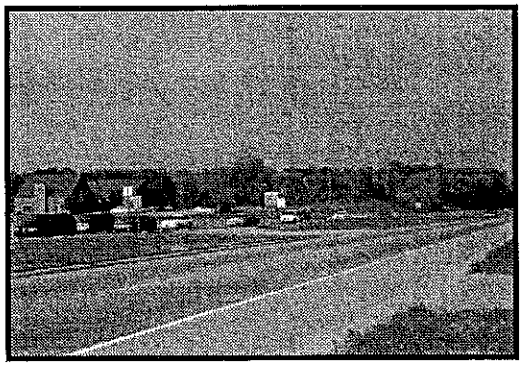
North East Beltline
Joint Development Plan



Appendix

June, 1998

TECHNICAL MEMORANDUM

TO: Grand Valley Metro Council
North East Beltline Joint Planning Board

FROM: Wade-Trim

RE: Interest Group Interviews and SWOT Assessment Meetings

DATE: March 5, 1997

The following describes the methodology used to complete the Interest Group Interviews and the SWOT Assessments meetings and summarizes the themes which emerged from participant comments.

Interest Group Interviews

Project staff and Wade-Trim determined the process for conducting interest group interviews at a meeting held December 18, 1996. The final methodology did not vary significantly from that which was laid out in December. The following summarizes the steps in the process and who completed the task.

Identification Interest of Groups: Project staff prepared a list of persons who would likely have a high level of interest in the future development of the East Beltline. Groups considered included institutional uses in the corridor, real estate agents, development groups, large property owners, public agencies, and representatives of citizens groups such as neighborhood or condominium associations.

Selection and Notification of Interest Groups: The list prepared by staff included 30 interest groups or persons. In the case of organizations, two contact names were frequently identified, usually a department manager and a staff person. Wade-Trim selected 16 interest groups or persons to interview. In selecting the names, we tried to include a cross-section of interests. The balance of the contacts were assigned positions as alternates.

GVMC staff sent a letter to the potential interviewees introducing the project and asking for their assistance if contacted for an interview. A copy of the letter is attached.

Interviews with Interested Groups: Wade-Trim scheduled meetings with all 16 interviewees on either February 17 or 18, 1997. Interview times and locations were selected for convenience of the interviewee. Interviews occurred at people's offices or at the Days Inn on Pearl Street. The interviews were completed by Nick Lomako and Emily Palacios. Fourteen of the 16 interviews were completed as scheduled. One had to be rescheduled to February 24, 1997 and conducted by telephone. The final interview has yet to be rescheduled.

At our December 18 meeting, the project staff discussed the type of information that we wanted to receive from the interest group interviews. It was agreed that we did not want to go into the interviews with a lengthy list of pre-prepared, close-ended questions. Instead, we wanted to focus our attention on fulfilling certain objectives using a short list of open-ended questions. We, then, brainstormed our objectives and the related questions. The final interview questions were organized around the following themes:

- What is your interest in the East Beltline Project?
- What makes the East Beltline attractive or unattractive to development?
- What are the impediments to creating a unified vision for the corridor?
- What land use controls are critical to development in the corridor?
- What is your vision for development along the East Beltline?
- How would you like to be involved in the remainder of the process?

Through the interview process Wade-Trim had to ensure that each interviewee answered each question to the best of their ability. To achieve this goal, Wade-Trim prepared a common set of examples and alternative explanations and employed active listening skills to pull together and confirm answers.

Interview Results: From Wade-Trim's perspective the interviews were very helpful for developing our understanding of the varying perspectives on development along the East Beltline and the issues surrounding this project.

To encourage frankness and honesty in the interviews, participants were told that individual responses would be held confidential and that our report would summarize themes. Wade-Trim has prepared records of the individual responses for our files. What is presented below is a consolidation of individual responses for use by project staff and the Joint Planning Board.

What is your interest in the East Beltline Project? Most of those interviewed expressed an interest based upon property ownership along the Beltline or the immediate vicinity. The remainder represented agencies with a professional interest in the infrastructure impacts of Beltline development.

What makes the East Beltline attractive or unattractive to development? The most often cited attractive feature is the East Beltline's function as the only north-south road (non-interstate) that crosses the Grand River on this side of Grand Rapids. This geographic advantage gives the roadway a monopoly on north-south movement and consequently generates high traffic volumes. The other most commonly mentioned attractive features are the rapid growth that is occurring immediately to the south and north of the study area and the good access to freeway interchanges. Minority comments included the environmental and aesthetic quality of the adjacent lands and availability of large parcels.

Most interviews had difficulty identifying physical or environmental aspects of the roadway that would make it unattractive to development. Most commonly, interviewees would cite local politics and neighborhood residents as the unattractive feature. Other comments included the lack of utilities and the unsafe conditions along segments of the roadway.

What are the impediments to creating a unified vision for the corridor? The most common response was local politics and neighborhood residents. Minority responses included cooperation among multiple jurisdictions, utilities, traffic and annexation concerns.

What land use controls are critical to development in the corridor? The most common response was access management controls (limited driveway access, requirements for marginal access drives). Second most common response was setbacks (how things look from the road) followed

by environmental protection. A common concern was the over-regulation of development projects. A number of interviewees mentioned the need to give businesses some flexibility in the development plans. Though a similar number of interviewees indicated that development uniformity along the corridor was important.

What is your vision for development along the East Beltline? Mixed use developments were the most commonly described vision. The mix of uses most typically included local commercial, office, residential and institutional uses.

The envisioned commercial uses were oriented to the local market or a specialty market; strip malls, fast food restaurants, or drive through facilities were specifically excluded. Commercial uses were often described as serving office workers during the day and residents at night.

The office uses which were described were more in the character of corporate offices than small, freestanding professional offices. Office uses were often described in connection with support commercial uses.

The continued development of institutional uses in campus-like settings was commonly discussed. A minority of responses were concerned about the commercial and/or redevelopment potential of some of these properties.

Finally, residential land uses were mentioned frequently. A minority of interviewees either felt that single-family residential land use was the highest and best use along the Beltline or they thought there was no market for that type of development. Many people spoke of more compact forms of single-family residential developments such as townhouses and attached units. Senior housing was mentioned as an acceptable multiple-family use. Apartments, however, were often cited as a detriment to the school district.

A secondary concern expressed by a number of interviewees was the need to protect the integrity of the road design no matter what land uses develop along the corridor.

How would you like to be involved in the remainder of the process? Responses ranged from wanting to be a casual observer to the desire to be an active participant. The majority want to be made aware of future meetings and the progress of the project by personal mailings.

SWOT (Strengths, Weaknesses, Opportunities, Threats) Assessment Meetings

The program for conducting the SWOT meeting was also determined at our December 18, 1997 meeting. Again, the final meeting agenda did not vary significantly from that which was laid out in December. The following summarizes the steps in the process and who completed each task.

Meeting Logistics: To create opportunity for greater participation, two meetings were scheduled at different times and locations along the East Beltline. The first meeting was scheduled for Wednesday, February 26, 1997 at the Reformed Bible College and the second was scheduled for Thursday, February 27, 1997 at the Grand Rapids Township Hall. Wade-Trim facilitated the sessions (Nick Lomako on Wednesday, Emily Palacios on Thursday) with assistance from GVMC staff.

GVMC staff handled the meeting notification. Invitations were mailed to some participants, postings were made at public locations, and there was a brief news article in the newspaper.

Meeting Agenda: The meeting agenda began with a welcome and introduction to the study by GVMC staff followed by an introduction of the meeting's goals and objectives by Wade-Trim. Meeting participants were then divided into small work groups by "counting off" from one to four.

Work groups were given flip charts, markers and 10 minutes to brainstorm each SWOT element At the end of 10 minutes, the flip charts were collected and the next brainstorming session began. During the group work sessions, Wade-Trim and GVMC staff compiled a common list for the element; eliminating redundancies and melding together similar statements. At the end of 40 minutes, the compiled list of SWOTs were reviewed by the entire group to ensure common understanding of the list by the participants and staff.

Participants were then given 12 colored, adhesive dots to vote for their top three concerns under each of the SWOT headings. Participants were allowed to use up to three dots on a single concern. Please note the important aspects of this exercise is not the prioritization; it is the dialogue and public discussion of viewpoints outside the context of actual planning or development decision-making.

Meeting Results: The following are the compiled SWOT assessments lists by meeting.

Wednesday, February 26, 1997

Strengths
Natural beauty (12)
Efficient traffic flow/safe road corridor (10)
Pleasing streetscape (uncluttered, access mgt.) (1)
Quality uses (colleges, churches, Meijer, agriculture) (2)
Nice residential areas (1)
Regional N/S corridor (1)
Opport. for high quality planned development (54)
Accessibility to I-96, dwntwn Grand Rapids, etc. (5)
Diversity of development (1)
Controlled noise
Good utilities

Thursday, February 27, 1997

Strengths
N-S corridor (7)
Efficient traffic flow (2)
Natural beauty (5)
Opport. for planned, responsible develop. (54)
Good, well structured tax base (4)
Good utilities
Variety of land uses (mixed use) (4)
Natural features limit development (1)
High volume traffic (2)
Increased land value
Quality of existing building design (1)
Road design (limited curb cuts) (1)
Opportunity for unique design (2)
Condition & maintenance of road (bike path)
Opportunity to develop large parcels (2)
Access to I-96 (7)
Regional location
Opportunities for service roads for access
No billboards
Existing setbacks
Ready market for retailers
Opport. for nat. buffers work with natural beauty (1)

Wednesday, February 26, 1997

Weaknesses

High traffic volume (3)
Not enough services (banks, restaurants, stores) (34)
Lack of service roads (access) (6)
Uncoordinated zoning/planning (17)
Strong competing interests influencing corridor development (12)
Landfill
East Beltline is only N/S route (5)
Poor tax base (3)
Limited employment (1)
Natural topography limits
Losing rural character through sprawl (1)
Indirect lefts
High speeds on East Beltline
Inadequate utilities (1)

Opportunities

Employment opportunities (1)
Economic opportunities/expanding tax base (43)
Opport. for quality planning (community-wide) (16)
Greenbelts, open space, preservation of natural beauty (12)
Mixed-use development (balance business, commercial, residential, open space) (2)
Opportunity for greater public involvement in decision making (1)
Potential for higher quality of life
Express transit service (2)
Controlled access (access management)
Opportunity for quality development (2)
Inter-governmental cooperation
Convenience to services

Thursday, February 27, 1997

Weaknesses

No pedestrian orientation (1)
Not enough services (53)
Traffic backups/volume increases (5)
Not enough I-96 interchanges (Knapp & 3 Mile) (20)
Political history (1)
Special interests - residents & land owners (5)
Road noise (3)
Lack of utilities for future growth (1)
Not enough service roads - access drives
Traffic speeding - light timing (1)
Landfill (4-5 Mile Roads) (1)
Too many curb cuts
Need for road improvements
Not enough tax base (business)
Mixed zoning districts (1)
Over design capacity (4)
Median - indirect left turns
Not a high quality residential area
Opportunists wishing to sell quick (4)
Poorly managed interchanges
No trees in medians - need landscaping

Opportunities

Opportunity for planned development (42)
Increased tax base (24)
Opportunity for employment
New Urbanism\Trad. town planning (mxd use) (12)
Opportunity for water and sewer expansion
Preserve natural features (8)
Service/access roads to preserve limited access
Government cooperation
Large parcels available
Become model for corridor development (5)
Traffic flows to attract commercial development
Walking path - pedestrian friendly
Property value increases for present residents
Able to plan large areas
Preserve greenbelt areas through govt. purchase
Opport. to establish develop. design standards (1)
Opportunity for non-traditional town planning (campus approach)
Highest and best return for present owners (1)

Wednesday, February 26, 1997

Threats

Uncontrolled/poorly controlled development (7)
Outside influence (people off the Beltline, non-property owners think they know best) (18)
Lack of cooperation among municipalities (6)
Negative environmental impacts/degradation of natural beauty (5)
Incompatible land uses/zoning (6)
Strong competing special interests (2)
Increasing traffic of heavy vehicles from new commercial businesses (1)
Costly utilities/infrastructure (incl. road maint.) (1)
Unlimited access
Potential for more crime
Anti-developer driving decisions (5)
Developer interests driving decision making
Too few I-96 interchanges; if more...less "heat" on East Beltline (23)

Thursday, February 27, 1997

Threats

No one will listen (3)
Non-cooperating governments (1)
6-lane Beltline (1)
Become another 28th Street(8)
Restrictive development reduces land values (4)
Loss of residential quality (13)
Development reduces values (1)
More traffic than road can handle (16)
Unwillingness to compromise
No funding for road maintenance
Crime (1)
Annexations due to poor planning (4)
Annexations lead to poor planning
Pollution
Loss of Beltline property owners rights (58)
Restrictive planning prohibits growth (3)
Spot zoning (1)
Too much commercial (overdevelopment) (2)
Noise
Lack of vision (1)
Litigation costs/court zoning

Vote tallies are provided to the right in parentheses. (Copies of participant sign-in sheets are available at the GVMC offices.)

January 21, 1997

FIELD(SALUTE) FIELD(FNAME) FIELD(LNAME)
FIELD(ORGANIZ)
FIELD(OTADDRESS)
FIELD(STNUMBER) FIELD(STNAME) FIELD(STTYPE) FIELD(STDIR)
FIELD(CITY), FIELD(STATE) FIELD(ZIP)

Dear FIELD(SALUTE) FIELD(LNAME):

The Township of Plainfield, the Township of Grand Rapids, and the City of Grand Rapids are cooperating in the development of a land use plan for the East Beltline corridor from I-96 north to Plainfield Avenue. This project is being coordinated by the Grand Valley Metro Council.

Grand Valley Metro Council has contracted with Wade-Trim, a municipal consulting firm, to conduct personal interviews with a sample of persons and/or groups who have a significant interest in the future development of the East Beltline. As a person identified as having an interest in this project, you may be contacted during the next month and asked to share your thoughts during a personal interview with a Wade-Trim representative. At the conclusion of the process, Wade-Trim will provide Grand Valley Metro Council with a summary of comments; **however, individual comments will be held confidential**.

The interview will include at least the following topics:
- What is your vision for the future of your property or responsibility on or near the East Beltline?
- How do you feel you could best be involved in this planning process?
- What do you see as the likely future of the corridor as to land use, traffic, appearance, natural environment, social environment, etc?
- What problems do you see in the corridor?

Your participation is important to the success of this project. We hope that we can count on your participation, if contacted. If you have questions or are interested in more information about this project, please contact Jay Hoekstra of the Grand Valley Metro Council at 776-3876, or either Nick Lomako or Emily Palacios of Wade-Trim at (800) 482-2864.

Thank you.

Sincerely
Jerry Felix
Executive Director

Grand Valley Metro Council
Design Charrette Results
Scenario 1

Section	Total Acres	SF Res (yellow)	Sr. Hsg (oran)	Ag/Comm (blue)	Comm (red)	Office (purp)	Public (green)	Mixed (Off & Comm)	MF Res (brown)	Not Develop
1	35.4			35.4*						
2	14.2						14.2			
3	7.6	7.6B								
4	5.6				5.6					
5	3.6				3.6					
6	9.6				5	4.6				
7	22.3		22.3E							
8	17.2							17.2		
9	30.4							30.4		
10	53				53					
11	50.8		50.8E							
12	15.3	15.3D								
13	36.8	36.8D								
14	18.1	18.1D								
15	5.5	5.5B								
16	17.2		17.2F							
17	6.6		6.6F							
18	22.6	22.6A								
19	55	55A								
20	21.8	10C				11.8				
21	45.3	45.3D								
22	9.4	9.4B								
23	15.2	15.2B								
24	16.5					16.5				
25	24.4	24.4A								
26	8.2	8.2A								
27	28.4	28.4A								
28	9.2	9.2B								
29	16.2			16.2**						
30	37.1			37.1**						
31	18						18			
32	18.3								18.3	
33	6.2					6.2				
34	12.9								12.9	
35	28.1					9			19.1	
36	27.2								27.2	
37	5.8					5.8				
38	18.9						18.9			
Total	**793.9**	**311**	**96.9**	**80.7**	**67.2**	**53.9**	**51.1**	**47.6**	**77.5**	**0**

Commercial Uses (** includes Agric/Comm)
10,000 sq. ft. bldg per acre 1,205,000 square feet of building

Office Uses (*includes medical office)
10,000 sq. ft. bldg per acre 893,000 square feet of building

Mixed Uses
10,000 sq. ft. bldg per acre 476,000 square feet of building

Senior Housing
8 dwelling units per acre (E) 468 Dwelling units
and
12 dwelling units per acre (F) 228 Dwelling units

Total senior housing 696 dwelling units

Single-family
.75 dwelling unit per acre (A) 83 Dwelling units
and
1 dwelling units per acre (B) 38 Dwelling units
and
3.5 dwelling units per acre (C) 28 Dwelling units
and
4 dwelling units per acre (D) 370 Dwelling units

Total single family 518 dwelling units

Multiple-family (2 1/2 story)
10 units per acre 620 Dwelling units
or
12 units per acre 744 Dwelling units

Grand Valley Metro Council
Design Charrette Results
Scenario 2

Section	Total Acres	SF Res (yellow)	Mixed R (oran)	(blue)	Special Ret (red)	Office (purp)	Public (green)	Mixed (Off & Comm)	MF Res (brown)	Not Develop
1	35.4						35.4			
2	14.2	14.2A								
3	7.6	7.6A								
4	5.6					5.6				
5	3.6					3.6				
6	9.6					9.6				
7	22.3					22.3				
8	17.2							17.2		
9	30.4							30.4		
10	53							53		
11	50.8		50.8							
12	15.3		15.3							
13	36.8		36.8							
14	18.1	18.1A								
15	5.5					5.5				
16	17.2					17.2				
17	6.6								6.6*	
18	22.6	22.6A								
19	55	37A							18	
20	21.8					21.8				
21	45.3	45.3B								
22	9.4	9.4A								
23	15.2						15.2			
24	16.5								16.5	
25	24.4	24.4A								
26	8.2	8.2A								
27	28.4	28.4A								
28	9.2								9.2	
29	16.2				16.2					
30	37.1							37.1		
31	18						18			
32	18.3					18.3				
33	6.2					6.2				
34	12.9					12.9				
35	28.1					28.1				
36	27.2								27.2	
37	5.8					5.8				
38	18.9						18.9			
Total	**793.9**	**215.2**	**102.9**		**16.2**	**156.9**	**87.5**	**137.7**	**70.9**	**0**

Commercial Uses — 162,000 square feet of building
10,000 sq. ft. bldg per acre

Office Uses — 1,569,000 square feet of building
10,000 sq. ft. bldg per acre

Mixed Uses — 1,377,000 square feet of building
10,000 sq. ft. bldg per acre

Mixed Residential — 360 Dwelling units
3.5 dwelling units per acre

Single-family
1 dwelling unit per acre (A) — 136 Dwelling units — Total single-family — 263 dwelling units
and
3 dwelling units per acre (B) — 127 Dwelling units

Multiple-family (2 1/2 story)
10 units per acre — 514 Dwelling units
or
12 units per acre — 617 Dwelling units

*Senior Housing
25 units per acre — 132 Dwelling units

Grand Valley Metro Council
Design Charrette Results
Scenario 3

Section	Total Acres	SF Res (yellow)	Mixed R (oran)	Lodg/food (blue)	Comm (red)	Office (purp)	Public (green)	Mixed (Off & Comm)	MF Res (brown)	Not Devel.
1	35.4			35.4						
2	14.2						14.2			
3	7.6						7.6			
4	5.6				5.6					
5	3.6				3.6					
6	9.6				5			4.6		
7	22.3						22.3			
8	17.2				17.2					
9	30.4				30.4					
10	53				53					
11	50.8				15	35.8				
12	15.3					15.3				
13	36.8					36.8				
14	18.1									18.1
15	5.5								5.5	
16	17.2					8.6			8.6	
17	6.6								6.6	
18	22.6	22.6A								
19	55	55A								
20	21.8					21.8				
21	45.3	45.3B								
22	9.4	9.4A								
23	15.2					15.2				
24	16.5		8.3			8.2				
25	24.4	24.4A								
26	8.2	8.2A								
27	28.4	28.4A								
28	9.2		9.2							
29	16.2		16.2							
30	37.1		37.1							
31	18						18			
32	18.3	18.3A								
33	6.2				6.2					
34	12.9								12.9	
35	28.1				8.1	20				
36	27.2				7.2	20				
37	5.8				5.8					
38	18.9						18.9			
Total	**793.9**	**211.6**	**70.8**	**35.4**	**157.1**	**181.7**	**81**	**4.6**	**33.6**	**18.1**

Commercial Uses
10,000 sq. ft. bldg per acre — 1,571,000 square feet of building

Office Uses
10,000 sq. ft. bldg per acre — 1,817,000 square feet of building

Mixed Uses
10,000 sq. ft. bldg per acre — 46,000 square feet of building

Mixed Residential
3.5 dwelling units per acre — 198 Dwelling units

Single-family
1 dwelling unit per acre (A) — 133 Dwelling units
and
3 dwelling units per acre (B) — 109 Dwelling units

Total Single family — 242 Dwelling units

Multiple-family (2 1/2 story)
10 units per acre — 269 Dwelling units
or
12 units per acre — 323 Dwelling units

East Beltline Traffic

March 3, 1997

Prepared for
North East Beltline Joint Planning Board

by
Jay Hoekstra

Traffic Volume

The attached maps show traffic volume on the East Beltline, and in some cases on adjacent roads. Two maps show present (1996) volume. Two others show projected volume. Both are compared to the capacity of the highways, that is - how many automobiles the road is designed to carry. The divided section is designed to carry 43,000 cars per day. As the road crosses the Grand River it narrows and therefore can only, efficiently carry 32,000 cars per day.

Present Volume

The maps are fairly self explanatory. Traffic is reaching the capacity of the highway in the vicinity of the I-96 interchange and has exceeded the capacity of the road at Grand River crossing. Traffic volume is also shown as a percent of capacity on another map. For example the section between Knapp and Leonard is at 71 percent capacity. These figures are shown only for those sections of road where traffic counts were actually taken. Traffic volumes are averaged for the other segments.

Future Volume

The future traffic volume is the output of a transportation model used by Grand Valley Metropolitan Council to plan for transportation improvements and to estimate air quality impacts. The model and its data are being updated but the information for 2015 is the best available. The projections show traffic exceeding or getting very close to the capacity on most of the corridor by 2015. The traffic volume to capacity ratio or percent is commonly related to categories of levels of service of a road. If traffic volume is between 76 and 100 percent of capacity the Level of Service is said to be Level "D". Percentages between 101 and 125 are Level of Service "E". And over 125 is Level of Service "F".

Descriptions of Levels of Service

- **Level of Service D, Traffic Volume 76 to 100 Percent of Capacity**

Unstable flow is approached. Average operating speeds are tolerable, but subject to sudden and considerable variation. Freedom to maneuver is low. Probability of accidents has increased substantially.

- **Level of Service E, Traffic Volume 101 to 125 Percent of Capacity**

Traffic flow is unstable. There is little independence of speed selection and maneuverability. Driving comfort is low. Accident potential is high due primarily to rapid fluctuations in operating speeds.

- **Level of Service F, Traffic Volume 126 Percent or More of Capacity**

Traffic operation is "forced flow". Speed and flow frequently drop to zero.

Effect of Future Land Use

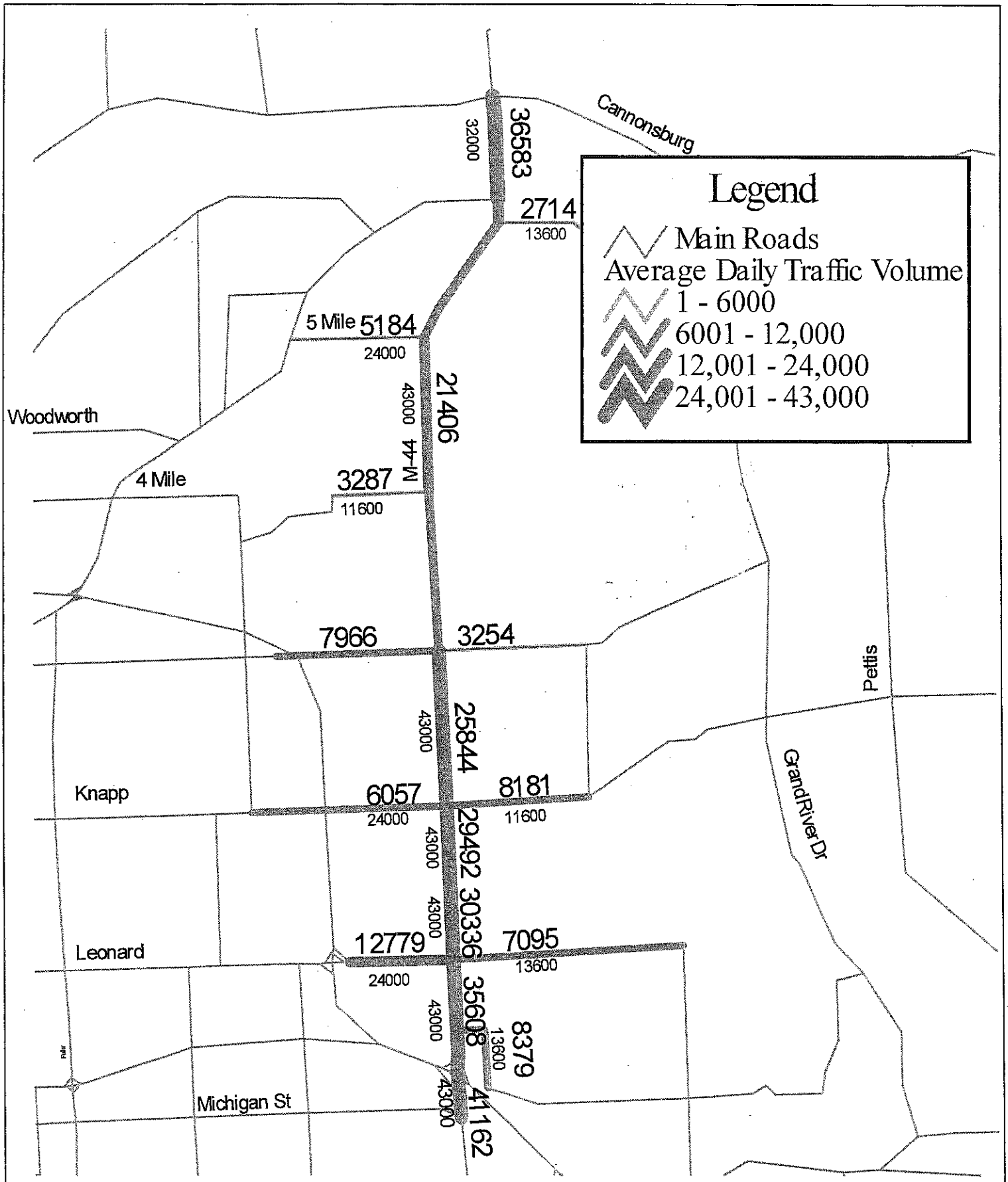
The use of land throughout the region determines the amount of traffic that will flow along the East Beltline. Land uses along the East Beltline does have an especially strong effect because traffic from those sites have no alternate routes. These land uses also can decrease the capacity of the highway by the number and design of access roads that are connected to it.

Attached maps show the number of housing units and jobs that were assumed to be in place in 2015 in areas along the East Beltline. Data that was updated in 1996 is shown also. Since the projections for 2015 were made some years ago, the 1996 data provides a test for the projections - Are they high, low or within the range of recent developments? Comments below each set of numbers give some perspective.

These numbers do not represent GVMC policies nor are they perfect forecasts. It is hoped that they represent local policies and estimates of likely development. Therefore they may be looked at as a indication of what is likely to occur given present trends and policies - unless 1996 information indicates a different trend.

Road Improvements

At this time the Michigan Department of Transportation has no plans for any improvements to this section of the East Beltline that would increase capacity or improve traffic flow. There will be a traffic light and some turn lane improvements installed south of Knapp at the entrance to the new shopping area.



Today's Traffic Volume

Larger, Upper Numbers = Recent Traffic Count for Average Daily Traffic

Smaller, Lower Numbers = Capacity for Average Daily Traffic

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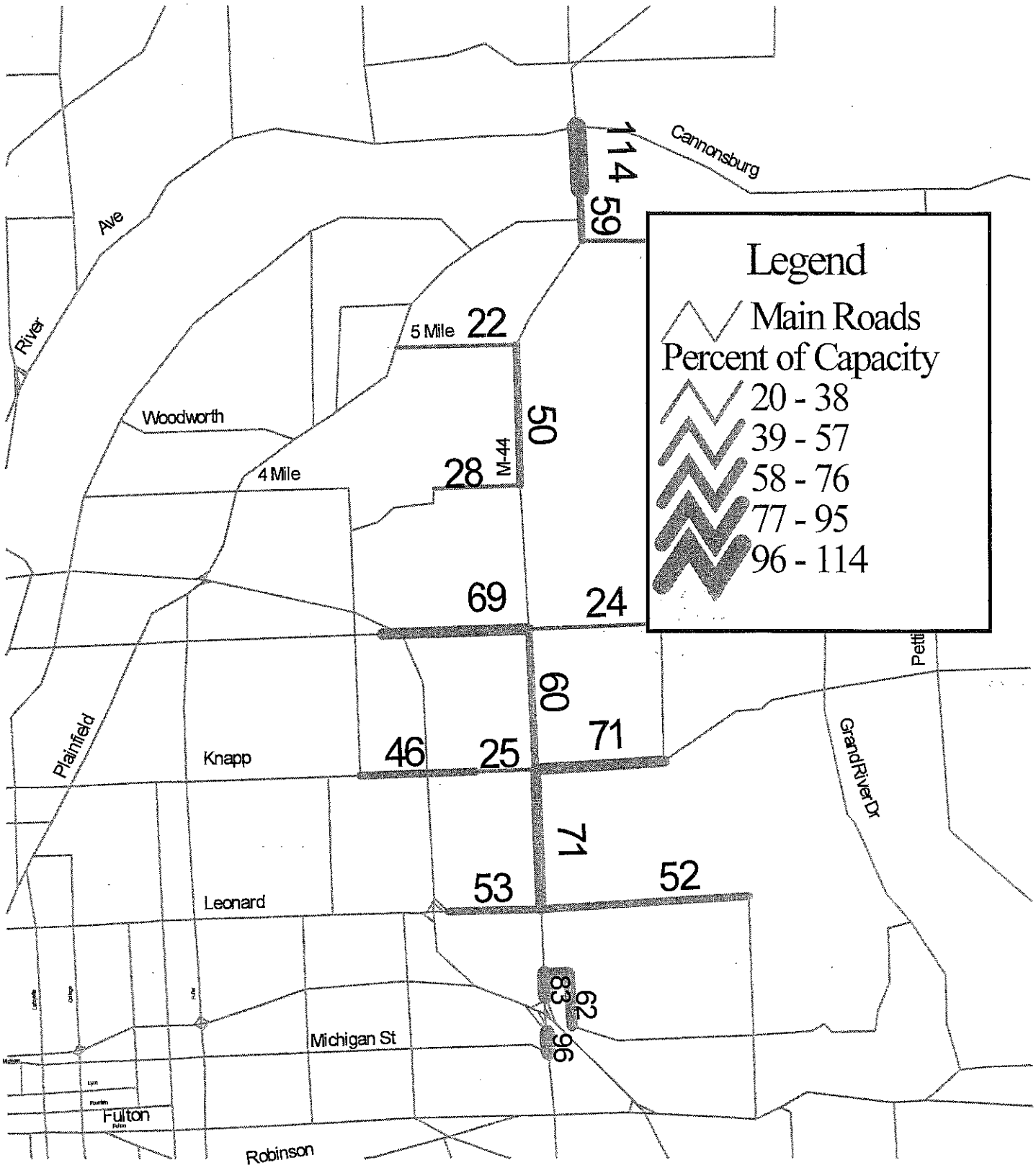
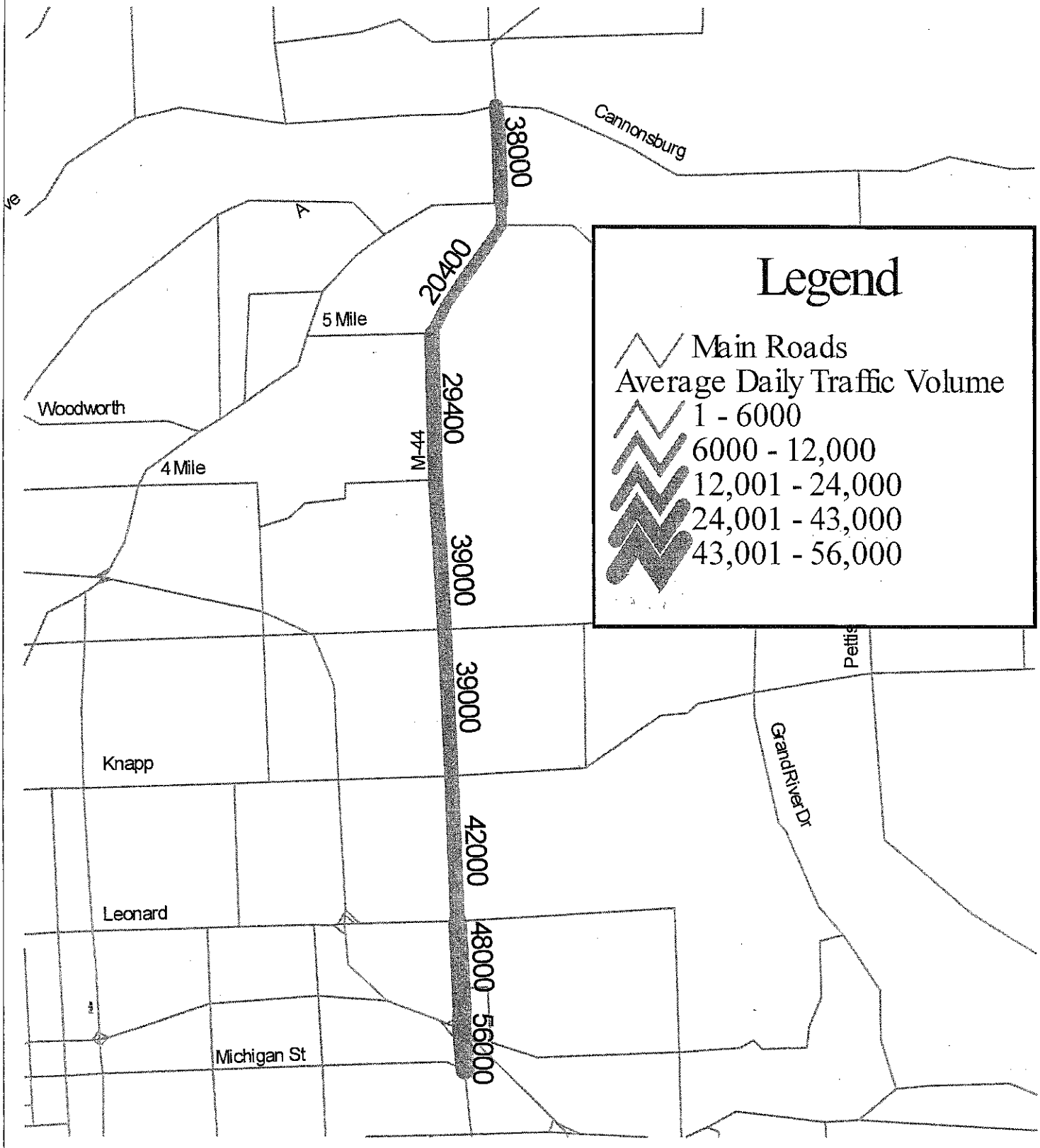


Traffic Volume as Per Cent of Capacity - 1996

Numbers = Traffic Volume as a Percent of Capacity



Tomorrow's Traffic Volume - 2015

Numbers = Forecast Average Daily Traffic

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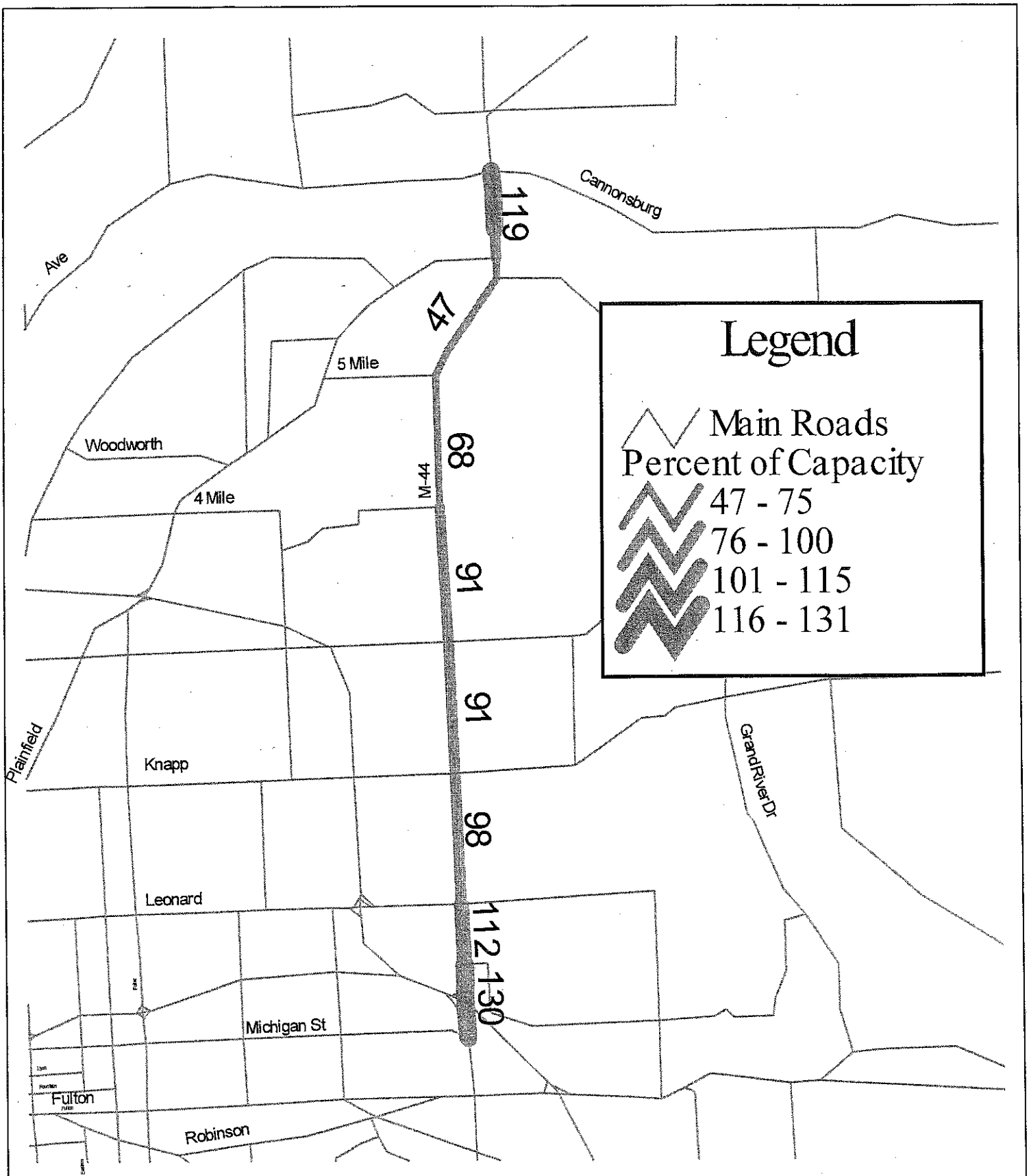
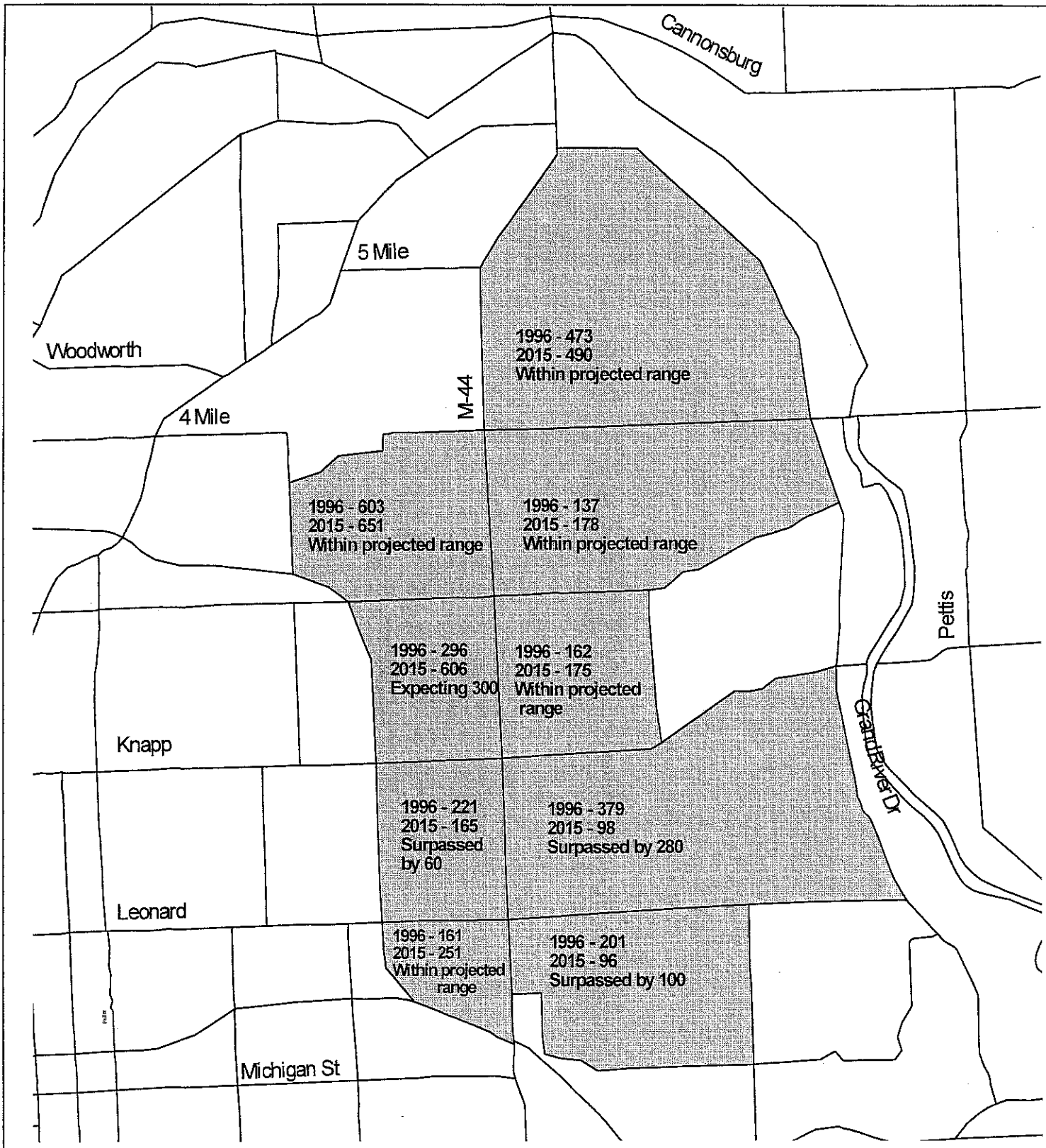


Traffic Volume as Per Cent of Capacity - 2015

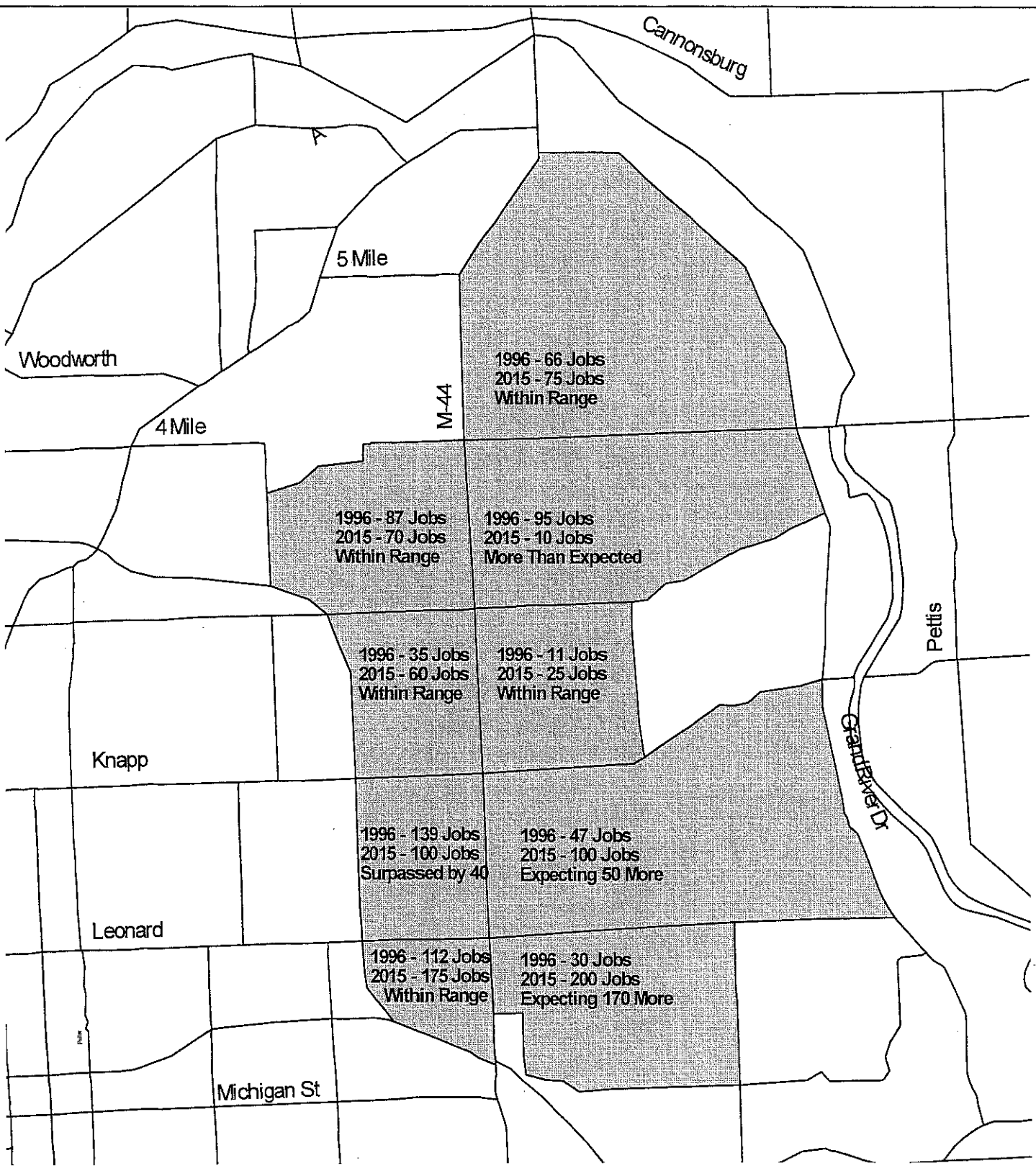
Numbers = Traffic Volume as a Percent of Capacity



Existing and Projected Housing

Number of Housing Units for 1996 and 2015,
by Traffic Analysis Zone

The number of housing units listed for the year 2015 was used to project future traffic volume. Comments on the difference between that data and data collected for 1996 are provided underneath those numbers.



Existing and Projected Retail Employment

Number of Retail Jobs for 1996 and 2015,
by Traffic Analysis Zone

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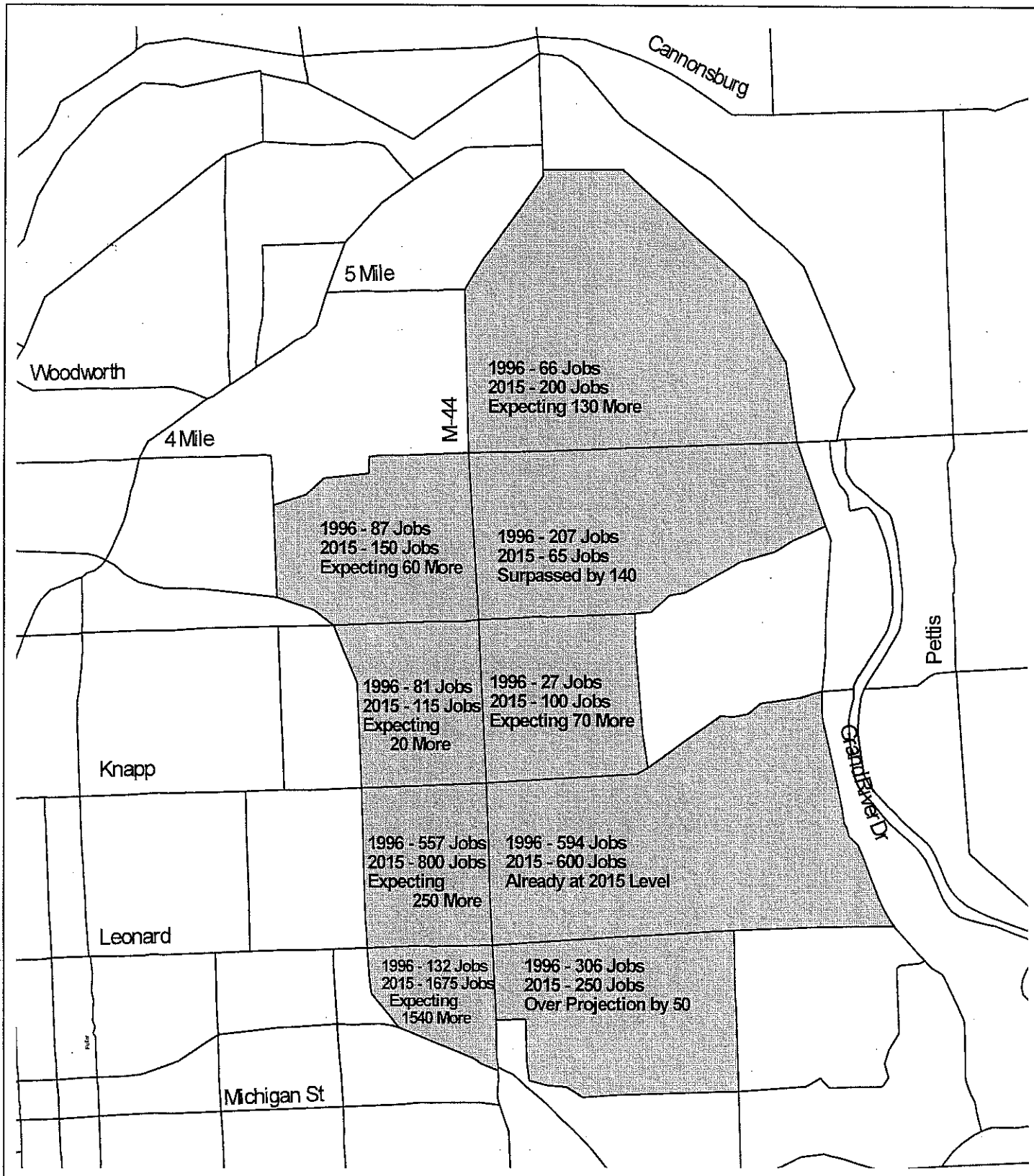


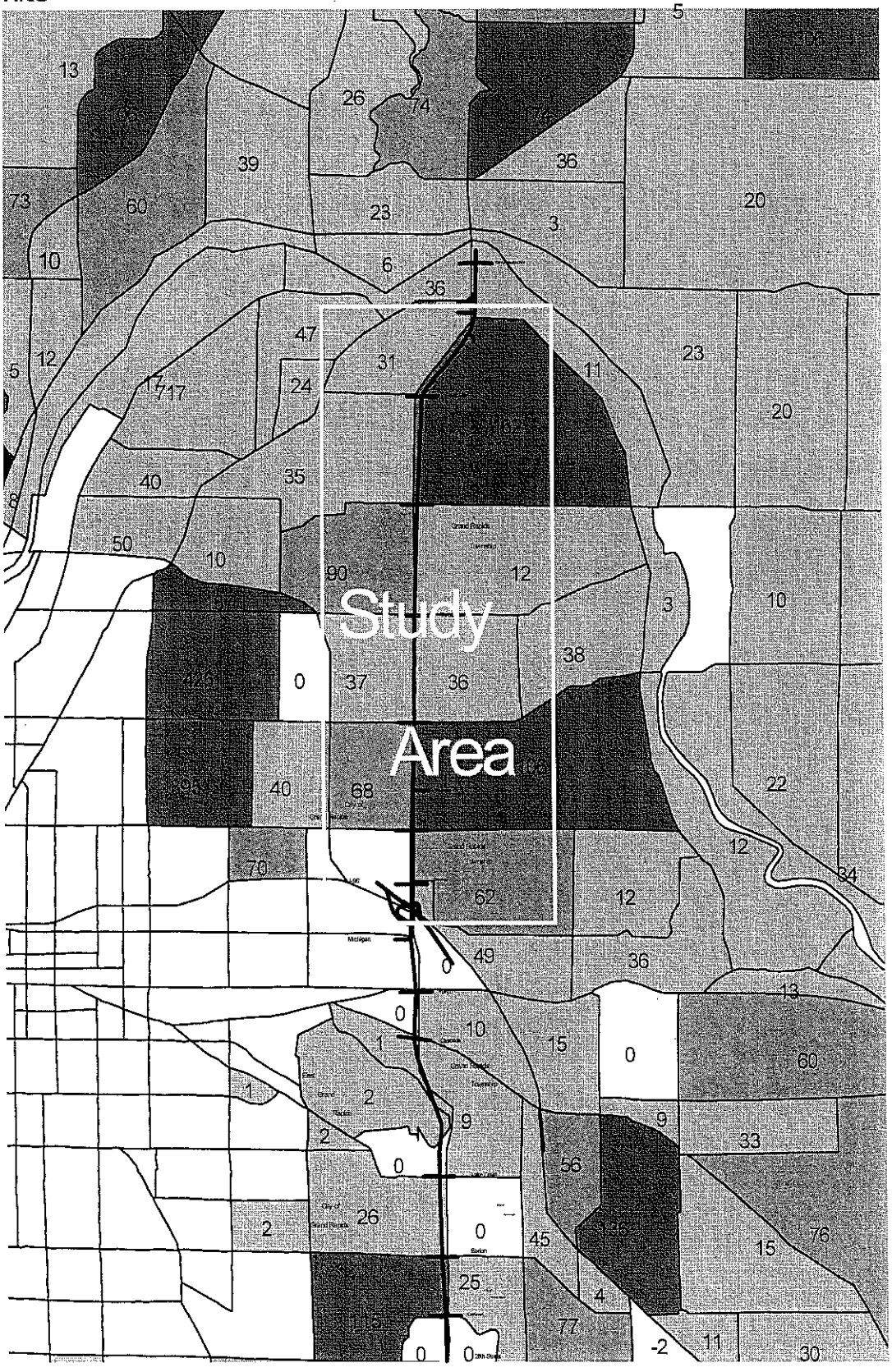
Existing and Projected Non Retail Employment

Number of Non Retail Jobs for 1996 and 2015
by Traffic Analysis Zone

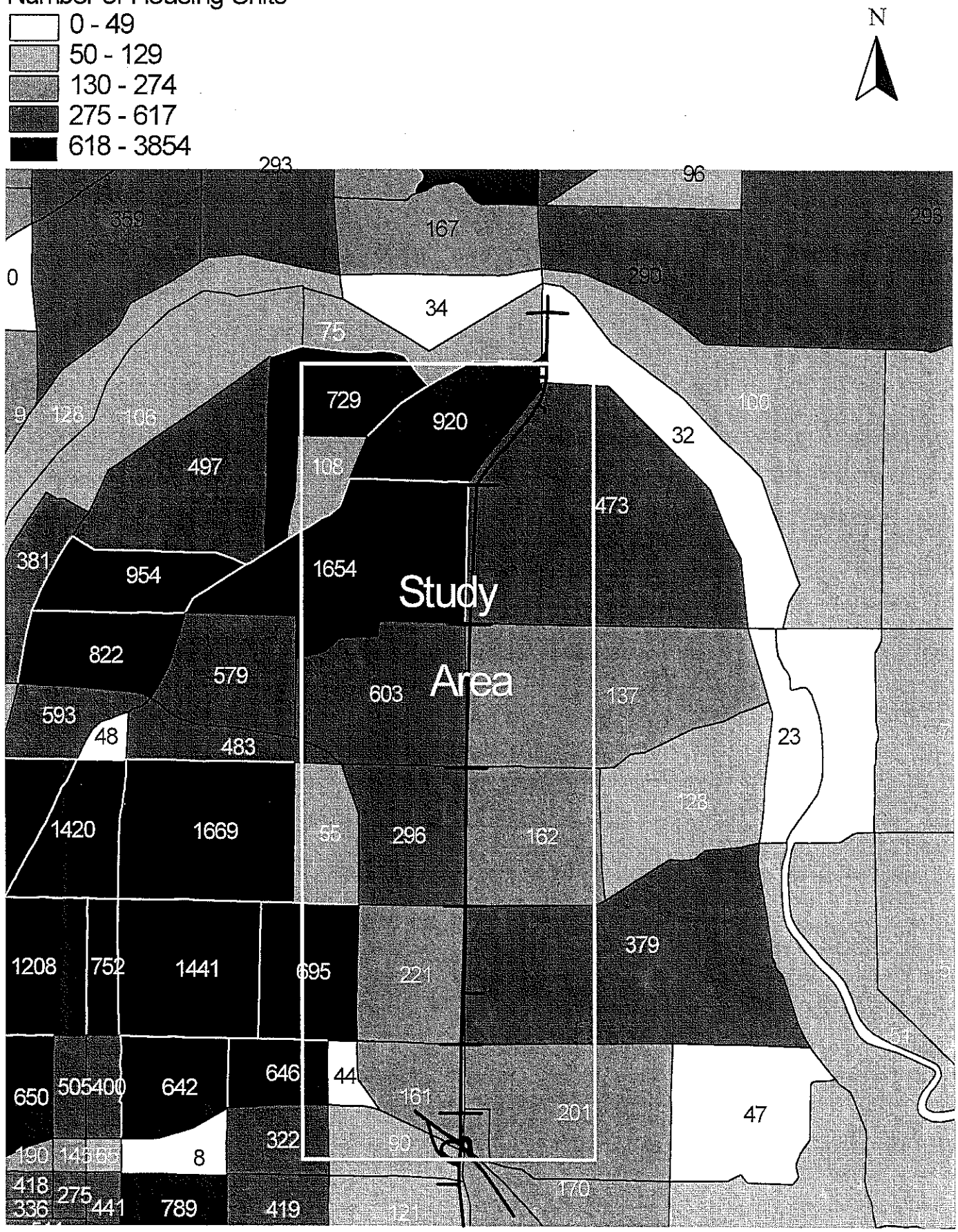
The number of non retail jobs listed for the year 2015 was used to project future traffic volume. Comments on the comparison with data collected for 1996 are listed underneath.

Change in Number of Dwelling Units 1990 to 1996

Text
Streets
Number of Dwelling Units
-254 - 0
0
0 - 50
50 - 100
100 - 500
500 - 1000
1000 - 2082



Number of Dwelling Units -1996

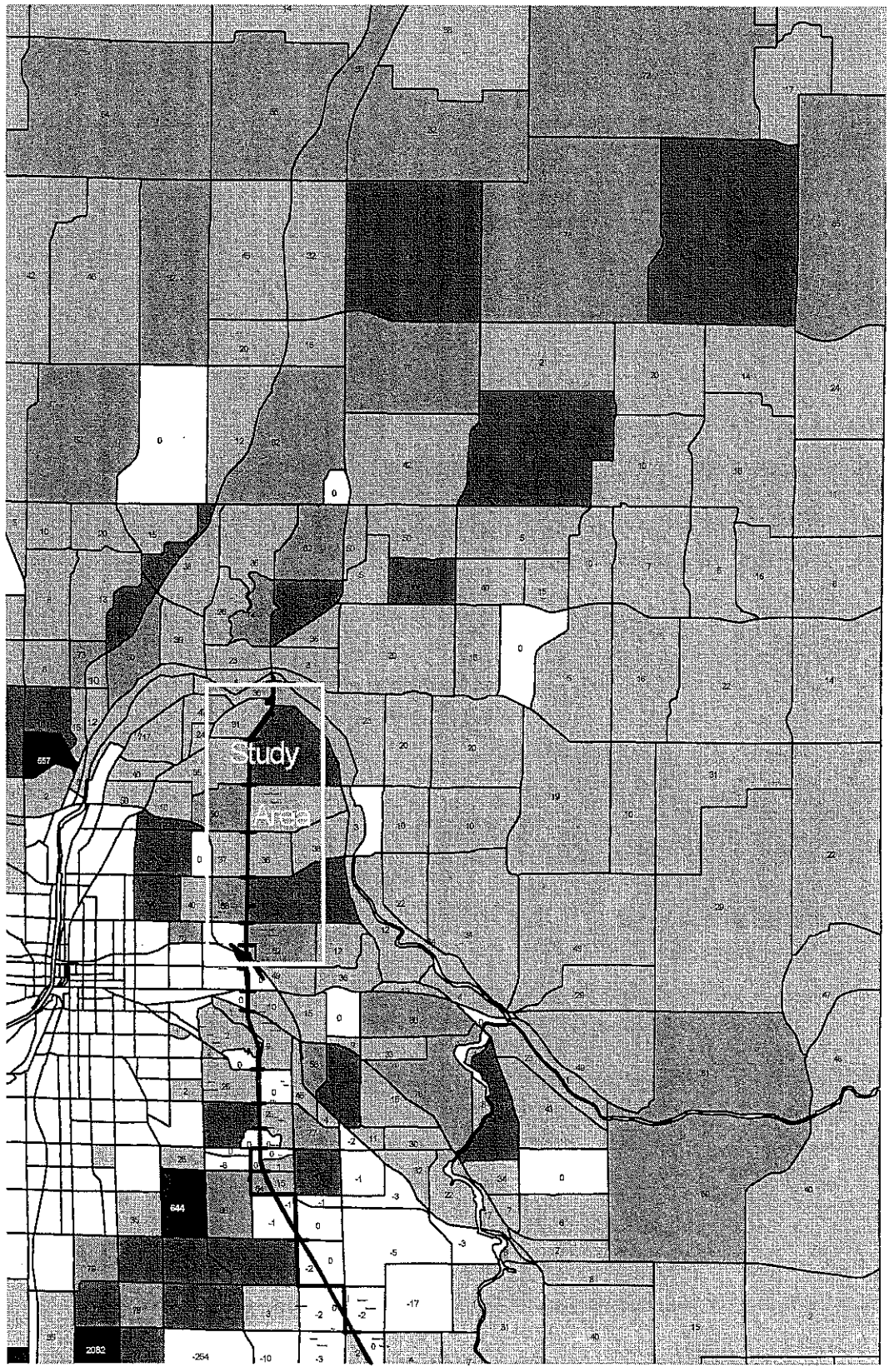


Number of Dwelling Units -1996

East Beltline
Number of Housing Units
- 0 - 49
- 50 - 129
- 130 - 274
- 275 - 617
- 618 - 3854

Change in Number of Dwelling Units 1990 to 1996

Text
Streets
Number of Dwelling Units
-254 - 0
0
0 - 50
50 - 100
100 - 500
500 - 1000
1000 - 2082



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Comparison of Zoning Ordinances in the North East Beltline Area

February 11, 1997

Prepared for
North East Beltline Joint Planning Board

by
Jay Hoekstra

Table of Contents

Zoning Districts

There are about 59 different zoning districts between the three jurisdictions participating in this study: fourteen in the Grand Rapids Township ordinance, seventeen in the City of Grand Rapids ordinance, and eighteen in the Plainfield Township ordinance. (See Table 1)

Each ordinance contains traditional single use districts such as single family residential, neighborhood commercial or industrial districts. But they also contain newer, flexible districts such as planned unit development districts. These sorts of districts may be flexible both in types of uses and in standards for physical development. They may range in flexibility from those set up for certain types of uses such as the City's Planned Industrial District, through the wider uses of Grand Rapids Townships's Medium Density Residential - Low Density Office PUD, to the generic PUD districts of Plainfield Township and the City.

Criteria for evaluation of development within these flexible districts also varies. It may simply depend on Planning Commission judgement within broad criteria such as "the good of the community." Or it may depend on specific standards that are part of the zoning ordinance such as "No more than one third of the area can be developed for commercial uses."

On the positive side these flexible districts better serve a more complex and mixed urban development pattern and give the local government a more definite knowledge of what will be allowed to develop on a site. On the negative side they may indicate some indecision in the community on what land use is desired.

Residential Districts

Table 2 shows all the zoning districts which allow residences. The strictly residential districts are grouped by density (how many dwellings per acre of land). The medium density category is for a maximum of 12 dwellings per acre if all land is included, which is about equivalent to about 7 dwellings per acre if only the lots are included. This is the highest density at which single family houses can be developed. The districts have been grouped into these categories so that a map of comparable districts in the planning area could be made.

Some districts have smaller minimum lot sizes if public water and/or sewer is present. Therefore those districts are listed for each of those possibilities.

Residences are allowed in the second stories of buildings in many of the commercial districts of the City and multi family housing is allowed or even required in the PUD districts of all three municipalities.

Office Districts

Grand Rapids and Plainfield Townships have districts which are specifically oriented towards office development. Offices are only briefly mentioned in City commercial and pud districts. This is a strong characteristic of Grand Rapids Township's ordinance. In some of Grand Rapids Township's PUD districts office development is linked to multiple housing by the requirement that a maximum percentage of the area can be devoted to office development.

Commercial Districts

Table 3 lists commercial districts. Some were also listed as residential districts because they allow some residential development. The districts in the "other" will likely not be relevant for this study. In most cases the maximum height in these districts is thirty to thirty-five feet.

The neighborhood, community and regional categories reflect the past orientation of land use planning towards organizing cities into neighborhoods, communities and regions, with the neighborhood being the basic building block of urban areas. These categories have become less used because of the recent auto orientation of retailing. Large "box" specialty or warehouse stores placed along high traffic volume roads interspersed with restaurants and auto related stores have replaced neighborhood and community shopping areas. The PUD types of zoning districts which are more common seem to discourage these types of uses. None of the zoning districts used in the study area encourage this new type of commercial development.

Industrial Districts

There is no land in an industrial district in the study area. Grand Rapids Township has not planned or zoned any land for industry; in fact it does not have an industrial zoning district in its ordinance.

Design

The increase in the number of flexible or mixed use districts is a reflection of the public's realization of the importance of design. A submittal of a site plan, or plan for a planned unit development allows the public to look at the design of buildings, the arrangement of buildings, landscaping, and access. However there is little guidance in the ordinances on design; nor has there been much consensus on standards. The following table shows where there are some sort of design standards in the zoning ordinances.

Design Standards are present in:

Zoning Ordinance Section	City of Grand Rapids	Grand Rapids Township	Plainfield Township
Site Plan	✓	✓	✓
PUD's (Planned Unit Development Districts)	✓	✓	✓
Signs	✓	✓	✓
Parking	✓1 space/300 sq. ft. of office; 1 space/200 sq. ft. retail	✓2 sq. ft. parking/1 sq. ft. floor space (1 space/150 sq. ft. floor space)	✓1 space/200 to 300 sq. ft. offices; 1 space/ 150 sq. ft. retail

In most of these ordinance sections the standards are useful and basic but general. Examples are:

- storm water runoff must be controlled
- lighting should not extend out to residential areas
- buffer strips between residential and other areas
- harmonious arrangement of buildings
- no harmful affects on neighboring uses
- minimum number of parking spaces
- no hazardous traffic conditions
- should not cause adjacent roadways to become deficient

The standards for parking and signs are the most detailed. In some cases the ordinances have more explicit standards or address other issues. For example this paragraph in the City of Grand Rapids Site Plan Review Standards:

> Pedestrian access should be provided between major activity areas, employment centers, and residential areas. Sidewalks should be provided along the street unless determined by the Planing Commission to be undesirable, unnecessary or because pedestrian circulation is provided in other ways. At a minimum if sidewalks are not provided, movement along

the street should not be hindered by rocks, boulders, fences or other obstructions.

Another example is Grand Rapids Township's PUD 5 District which has specific standards for: land scaping in buffer strips (number of trees and shrubs per hundred feet), ratio for open space, setbacks from the East Beltline of secondary entrances, and a requirement for traffic impact studies.

The Grand Rapids Township PUD districts emphasize the importance of open space and have strong requirements for this amenity. PUD1 and PUD2 require 15% open space, and PUD5 requires 1.5 square feet of open space for each square foot of the area of the buildings.

There are no highway access standards. Examples of such standards are: the maximum number of site access points, minimum distance of driveways from intersections, driveway spacing minimums, etc. Only one district specically requires traffic impact studies, nor are there any standards for such studies.

Review Processes

The review procedures for the three jurisdictions are fundamentally the same and are shown in the table below. Differences are: 1] the appeal process for special uses in the City and 2] the final decision by the Planning Commission on PUD's in Grand Rapids Township.

Process	City of Grand Rapids	Grand Rapids Township	Plainfield Township
PUD	Reviewed by P.C.* which recommends to the City Comm.	Review and decision by the P.C.	Review by P.C. which recommends to Township Board
Site Plan Review	Review and final decision by P.C.	Review and final decision by 3 member subcommittee of P.C., can appeal to T. Board	Review and final decision by P. C.
Special Uses	Review and final decision by P.C., can appeal to City Comm.	Review and final decision by P.C., no appeal	Review and final decision by P.C., no appeal
Rezoning	P.C. reviews and recommends to City Comm.	P.C. reviews and recommends to T. Board	P.C. reviews and recommends to T. Board

* P.C. = Planning Commission

Table 1. Zoning Districts by Common Category

Sorted By: Category and Government **North East Beltline Study**

COMMON MAPPING CATEGORY	ZONING DISTRICT ACRONYM	ZONENAME	GOVERNMENT
Commercial, Community	**C2**	Community Commercial	City of Grand Rapids
Commercial, Community	**C**	General Commercial	Grand Rapids Township
Commercial, Community	**C2**		Plainfield
Commercial, Negotiated	**PSC**	Planned Shopping Center	City of Grand Rapids
Commercial, Neighborhood	**C1**	Neighborhood Commercial	City of Grand Rapids
Commercial, Neighborhood	**C1**	Suburban Neighborhood Commmercial	Grand Rapids Township
Commercial, Neighborhood	**C1**	Commercial	Plainfield
Commercial, Other	**C4**	Heavy Commercial	City of Grand Rapids
Commercial, Other	**C3**	Central Business	City of Grand Rapids
Commercial, Other	**C3**		Plainfield
Commercial, Other	**C5**		Plainfield Township
Commercial, Regional	**C4**		Plainfield
Industrial	**I-1**	Light Industrial	City of Grand Rapids
Industrial	**I-2**	Heavy Industrial	City of Grand Rapids
Industrial	**PID**	Planned Industrial	City of Grand Rapids
Industrial	**I**	Industrial	Plainfield
Industrial	**PID**	Planned Industrial District	Plainfield
Mixed Use	**PUD**	PUD	City of Grand Rapids
Mixed Use	**C2**	Residential Suburban Office	Grand Rapids Township
Mixed Use		Town Center PUD	Grand Rapids Township
Mixed Use	**PUD5**	Community Service [multiple family]	Grand Rapids Township
Mixed Use	**PUD**	PUD	Plainfield Township
Office	**PUD3**	Low Density Office PUD	Grand Rapids Township
Open Space	**F**	Flood Zone	Plainfield
Residential, High Density	**R4**	Medium Density Multiple Family	City of Grand Rapids
Residential, High Density	**R5**	High Density Multiple Family	City of Grand Rapids
Residential, Low Density	**R1**	S.F. and Agricultural	Grand Rapids Township
Residential, Low Density	**RR**	Rural Residential	Grand Rapids Township
Residential, Low Density	**A**	Agricultural	Plainfield
Residential, Low Density	**RER**	Rural Estate Residential	Plainfield
Residential, Medium Density	**R1**	One Family	City of Grand Rapids
Residential, Medium Density	**R1**	One Family, zero lot line	City of Grand Rapids
Residential, Medium Density	**R1A**	One Family, Auxiliary	City of Grand Rapids
Residential, Medium Density	**R2**	One and Two Family	City of Grand Rapids
Residential, Medium Density	**R3**	Low Density Multiple Family	City of Grand Rapids
Residential, Medium Density	**SR**	Special Residential	City of Grand Rapids
Residential, Medium Density	**R1**	S.F. and Agricultural	Grand Rapids Township
Residential, Medium Density	**R1**	S.F. and Agricultural	Grand Rapids Township
Residential, Medium Density	**R2**	Low Density Multiple Family	Grand Rapids Township
Residential, Medium Density	**R3**	Mobile Home Parks	Grand Rapids Township
Residential, Medium Density	**PUD1**	Low Density Residential	Grand Rapids Township
Residential, Medium Density	**PUD2**	Med. Dens. Res. - Low Dens. Office	Grand Rapids Township
Residential, Medium Density	**R1**		Plainfield
Residential, Medium Density	**R1**		Plainfield
Residential, Medium Density	**R2**		Plainfield
Residential, Medium Density	**R3**		Plainfield
Residential, Medium Density	**R4**		Plainfield
Residential, Medium Density	**R5**		Plainfield
Residential, Medium Density	**R6**		Plainfield

Table 2: Zoning Districts Which Allow Residences

North East Beltline Study

Sorted By Category of District and Minimum Lot Size

MIN. LOT SIZE IN SQ. FT.	NET DENSITY IN UNITS/ACRE	ZONENAME		GOVERNMENT	SEWER	WATER	NOTES
Category: Residential, Low Density							
43,560	1.0	RR	Rural Residential	Grand Rapids Township	No	No	water and sewer not planned
40,000	1.1	A	Agricultural	Plainfield	No	No	min width 200'
40,000	1.1	RER	Rural Estate Residential	Plainfield	No	No	min lot width 150'
18,000	2.4	R1	S.F. and Agricultural	Grand Rapids Township	No	No	
Category: Residential, Medium Density							
13,000	3.4	R1		Plainfield	No	No	
12,000	3.6	R1	S.F. and Agricultural	Grand Rapids Township	No	Yes	or with public sewer and private water
11,700	3.7	R1		Plainfield	Yes	Yes	
11,700	3.7	R2		Plainfield	Yes	Yes	duplexes on 13,000sq ft
11,700	3.7	R5		Plainfield	Yes	Yes	a pud district, lot size may be reduced by contributing to shared open space
8,712	5.0	PUD1	Low Density Residential	Grand Rapids Township	Yes	Yes	area for density is without ROW, easements and water covered land
8,400	5.2	R1	S.F. and Agricultural	Grand Rapids Township	Yes	Yes	
7,200	6.0	R1	One Family	City of Grand Rapids	Yes	Yes	
7,200	6.0	R2	One and Two Family	City of Grand Rapids	Yes	Yes	4000 sq ft per unit for semi-detached dwellings
6,000	7.3	R3		Plainfield	Yes	Yes	min size 18,000 sq ft; max of 4 units per bdg

Table 2: Zoning Districts Which Allow Residences

North East Beltline Study

Sorted By Category of District and Minimum Lot Size

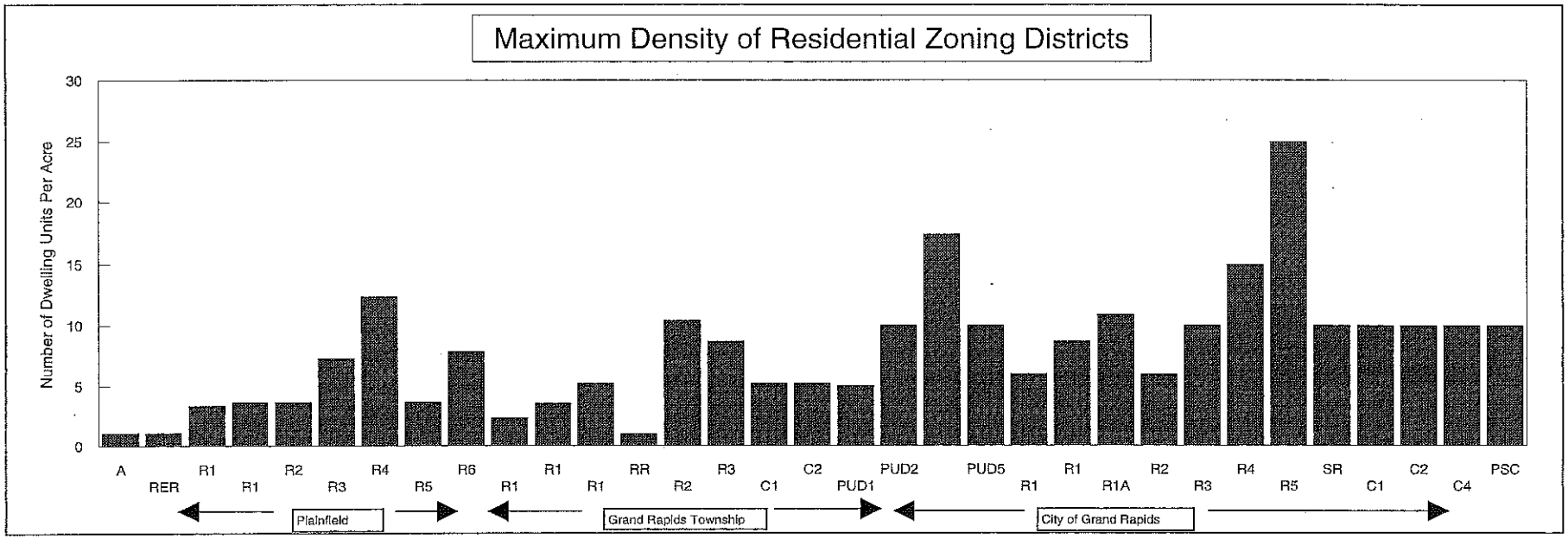
MIN. LOT SIZE IN SQ. FT.	NET DENSITY IN UNITS/ACRE	ZONENAME		GOVERNMENT	SEWER	WATER	NOTES
5,500	7.9	R6		Plainfield	Yes	Yes	mobile home park district
5,000	8.7	R3	Mobile Home Parks	Grand Rapids Township	Yes	Yes	
5,000	8.7	R1	One Family, zero lot line	City of Grand Rapids	Yes	Yes	
4,356	10.0	PUD2	Med. Dens. Res. - Low Dens. Office	Grand Rapids Township	Yes	Yes	max of 12 units per building, area used to calculate density is minus RO
4,356	10.0	R3	Low Density Multiple Family	City of Grand Rapids	Yes	Yes	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft; maximum height least of 2.5 stories or 35 feet
4,356	10.0	SR	Special Residential	City of Grand Rapids	Yes	Yes	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft
4,200	10.4	R2	Low Density Multiple Family	Grand Rapids Township	Yes	Yes	
4,000	10.9	R1A	One Family, Auxiliary	City of Grand Rapids	Yes	Yes	
3,500	12.4	R4		Plainfield	Yes	Yes	min lot size 30,000 sq ft; max 24 units per bdg
Category: Residential, High Density							
2,904	15.0	R4	Medium Density Multiple Family	City of Grand Rapids	Yes	Yes	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft; maximum height 3 stories or 40 ft
1,740	25.0	R5	High Density Multiple Family	City of Grand Rapids	Yes	Yes	max height 8 stories
Category: Mixed Use							
0	15.0	PUD	PUD	City of Grand Rapids	Yes	Yes	
0	99.0	PUD	PUD	Plainfield Township	Yes	Yes	

Table 2: Zoning Districts Which Allow Residences

North East Beltline Study

Sorted By Category of District and Minimum Lot Size

MIN. LOT SIZE IN SQ. FT.	NET DENSITY IN UNITS/ACRE	ZONENAME		GOVERNMENT	SEWER	WATER	NOTES
Category: Mixed Use							
8,400	5.2	C2	Residential Suburban Office	Grand Rapids Township	Yes	Yes	
4,356	10.0	PUD5	Community Service [multiple family]	Grand Rapids Township	Yes	Yes	maximum of 33% as commercial and parking, no drive thru restaurants,
2,500	17.4		Town Center PUD	Grand Rapids Township	Yes	Yes	this is for retirement homes only
Category: Commercial, Neighborhood							
8,400	5.2	C1	Suburban Neighborhood Commmercial	Grand Rapids Township	Yes	Yes	
4,356	10.0	C1	Neighborhood Commercial	City of Grand Rapids	Yes	Yes	residences permitted at second story
4,356	10.0	C2	Community Commercial	City of Grand Rapids	Yes	Yes	residences permitted at second story
4,356	10.0	C4	Heavy Commercial	City of Grand Rapids	Yes	Yes	residences permitted at second story, for older commercial - industrial areas
4,356	10.0	PSC	Planned Shopping Center	City of Grand Rapids	Yes	Yes	residences permitted at second story


Maximum Density of Residential Zoning Districts
Number of Dwelling Units Per Acre
30
25
20
15
10
5
0
A
RER
R1
R1
R2
R3
R4
R5
R6
R1
R1
RR
R2
R3
C1
C2
PUD1
PUD2
PUD5
R1
R1
R1A
R2
R3
R4
R5
SR
C1
C2
C4
PSC
Plainfield
Grand Rapids Township
City of Grand Rapids

GOVERNMENT	ZONETYPE	ZONEACR	ZONENAME	MINLOTSIZ	NETDENSI	MINHOUSI	SEWER	WATER	NOTES
Plainfield	residential	A	Agricultural	40000	1.1	960			min width 200'
Plainfield	residential	RER	Rural Estate Residential	40000	1.1	960			min lot width 150'
Plainfield	residential	R1		13000	3.4	960			
Plainfield	residential	R1		11700	3.7	960	1	1	
Plainfield	residential	R2		11700	3.7	960	1	1	duplexes on 13,000sq ft
Plainfield	residential	R3		6000	7.3		1	1	min size 18,000 sq ft; max of 4 units per bdg
Plainfield	residential	R4		3500	12.4		1	1	min lot size 30,000 sq ft; max 24 units per bdg
Plainfield	residential	R5		11700	3.7	0	1	1	a pud district, lot size may be reduced by contributing to shared open space
Plainfield	residential	R6		5500	7.9		1	1	mobile home park district
Grand Rapids Township		R1	S.F. and Agricultural	18000	2.4	960			
Grand Rapids Township		R1	S.F. and Agricultural	12000	3.6	960		1	or with public sewer and private water
Grand Rapids Township		R1	S.f. and Agricultural	8400	5.2	960	1	1	
Grand Rapids Township	residential	RR	Rural Residential	43560	1	960			water and sewer not planned
Grand Rapids Township	residential	R2	Low Density Multiple Family	4200	10.4		1	1	
Grand Rapids Township	residential	R3	Mobile Home Parks	5000	8.7		1	1	
Grand Rapids Township	commercial	C1	Suburban Neighborhood Commmercial	8400	5.2		1	1	
Grand Rapids Township	commercial	C2	Residential Suburban Office	8400	5.2		1	1	
Grand Rapids Township	PUD	PUD1	Low Density Residential	8712	5		1	1	area for density is without ROW, easements and water covered land
Grand Rapids Township	PUD	PUD2	Med. Dens. Res. - Low Dens. Office	4356	10		1	1	max of 12 units per building, area used to calculate density is minus ROW, easements, and water covered land
Grand Rapids Township	PUD		Town Center PUD	2500	17.4		1	1	this is for retirement homes only
Grand Rapids Township	PUD	PUD5	Community Service [multiple family]	4356	10		1	1	
City of Grand Rapids	residential	R1	One Family	7200	6		1	1	
City of Grand Rapids	residential	R1	One Family, zero lot line	5000	8.7		1	1	
City of Grand Rapids	residential	R1A	One Family, Auxiary	4000	10.9		1	1	
City of Grand Rapids	residential	R2	One and Two Family	7200	6		1	1	4000 sq ft per unit for semi-detached dwellings
City of Grand Rapids	residential	R3	Low Density Multiple Family	4356	10		1	1	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft maximm height least of 2.5 stories or 35 feet
City of Grand Rapids	residential	R4	Medium Density Multiple Family	2904	15		1	1	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft maximum height 3 stories or 40 ft
City of Grand Rapids	residential	R5	High Density Multiple Family	1740	25		1	1	max height 8 stories
City of Grand Rapids	residential	SR	Special Residential	4356	10		1	1	lot size for 1 and 2 dwellings is 5000 sq ft and 4000 sq ft
City of Grand Rapids	commercial	C1	Neighborhood Commercial	4356	10		1	1	residences permitted at second story
City of Grand Rapids	commercial	C2	Community Commercial	4356	10		1	1	residences permitted at second story
City of Grand Rapids	commercial	C4	Heavy Commercial	4356	10		1	1	residences permitted at second story
City of Grand Rapids	commercial	PSC	Planned Shopping Center	4356	10		1	1	residences permitted at second story

Social Impacts and Mitigating Measures

North East Beltline Corridor Plan

January, 1998

Prepared for North East Beltline Joint Planning Board
by Jay Hoekstra

Filename: C:\jaydocs\NEBELT\DATA\socimpfx.wpd

Introduction

This paper examines the impacts of the North East Beltline Corridor Plan on the poor, the central urban area, and the central business district. Impacts in three categories are examined and remedies are discussed. The three categories are: employment and its location, housing, and transportation.

The scope and budget of this project does not allow a detailed analysis of the impacts of this plan; however some useful observations and conclusions can be made. David Rusk and Myron Orfield have shown with some preliminary analysis that the poor are being concentrated in our central city and inner suburbs to the detriment of the poor, of those areas and of the region. Meanwhile jobs are being located away from the central city and access to these suburban jobs is difficult for central city residents.

Employment

The first draft of the land use plan showed an amount of land dedicated to office use which would accommodate over one million square feet of office space. 2.4 to 2.8 million square feet is the forecast demand for additional office space by 2020 for the urban area. Total use at that time would be about 14 million square feet. Land use plans from most of the urbanized area have been analyzed and the amount of land planned for offices and services [non retail] would accommodate about 22 million square feet. There is about 60% [8 million square feet] more space planned than is needed.

Should this plan embody an attempt to reduce this disparity and reduce the amount planned for office uses by 60%? Perhaps the locations in this corridor are better than those in other parts of the region. In the absence of a regional land use plan and regional policies, we do not know. When amending the draft land use plan in response to comments made at hearings before local planning commissions, the amount of land allocated for office use was reduced to approximately 700,000 square feet.

The retail uses in the plan are proposed for neighborhood or community scale, serving needs primarily within the nearby area. Regional and large box retail development has been avoided.

Conclusions

- The corridor is 75% developed and office development has been proposed only in areas in the planned sewer service area.

- As with other uses, office use may be overplanned in the region,

but it is not possible to solve that problem at the level of a corridor study.

- The final draft has less office space than the initial draft.

Housing

Impact

The *First Impressions* report showed that, even at the low densities that were planned locally, there was twice as much land planned for residential land use as was needed for the projected population. Excessive land planned for residential use encourages inefficient, scattered location of residential development and abandonment of central city housing by middle and high income households.

An approach to this problem might be to reduce residential areas in this plan by one half, assuming that it roughly represents the original plans. However since it is close to existing development, it might be better to provide the housing as planned in the corridor [while preserving sensitive natural areas], so as to decrease development further out in the countryside.

Since the number of people in the metropolitan area is increasing, provision of new housing in itself would not have a negative affect on the central city. However when all of the housing provided in the new areas are priced for higher income households, lower and moderate income households are forced to concentrate and spread where some affordable housing is available - the central urban area. Concentration of the poor has cumulative and aggravating consequences which affect the entire urban area.

In this project's planning area, lower priced housing is available only at the Pineridge Parkway apartments, near Five Mile Road. No other financially assisted housing is available elsewhere in Plainfield, Grand Rapids, Ada or Cascade Townships except for elderly housing units in Plainfield Township. The nearest assisted housing in the City of Grand Rapids is at Knapp and Fuller, two and one half miles from the East Beltline.

Need for affordable housing

The 1990 Census showed that of renters in Grand Rapids, 13,000 were at or below 50% of the median income. Of those, 75 to 80% either paid more than 30% of their income for housing or lived in substandard housing. Most of those who paid more than 30%, actually paid more over 50% of their income for housing. The nationally accepted maximum that a household should pay for housing is 30% of their income. There is a

shortage of affordable housing if there is a shortage of housing that meets this criteria for low or moderate income households.

The waiting lists for Section Eight rental vouchers at the County and City of Grand Rapids are long and are closed to any new applicants. Those involved in providing affordable housing may not worry about measuring the need because they are unable to meet the immediate demand. According to local housing agencies there is also a need for housing for disabled persons.

Many housing programs around the country aim to provide affordable or assisted housing in the range of 5 to 10 per cent of the new housing provided. In the absence of a thorough, regional analysis of housing needs, a standard in this range would be reasonable. The plan for the corridor shows that about **2300** units [of all costs] are proposed; 5% of 2300 would be 115, 10 per cent would be 230. However any new housing initiatives would likely be provided throughout the jurisdictions involved.

Methods of improving the provision for affordable housing

Local government may have ways of taking away barriers to affordable housing and they do have programs available to encourage and facilitate the provision of low cost housing. Non-profit or for profit builders are, in fact, eager to use a number of programs and methods for providing affordable housing. The Greater Grand Rapids Home Builders Association has an Affordable Housing Committee which has come up with some useful responses to this issue. Local government can coordinate these programs and can provide incentives which will make provision of this type of housing not only possible but likely. Furthermore, housing developments in Grand Rapids and elsewhere around the nation have shown that financially assisted housing for lower income households can be indistinguishably mingled with higher cost units.

Provision of affordable housing as a small ratio of most new developments is socially healthy and much more acceptable to communities.

Reducing development costs

The federal government offers a tax credit for those who provide low income housing. These credits are transferrable and there is a good market for them. This program is administered by the Michigan State Housing Development Authority and can cover up to 40% or 50% of housing development costs.

The State allows local government to waive property tax on apartments for

qualified developers who are participating low cost housing program. Instead the local government can collect a service fee equal to 4 to 10% of the rent. The City of Grand Rapids has used this payment in lieu of taxes [PILOT] program to support at least 40 units each year.

The City and Townships could agree to provide free sewer and water hookups, and lower utility rates, for affordable housing units. Building permits could also waived or lowered.

The City and Townships, along with the Homebuilders Association could examine zoning ordinances to see if minimum lot sizes, minimum house sizes and other requirements are resulting in the exclusion of affordable housing.

The Townships and City could solicit landlords for enrollment in the Section 8 program through notices in their newsletters and the newspapers.

Reducing Land Costs

In order to make it possible for developers to offer affordable housing units the Townships and City could add density bonuses for developments that included such housing. Densities could be increased somewhat beyond the amount of affordable housing provided in order to provide income that would make it possible to lower prices for the affordable units.

The Townships working through the County Community Development Department, or the City with its own housing development department, could assemble and purchase land, and work with a non profit housing group to develop a mixed income housing development. The sale or rental of the development would pay for the cost of the land. Non profit organizations in this area have already successfully carried out a similar type of arrangement.

Increasing financial resources

There are a variety of financial programs available to low and moderate income households from banks, savings and loans, and mortgage companies for the purchase of housing.

Location Efficient Mortgages: One way local government can make housing affordable is to efficiently plan land use and to support public transportation. Local mortgage lenders and the Federal National Mortgage Association will be testing mortgages in Chicago which give credit for residences being location efficient. The basis for the credit is that a household that can get along without an automobile will save about $5000 each year and that money could be used for purchasing housing. The characteristics which define location efficiency are: access to public transit; access to shopping, services, schools; walkability of the area; and

whether development is adequate to support transit. Location efficient mortgages may or may not be available in our area in the future, but providing the conditions for them will free up income for housing. The proposed North East Beltline incorporates these ideals to some extent, especially in the area around Knapp Street.

Coordination and Exploration

Making full use of the programs and methods described above would require a dedicated effort on the part of all three governments. The public's of these governments may not support the provision of affordable housing because they have seen the effects of concentrated poverty and assume that those effects follow with even a scattered provision of lower cost housing. That belief is another problem that may have to be dealt with before progress could be made. Communities may need to explore what it means to be a community – does it mean having a cross section of income levels. What are the actual effects of having a small percentage of lower income households and housing in a community. The emergence of new planning ideas of mixed use, better attention to urban design, avoidance of concentration of assisted housing, and development of "metropolitan towns" may make the provision of affordable housing more feasible and acceptable.

A local government could start with a committee to explore these issues. Such a committee would benefit by working with the Homebuilders Association, the Kent County Community Housing Commission and the Chamber of Commerce. The committee could describe the possibilities to the public, elicit opinions, and coordinate programs and incentives. Alternatively such a committee could be for a larger geographic area such as the northeast urban area, or could be a nongovernmental body such as an interfaith affordable housing group for the east side, or all three. Plainfield Township has some experience along these lines having successfully brought a housing development for senior citizens to their jurisdiction.

Some of the programs mentioned above would be difficult to carry out with out knowing what is financially feasible in the local housing market. This type of analysis may be difficult or at least inefficient for each local government to carry out. Arrangements would have to be made to have Kent County or Metro Council to carry out this work.

Conclusions

- Since the region is growing, additional housing in itself would not contribute to the central city decline.

- The plan's mix of housing types, mix of densities and locations near employment and services, offers better housing opportunities.

- Provision of housing with a full range of prices will require commitment and effort on the part of participating units of government.

Transportation

Providing affordable housing near jobs, shopping and schools as described above would in itself reduce transportation costs for moderate and low income households.

Because of limited funding, the service that GRATA [Grand Rapids Area Transit Authority] is able to provide is limited compared to other comparable urban areas in Michigan. It provides approximately 400 annual vehicle hours per one thousand persons in its service area. Lansing provides about 1000; Flint about 900. At present one bus route extends into the planning area. The Leonard Street route extends along Leonard Street to the Kent Community Skills Center and to Knapp's Corner shopping center.

If the public transit system was funded to a degree comparable to other systems in Michigan, more service would be available. The draft version of the Long Range Public Transportation Plan shows an express bus route along the East Beltline from Plainfield to Kentwood. Dial a Ride service would be provided throughout the area. The Plan also includes freeway express routes which would have flyer stops at the East Beltline and I-96 interchange and along the freeway at Maryland and I-196. Such routes have the potential to increase access to jobs, schools, and housing along the corridor and at the same time reduce traffic congestion.

Public transit needs supportive infrastructure. That infrastructure includes pedestrian access (sidewalks), turnout lanes on roads and bus stop locations on the right of way or within developments. These improvements should be discussed now with MDOT, in the event that the express routes become feasible later. Potential transit stops could be identified now.

Conclusions

- The corridor plan and implementation measures begin to provide a land use pattern that supports present and future transit service.

- By providing a good mix of land uses the corridor plan also provides access to services and employment with less need of transportation to provide the access.

Final conclusions

- It was not possible, given time and the scope of this project, to adequately analyze these issues. However a regional study is under way whose results will be available in June, 1998. It is almost self evident that poor and minorities are concentrated in the central city to their detriment and to the detriment of the whole metropolitan area.

- This is a metropolitan and jurisdiction wide issue, difficult to deal with at a corridor level. The cooperation begun in this study provides a basis for continuing to work on the problem.

- The land use pattern and principles proposed contribute in a positive way toward solving the problems of the present mode of urban development.

- The development shown in this plan could be described as infill development, because the corridor is 75% developed, no extension of water and sewer is proposed outside of the planned service area, and the corridor is immediately adjacent to the urbanized area.

- There are methods and opportunities for jurisdictions to work together to address the problems of concentration of the poor and minorities in the central city.

Income-Cost Correlation

Income-Cost Correlation is a method to determine housing surpluses and deficiencies within communities. Total household income determines the price range of affordable housing for virtually all households. In the case of purchased housing, the price of a house is typically three times (300%) the household income. For example, it is assumed that a household earning $20,000 per year can afford a $60,000 home. When examining the availability of rental housing units, it is assumed that a household can afford to allocate 30 percent of the monthly household income towards rent. For example, a household earning $20,000 a year can afford a maximum affordable monthly rent of $500. Maximum value of affordable housing and maximum affordable monthly rent are calculated by applying these percentages to household income categories, as broken down in the U.S. Census. The number of households that fall within each income category is then calculated, as well as the number of owner-occupied and rental units located in the community that are priced within the determined ranges. To determine if the community has a surplus or deficiency of differently valued housing units, the number of households in the community which have a certain income is compared to the number of owner and/or rental units within the community which would be affordable to those households.

It must be recognized that this type of analysis is only one indication of affordable housing. In actual practice, the price of a house which a household can afford is determined by three major factors: the size of the mortgage that must be secured and its interest rate; the property tax, insurance and utility rates on the house; and the total indebtedness of the household for all items other than housing. Nevertheless, such an analysis provides an indication of housing cost trends and the ability of the purchaser to acquire such housing. The following tables show the breakdown of affordable purchase and rental housing by household income for the City of Grand Rapids, Grand Rapids Township, and Plainfield Township.

Owner-Occupied Units

Data in Tables 1, 2, and 3 correlate 1990 household income levels for the City of Grand Rapids (Table 1), Grand Rapids Township (Table 2), and Plainfield Township (Table 3) residents with the assumed values of specified owner-occupied housing units within each community. It should be noted that the U.S. Census defines specified housing units as one-family houses on less than 10 acres without a commercial establishment or medical office on the property. Mobile homes, trailers, boats, tents or vans occupied as a usual residence, and owner-occupied noncondominium units in multi-family buildings are excluded [1]

[1] 1980 U.S. Census, Census of Housing, General Housing Characteristics

Table 1
Income Cost Correlation
Specified Owner-Occupied Housing Units
City of Grand Rapids
1990

Household Income Category	Maximum Value of Affordable Housing[a]	Number of Households in Income Category[b]	Number of Specified* Owner-Occupied Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $15,000	2,227	773	-1,455
$5,000 - $9,999	$15,000 - $29,999	4,159	3,259	-900
$10,000 - $19,999	$30,000 - $59,999	7,241	15,865	+8,624
$20,000 - $49,999	$60,000 - $149,999	17,080	16,613	-467
$50,000 - $99,999	$150,000 - $299,999	5,681	603	-5,078
$100,000 or more	$300,000 or more	743	18	-725

Data compiled by Wade-Trim.

[a] Maximum value of affordable housing calculated to be 300 percent of household income.

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified owner-occupied housing units (37,131)

[c] Data obtained from 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A

[d] Calculated to be the difference between the number of households per income category and number of units per income category

* Specified housing units include only one-family houses on less than 10 acres without a commercial establishment or medical office on the property. Mobile homes, trailers, boats, tents or vans occupied as a usual residence, and owner-occupied noncondominium units in multi-family buildings are excluded.

City of Grand Rapids

Households with income levels less than $9,999 per year, as well as households with incomes greater than $20,000, have large numbers of households that are not finding housing at prices they can afford. Over 15% of the households within the City of Grand Rapids earn between $50,000 and $99,000 per year, yet there are only 603 housing units valued between $150,000 and $299,999, which they could afford. This represents a deficiency of more than 5,000 housing units of this value. Households with incomes ranging from $10,000 to $19,999 per year should have little problem finding affordable housing to own, as a significant oversupply (8,624) of owner-occupied housing units valued between $30,000 - $59,999 exists within the city. The housing valued in this range is being utilized by three disparate groups: by households which can afford such housing; by those who are expending a higher proportion of their income than is normally considered acceptable; and by those who could afford housing of a greater value if it was available. Table 1 indicates a need for housing valued below $30,000 and housing valued greater than $60,000.

Grand Rapids Township

The income-cost correlation calculated for Grand Rapids Township shows a deficiency in all housing values except for those valued between $60,000 and $149,000. Households within the township earning less than $60,000 per year or more than $150,000, are not finding housing which they can afford, with a greater deficiency of affordable housing for high income households. Again, as with residents within the City of Grand Rapids, households are either expending more than three times their income on housing or households are buying homes which are valued less than three times their income.

Table 2
Income Cost Correlation
Specified Owner-Occupied Housing Units
Grand Rapids Township
1990

Household Income Category	Maximum Value of Affordable Housing[a]	Number of Households in Income Category[b]	Number of Specified* Owner-Occupied Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $15,000	93	0	-93
$5,000 - $9,999	$15,000 - $29,999	67	15	-52
$10,000 - $19,999	$30,000 - $59,999	294	254	-40
$20,000 - $49,999	$60,000 - $149,999	1,127	2,148	+1,021
$50,000 - $99,999	$150,000 - $299,999	994	414	-580
$100,000 or more	$300,000 or more	338	82	-256

Data compiled by Wade-Trim.

[a] Maximum value of affordable housing calculated to be 300 percent of household income.

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified owner-occupied housing units (2,913)

[c] Data obtained from 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A

[d] Calculated to be the difference between the number of households per income category and number of units per income category

* Specified housing units include only one-family houses on less than 10 acres without a commercial establishment or medical office on the property. Mobile homes, trailers, boats, tents or vans occupied as a usual residence, and owner-occupied noncondominium units in multi-family buildings are excluded.

Plainfield Township

Similar occurances can be seen in Plainfield Township. While over 32% of households earn over $50,000 per year, only 5% of owner-occupied housing units are valued greater than $150,000, which would be affordable to these households. Again, housing surpluses are seen in homes ranged between $30,000 and $150,000, with few housing options for low income households.

Table 3
Income Cost Correlation
Specified Owner-Occupied Housing Units
Plainfield Township
1990

Household Income Category	Maximum Value of Affordable Housing[a]	Number of Households in Income Category[b]	Number of Specified* Owner-Occupied Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $15,000	128	12	-166
$5,000 - $9,999	$15,000 - $29,999	233	65	-168
$10,000 - $19,999	$30,000 - $59,999	771	1,003	+232
$20,000 - $49,999	$60,000 - $149,999	2,629	4,192	+1,563
$50,000 - $99,999	$150,000 - $299,999	1,586	255	-1,331
$100,000 or more	$300,000 or more	200	20	-180

Data compiled by Wade-Trim.

[a] Maximum value of affordable housing calculated to be 300 percent of household income.

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified owner-occupied housing units (5,547)

[c] Data obtained from 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A

[d] Calculated to be the difference between the number of households per income category and number of units per income category

* Specified housing units include only one-family houses on less than 10 acres without a commercial establishment or medical office on the property. Mobile homes, trailers, boats, tents or vans occupied as a usual residence, and owner-occupied noncondominium units in multi-family buildings are excluded.

Renter-Occupied Units

A similar analysis was conducted for renter-occupied housing units. Data in Tables 4, 5, and 6 correlate 1990 household income levels for the City of Grand Rapids (Table 4), Grand Rapids Township (Table 5), and Plainfield Township (Table 6) residents with the assumed values of renter-occupied housing units within each community.

City of Grand Rapids

In 1990, there was an undersupply of rental units available to serve those households which were making less than $9,999 a year. There are over 4,600 households in the city that fall within this income level and there are only 3,222 rental units which are less than $249 a month, which would be affordable to such households. The largest deficiency in the city occurs with housing units which rent for greater than $750 a month and serve those households making more than $30,000 a year.

A comparison of owner-occupied housing units (Table 1) and renter-occupied housing units (Table 4) for the City of Grand Rapids, shows similar trends. Those households with annual incomes of less than $9,999 are paying a higher share of their income to live in and own higher valued single-family units or rental units. In the case of both owner-occupied housing units and rental units, high income households are not able to find housing which they can afford and are expending less of their incomes towards housing. High income households who choose to rent are finding deficiencies in units which rent for more than $750, as stated above, and are allocating less of their incomes for housing, due to the surplus in rental units which fall just below their affordable value. In both owner-occupied housing units and renter-occupied units, the largest housing surplus is seen for those households earning between $10,000 and $19,999 per year.

Table 4
Income Cost Correlation
Specified Renter-Occupied Housing Units
City of Grand Rapids
1990

Household Income Category	Maximum Affordable Monthly Rent[a]	Number of Households in Income Category[b]	Number of Rental Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $125	1,645	839	-806
$5,000 - $9,999	$125 - $249	3,020	2,383	-637
$10,000 - $19,999	$250 - $499	5,259	16,948	+11,689
$20,000 - $29,999	$500 - $749	5,124	6,127	+1,003
$30,000 - $39,999	$750 - $999	4,315	482	-3,833
$40,000 or more	$1,000 or more	7,605	189	-7,416

Data compiled by Wade-Trim.

[a] Maximum affordable monthly rent calculated to be 30 percent of monthly household income

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified renter-occupied housing units with cash rent (26,968)

[c] Consultant Estimate based upon 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A. Excludes units for which no cash rent was received.

[d] Calculated to be the difference between the number of households per income category and number of units per income category

Grand Rapids Township

The availability of affordable rental units within the township is depicted in Table 5. Rental units available to those households earning less than $9,999 annually, show slight deficiencies. There is a relatively significant deficiency of units renting for more than $750 while there is an even greater surplus of rental units which rent for between $250 and $499 per month. Again, when comparing the availability of owner-occupied units (Table 2) to renter-occupied housing units within the township, low-income households are allocating more than 30% of their income per month for housing, while higher income households are allocating less than they can afford.

Table 5
Income Cost Correlation
Specified Renter-Occupied Housing Units
Grand Rapids Township
1990

Household Income Category	Maximum Affordable Monthly Rent[a]	Number of Households in Income Category[b]	Number of Rental Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $125	8	0	-8
$5,000 - $9,999	$125 - $249	5	0	-5
$10,000 - $19,999	$250 - $499	24	70	+46
$20,000 - $29,999	$500 - $749	25	30	+5
$30,000 - $39,999	$750 - $999	31	19	-12
$40,000 or more	$1,000 or more	144	118	-26

Data compiled by Wade-Trim.

[a] Maximum affordable monthly rent calculated to be 30 percent of monthly household income

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified renter-occupied housing units (237)

[c] Consultant Estimate based upon 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A. Excludes units for which no cash rent was received

[d] Calculated to be the difference between the number of households per income category and number of units per income category

Plainfield Township

In 1990, there were deficiencies in all categories of housing units with the exception of those units renting for between $500 and $874 per month. The largest deficiency occurs for those households earning between $20,000 and $49,999 a year. While there are over 850 household that fall within this range, there are only 718 rental units. Again, when comparing the availability of both owner-occupied (Table 3) and renter-occupied housing units within the township, low-income households are expending a larger percentage of their incomes for housing needs, while very high income households are expending a smaller proportion of their incomes towards housing.

Table 6
Income Cost Correlation
Specified Renter-Occupied Housing Units
Plainfield Township
1990

Household Income Category	Maximum Affordable Monthly Rent[a]	Number of Households in Income Category[b]	Number of Rental Units in Housing Value Category[c]	Surplus/ Deficiency[d]
Less than $5,000	Less than $125	42	30	-12
$5,000 - $9,999	$125 - $249	76	33	-43
$10,000 - $19,999	$250 - $499	252	957	+705
$20,000 - $29,999	$500 - $749	273	701	+428
$30,000 - $39,999	$750 - $999	296	85	-211
$40,000 or more	$1,000 or more	867	0	-867

Data compiled by Wade-Trim.

[a] Maximum affordable monthly rent calculated to be 30 percent of monthly household income

[b] Data estimated from the 1990 U.S. Census by applying the percentage of households per income category to the total number of specified renter-occupied housing units (1,806)

[c] Consultant Estimate based upon 1990 U.S. Census, Census of Population and Housing, Summary Tape File 3A. Excludes units for which no cash rent was received

[d] Calculated to be the difference between the number of households per income category and number of units per income category

Table 7
Summary Income Cost Correlation
Specified Owner-Occupied Housing Units
City of Grand Rapids, Grand Rapids Township, and Plainfield Township
1990

Household Income Category	Maximum Value of Affordable Housing[a]	Surplus/Deficiency[b]		
		City of Grand Rapids	Grand Rapids Township	Plainfield Township
Less than $5,000	Less than $15,000	-1,455	-93	-166
$5,000 - $9,999	$15,000 - $29,999	-900	-52	-168
$10,000 - $19,999	$30,000 - $59,999	+8,624	-40	+232
$20,000 - $49,999	$60,000 - $149,999	-467	+1,021	+1,563
$50,000 - $99,999	$150,000 - $299,999	-5,078	-580	-1,331
$100,000 or more	$300,000 or more	-725	-256	-180

Data compiled by Wade-Trim.
[a] Maximum value of affordable housing calculated to be 300 percent of household income.
[b] Calculated to be the difference between the number of households per income category and number of units per income category

Table 8
Summary Income Cost Correlation
Specified Renter-Occupied Housing Units
City of Grand Rapids, Grand Rapids Township, and Plainfield Township
1990

Household Income Category	Maximum Affordable Monthly Rent[a]	Surplus/Deficiency[b]		
		City of Grand Rapids	Grand Rapids Township	Plainfield Township
Less than $5,000	Less than $125	-806	-8	-12
$5,000 - $9,999	$125 - $249	-637	-5	-43
$10,000 - $19,999	$250 - $499	+11,689	+46	+705
$20,000 - $29,999	$500 - $749	+1,003	+5	+428
$30,000 - $39,999	$750 - $999	-3,833	-12	-211
$40,000 or more	$1,000 or more	-7,416	-26	-867

Data compiled by Wade-Trim.
[a] Maximum affordable monthly rent calculated to be 30 percent of monthly household income
[b] Calculated to be the difference between the number of households per income category and number of units per income category

STATE EQUALIZED VALUE
BY CLASS 1992 and 1997
For Minor Civil Divisions

	Agricultural Real Property				Commercial Real Property			
	1992	1997	Numeric Change	Percent Change	1992	1997	Numeric Change	Percent Change
Township:								
Ada	592,600	4,280,825	3,688,225	622.4	14,755,700	24,338,528	9,582,828	64.9
Algoma	3,267,900	4,924,000	1,656,100	50.7	4,777,300	10,496,800	5,719,500	119.7
Alpine	13,857,900	18,516,000	4,658,100	33.6	33,701,400	71,467,200	37,765,800	112.1
Bowne	9,101,000	11,693,300	2,592,300	28.5	3,093,500	1,947,100	-1,146,400	-37.1
Byron	7,624,300	10,162,600	2,538,300	33.3	31,596,000	54,640,200	23,044,200	72.9
Caledonia	5,568,600	7,125,900	1,557,300	28.0	23,316,500	36,378,300	13,061,800	56.0
Cannon	2,938,600	6,098,000	3,159,400	107.5	3,489,500	6,444,900	2,955,400	84.7
Cascade	N/C	N/C			107,080,600	121,527,500	14,446,900	13.5
Courtland	5,303,000	6,706,800	1,403,800	26.5	1,936,600	2,748,000	811,400	41.9
Gaines	7,503,400	9,229,100	1,725,700	23.0	30,174,800	57,420,600	27,245,800	90.3
Grand Rapids	N/C	N/C			52,991,700	77,093,200	24,101,500	45.5
Grattan	8,221,700	9,732,500	1,510,800	18.4	713,800	1,101,900	388,100	54.4
Lowell	6,871,100	8,774,800	1,903,700	27.7	5,288,600	7,469,100	2,180,500	41.2
Nelson	2,726,900	3,754,400	1,027,500	37.7	2,508,050	3,244,700	736,650	29.4
Oakfield	3,579,900	5,066,400	1,486,500	41.5	1,259,400	2,223,300	963,900	76.5
Plainfield	65,900	291,400	225,500	342.2	78,156,100	109,746,000	31,589,900	40.4
Solon	5,668,500	7,295,200	1,626,700	28.7	5,288,800	8,673,603	3,384,803	64.0
Sparta	10,577,600	12,926,200	2,348,600	22.2	14,936,400	22,820,000	7,883,600	52.8
Spencer	5,001,400	6,626,200	1,624,800	32.5	978,500	1,371,700	393,200	40.2
Tyrone	7,972,450	9,773,450	1,801,000	22.6	2,876,325	4,015,100	1,138,775	39.6
Vergennes	6,503,500	8,082,600	1,579,100	24.3	780,500	1,639,700	859,200	110.1
City:								
Cedar Springs	N/C	34,400			5,239,400	8,257,500	3,018,100	57.6
East Grand Rapids	N/C	N/C			13,581,000	13,938,300	357,300	2.6
Grand Rapids	N/C	N/C			496,827,900	685,687,600	188,859,700	38.0
Grandville	N/C	N/C			63,208,900	85,990,100	22,781,200	36.0
Kentwood	N/C	N/C			266,595,500	330,348,600	63,753,100	23.9
Lowell	N/C	N/C			14,196,100	18,056,100	3,860,000	27.2
Rockford	N/C	97,200			10,831,600	15,483,800	4,652,200	43.0
Walker	N/C	N/C			80,432,700	130,569,300	50,136,600	62.3
Wyoming	N/C	N/C			210,550,400	258,248,800	47,698,400	22.7

Data compiled by Wade-Trim.
Source: Michigan Department of Treasury State Tax Commission, Annual State Equalized Valuation Report, 1992 and 1997

STATE EQUALIZED VALUE
BY CLASS 1992 and 1997
For Minor Civil Divisions

	Industrial Real Property				Residential Real Property			
	1992	1997	Numeric Change	Percent Change	1992	1997	Numeric Change	Percent Change
Township:								
Ada	16,047,650	49,946,100	33,898,450	211.2	176,003,412	287,502,971	111,499,559	63.4
Algoma	702,400	1,571,900	869,500	123.8	69,484,100	122,341,200	52,857,100	76.1
Alpine	5,064,300	8,646,400	3,582,100	70.7	83,515,800	130,495,100	46,979,300	56.3
Bowne	151,800	1,903,400	1,751,600	1153.9	28,090,300	49,439,500	21,349,200	76.0
Byron	36,615,000	63,123,100	26,508,100	72.4	135,583,500	225,471,300	89,887,800	66.3
Caledonia	3,070,500	5,017,500	1,947,000	63.4	107,907,800	173,815,700	65,907,900	61.1
Cannon	167,200	323,200	156,000	93.3	150,882,725	269,127,300	118,244,575	78.4
Cascade	91,692,900	122,257,000	30,564,100	33.3	373,471,370	524,631,600	151,160,230	40.5
Courtland	191,200	299,800	108,600	56.8	55,812,400	107,708,100	51,895,700	93.0
Gaines	10,509,700	17,152,900	6,643,200	63.2	142,803,434	239,349,900	96,546,466	67.6
Grand Rapids	45,200	147,100	101,900	225.4	189,653,500	328,087,620	138,434,120	73.0
Grattan	N/C	N/C			38,028,000	70,625,700	32,597,700	85.7
Lowell	296,400	660,700	364,300	122.9	45,219,600	73,764,800	28,545,200	63.1
Nelson	55,200	66,200	11,000	19.9	30,921,865	54,548,700	23,626,835	76.4
Oakfield	62,700	71,800	9,100	14.5	39,612,150	80,126,400	40,514,250	102.3
Plainfield	13,808,500	25,297,500	11,489,000	83.2	295,751,250	454,475,400	158,724,150	53.7
Solon	20,500	115,200	94,700	462.0	29,142,750	50,548,000	21,405,250	73.4
Sparta	4,815,100	7,486,100	2,671,000	55.5	62,303,950	90,924,200	28,620,250	45.9
Spencer	93,200	143,800	50,600	54.3	31,089,200	52,381,100	21,291,900	68.5
Tyrone	595,500	1,743,700	1,148,200	192.8	30,410,100	46,537,710	16,127,610	53.0
Vergennes	874,800	2,169,100	1,294,300	148.0	35,440,000	71,600,200	36,160,200	102.0
City:								
Cedar Springs	1,016,000	1,381,300	365,300	36.0	14,153,400	21,488,900	7,335,500	51.8
East Grand Rapids	N/C	N/C			244,170,400	314,741,200	70,570,800	28.9
Grand Rapids	134,458,600	189,889,950	55,431,350	41.2	1,476,549,800	1,806,787,400	330,237,600	22.4
Grandville	29,011,725	36,710,300	7,698,575	26.5	171,707,100	229,408,400	57,701,300	33.6
Kentwood	141,577,800	185,299,900	43,722,100	30.9	378,474,850	532,387,400	153,912,550	40.7
Lowell	7,767,200	9,324,200	1,557,000	20.0	26,005,200	38,211,000	12,205,800	46.9
Rockford	6,279,700	11,416,400	5,136,700	81.8	36,059,800	58,550,600	22,490,800	62.4
Walker	59,747,600	102,966,500	43,218,900	72.3	167,258,900	263,879,000	96,620,100	57.8
Wyoming	189,259,800	242,521,200	53,261,400	28.1	540,625,600	706,288,700	165,663,100	30.6

Data compiled by Wade-Trim.
Source: Michigan Department of Treasury State Tax Commission, Annual State Equalized Valuation Report, 1992 and 1997

STATE EQUALIZED VALUE
BY CLASS 1992 and 1997
For Minor Civil Divisions

	Personal Property			
	1992	1997	Numeric Change	Percent Change
Township:				
Ada	56,741,700	86,585,167	29,843,467	52.6
Algoma	4,346,100	8,214,700	3,868,600	89.0
Alpine	12,486,200	19,465,900	6,979,700	55.9
Bowne	1,954,400	7,788,900	5,834,500	298.5
Byron	27,851,700	47,468,400	19,616,700	70.4
Caledonia	13,534,900	17,576,900	4,042,000	29.9
Cannon	6,417,400	9,438,400	3,021,000	47.1
Cascade	78,256,600	102,908,200	24,651,600	31.5
Courtland	2,196,100	3,377,900	1,181,800	53.8
Gaines	13,296,900	21,970,500	8,673,600	65.2
Grand Rapids	17,935,300	24,751,100	6,815,800	38.0
Grattan	1,875,900	3,079,700	1,203,800	64.2
Lowell	2,451,500	3,128,250	676,750	27.6
Nelson	1,637,030	2,910,900	1,273,870	77.8
Oakfield	1,369,900	2,574,300	1,204,400	87.9
Plainfield	29,738,300	44,861,100	15,122,800	50.9
Solon	3,381,300	3,925,246	543,946	16.1
Sparta	13,992,500	18,421,100	4,428,600	31.6
Spencer	1,730,800	3,232,500	1,501,700	86.8
Tyrone	3,729,824	5,247,200	1,517,376	40.7
Vergennes	8,799,700	10,922,000	2,122,300	24.1
City:				
Cedar Springs	3,241,100	4,920,000	1,678,900	51.8
East Grand Rapid	5,688,300	5,730,600	42,300	0.7
Grand Rapids	345,392,750	430,953,900	85,561,150	24.8
Grandville	28,880,400	46,241,461	17,361,061	60.1
Kentwood	143,111,500	211,944,300	68,832,800	48.1
Lowell	13,377,500	14,129,100	751,600	5.6
Rockford	9,481,000	19,574,800	10,093,800	106.5
Walker	78,262,950	112,009,700	33,746,750	43.1
Wyoming	198,819,600	236,510,900	37,691,300	19.0

Data compiled by Wade-Trim.
Source: Michigan Department of Treasury State Tax Commission, Annual State Equalized Valuation Report, 1992 and 1997

The Kent County Equalization Department uses the descriptions for the classification of assessable real property found in the Michigan Compiled Laws, General Property Tax Section 211. They are described as follows:

- **Agricultural** real property includes those parcels used partially or wholly as farm land, with or without buildings, and those parcels assessed to the department of natural resources and valued by the state tax commission. As used in this subdivision, "agricultural operations" means farming in all its branches, including cultivating of soil; growing and harvesting of any agricultural, horticultural, or floricultural commodity; dairying; raising of livestock, bees, fish, fur-bearing animals, or poultry; turf and tree farming; and performing any practices on a farm as an incident to, or in conjunction with these farming operations. A commercial storage, processing, distribution, marketing, or shipping operations shall not be considered part of the farming operation.

- **Commercial** real property includes those platted or unplatted parcels used for commercial purposes, whether wholesale, retail, or service, with or without buildings; those parcels used by fraternal societies; and those parcels used as golf courses, boat clubs, ski areas, or apartment buildings with more than 4 units.

- **Developmental** real property includes those parcels containing more than 5 acres without buildings or more than 15 acres and whose value in sale exceeds its present value in use. Developmental real property may include farm land or open space land adjacent to a population center or farm land subject to several competing valuation influences.

- **Industrial** real property includes those platted or unplatted parcels used for manufacturing and processing purposes with or without buildings; those parcels used for utilities sties for generating plants, pumping stations, switches, substations, compressing stations, warehouses and right of way, flowage land and storage areas; and those parcels used for removal or processing of gravel, stone, or mineral ores, whether valued by the local assessor or by the state geologist.

- **Residential** real property includes those platted or unplatted parcels, with or without buildings, and condominium apartments located within or outside a village or city, which are used for, or probably will be used for residential purposes, and those parcels which are used for, or probably will be used for recreational purposes, such as lake lots and hunting lands, located in an area used predominantly for recreational purposes.

- **Timber-cutover** real property includes those parcels which are stocked with forest products of merchantable type and size, cutover forest land with little or no merchantable products, and marsh lands or other barren land. However, when typical purchases of this type land is for residential or recreational uses, the classification shall be changed to residential.

- **Personal** property includes items such as, farm buildings on leased land and agricultural equipment and produce not exempt by law, commercial equipment, furniture, fixtures on commercial property, outdoor advertising signs and billboards, well drilling rigs, unlicensed commercial vehicles, commercial buildings on leased

land, industrial machinery and equipment, and dies on industrial property. Residential personal property includes homes, cottages, or cabins on leased land, and mobile homes which would be assessable as real property except that the land on which they are located is not assessable because it is exempt. Utility personal property includes electric transmission and distribution systems, substation equipment, spare parts, oil wells and allied equipment such as tanks, field pump units, gas storage equipment, utility buildings on leased land, etc. (This is not a complete listing of all assessable personal property as it appears in the Michigan Compiled Laws.)

If the total usage of a parcel includes more than 1 classification, the assessor shall determine that classification which most significantly influences the total valuation of the parcel.

211.34a PUBLICATION: TENTATIVE EQUALIZATION RATIOS: BOARD OF REVIEW NOTICES TO INDICATE.

Sec. 34a. (1) The equalization director of each county shall prepare a tabular statement each year by the several cities and townships of the county, showing the tentative recommended equalization ratios and estimated multipliers necessary to compute individual state equalized valuation of real property and of personal property. The county shall publish the tabulation in a newspaper of general circulation within the county on or before the third Monday in February each year and furnish a copy to each assessor and to each of the boards of review in the county and to the state tax commission. All notices of meetings of the boards of review shall give the tentative ratios and estimated multipliers pertaining to their jurisdiction. The tentative recommended equalization ratios and multiplying figures shall not prejudice the equalization procedures of the county board of commissioners or the state tax commission.

(2) If the final equalization multiplier for only the 1986 tax year exceeds the tentative multiplier used in preparing the assessment notice and as a result of action of the state board of equalization or county board of commissioners a taxpayer's assessment as equalized is in excess of 50% of true cash value, that person may appeal directly to the tax tribunal. The appeal shall be filed under this subsection during 1986 on or before the third Monday in August and shall be heard in the same manner as other appeals of the tribunal. An appeal pursuant to this subsection shall not result in an equalized value less than the assesed value multiplied by the tentative equalization multiplier used in preparing the assessment notice.

Last Am. 1986, Act 138, Imd. Eff. June 30, 1986

Sec. 34b. Two or more counties may jointly establish an equalization department as provided by section 34. The joint equalization department shall assist the boards of commissioners in each participating county in surveying and equalizing assessments and meeting the requirements of section 34.

Added 1972, Act 356, Eff. January 9, 1973.

211.34c CLASSIFICATION OF ASSESSABLE PROPERTY.

Sec. 34c. (1) Not later than the first Monday in March in each year, the assessor shall classify every item of assessable property according to the definitions contained in this section. Following the board of review the assessor shall tabulate the total number of items and the valuations as approved by the board of review for each classification and for the totals of real and personal property in the unit. The assessor shall transmit to the county equalization department and to the state tax commission the tabulation of assessed valuations and such other statistical information as the state tax commission considers necessary to meet the requirements of this act and Act No. 44 of the Public Acts of 1911, as amended, being sections 209.1 to 209.8 of the Michigan Compiled Laws.

(2) The classifications of assessable real property shall be described as follows:

(a) Agricultural real property includes those parcels used partially or wholly as farm land, with or without buildings, and those parcels assessed to the department of natural resources and valued by the state tax commission. As used in this subdivision, "agricultural operations" means farming in all its branches, including cultivating of soil; growing and harvesting of any agricultural, horticultural, or floricultural commodity; dairying; raising of livestock, bees, fish, fur-bearing animals, or poultry; turf and tree farming; and performing any practices on a farm as an incident to, or in conjunction with these farming operations. A commercial storage, processing, distribution, marketing, or shipping operations shall not be considered part of the farming operation.

(b) Commercial real property includes those platted or unplatted parcels used for commercial purposes, whether wholesale, retail, or service, with or without buildings; those parcels used by fraternal societies; and those parcels used as golf courses, boat clubs, ski areas, or apartment buildings with more than 4 units.

(c) Developmental real property includes those parcels containing more than 5 acres without buildings or more than 15 acres and whose value in sale exceeds its present value in use. Developmental real property may include farm land or open space land adjacent to a population center or farm land subject to several competing valuation influences.

(d) Industrial real property includes those platted or unplatted parcels used for manufacturing and processing purposes with or without buildings; those parcels used for utilities sites for generating plants, pumping stations, switches, substations, compressing stations, warehouses and right of way, flowage land and storage areas; and those parcels used for removal or processing of gravel, stone, or mineral ores, whether valued by the local assessor or by the state geologist.

(e) Residential real property includes those platted or unplatted parcels, with or without buildings, and condominium apartments located within or outside a village or city, which are used for, or probably will be used for residential purposes, and those parcels which are used for, or probably will be used for recreational purposes, such as lake lots and hunting lands, located in an area used predominantly for recreational purposes.

(f) Timber-cutover real property includes those parcels which are stocked with forest products of merchantable type and size, cutover forest land with little or no merchantable products, and marsh lands or other barren land. However, when typical purchases of this type land is for residential or recreational uses, the classification shall be changed to residential.

(3) The classifications of assessable personal property shall be described as follows:

(a) Agricultural personal property includes farm buildings on leased land and any agricultural equipment and produce not exempt by law.

(b) Commercial personal property includes all equipment, furniture, and fixtures on commercial parcels, and inventories not exempt by law; outdoor advertising signs and billboards; well drilling rigs and other equipment attached to a transporting vehicle but not designed for operation while the vehicle is moving on the highway; unlicensed commercial vehicles or those licensed as special mobile equipment or by temporary permits; and commercial buildings on leased land.

(c) Industrial personal property includes all machinery and equipment, furniture and fixtures, and dies on industrial parcels, and inventories not exempt by law; industrial buildings on leased land; and personal property of mining companies valued by the state geologist.

(d) Residential personal property includes homes, cottages, or cabins on leased land, and mobile homes which would be assessable as real property under section 2a except that the land on which they are located is not assessable because it is exempt.

(e) Utility personal property includes electric transmission and distribution systems, substation equipment, spare parts, gas distribution systems, and water transmission and distribution systems; oil wells and allied equipment, such as tanks, gathering lines, field pump units and buildings; inventories not exempt by law; gas wells with allied equipment and gathering lines; oil or gas field equipment stored in the open or in warehouses, such as drilling rigs, motors, pipes and parts; gas storage equipment; transmission lines of gas or oil transporting companies; and utility buildings on leased land.

(4) Buildings on leased land of any classification are improvements where the owner of the improvement is not the owner of the land or fee and has not bound himself to pay taxes levied against the land or fee and the improvement has been assessed as personal property pursuant to section 14(6).

(5) If the total usage of a parcel includes more than 1 classification, the assessor shall determine that classification which most significantly influences the total valuation of the parcel.

(6) An owner of any assessable property who is aggrieved with the classification of the parcel, shall notify the assessor and may protest the assigned classification to the regular board of review. An owner or assessor who is not satisfied with the decision of the board of review may file a petition with the state tax commission within 30 days after the adjournment of the board of review. The state tax commission shall arbitrate the petition based upon the written petition and the written recommendations of the assessor and the state tax commission staff. An appeal may not be taken from the decision of the state tax commission regarding classification complaint petitions and their determination shall be final and binding for the year of the petition.

(7) This section shall not be construed to encourage the assessment of property at other than the uniform percentage of true cash value prescribed by this act.

Section 2. This act shall take effect beginning with 1979 assessments and 1980 county and state equalization.

Added. Act 381, Imd. Eff. July 27, 1978.

Implementation Measures

North East Beltline Joint Development Plan

Appendix

Mixed Use District Ordinance
Landscape Standards
Sign and Parking Guidelines
Bicycle Parking Ordinance
Bus Turnout Guidelines
Access Management Standards and Ordinance Model
Flood Plain, Wetland, Stream and Steep Slope Protection Ordinance

Mixed Use District Ordinance

SECTION 127
MXD DISTRICTS
MIXED USE

A. Purpose

The Mixed Use Districts are established to permit flexible and efficient use of large parcels at key locations by combining housing, employment, local commercial and open space uses in accordance with a unified design. Appropriate locations for the MXD Districts will be characterized by availability of public utilities, good access to collector or arterial highways, and potential access to public transit facilities. The phasing of development in the MXD Districts is to be concurrent with the phasing of required road improvements and is to result in a mix of land uses at the earliest feasible stage of development.

The MXD Districts provide for well designed communities which are compatible with surrounding neighborhoods and protective of the natural elements of the landscape. A Mixed Use Development is intended to include a planned network of open space which includes environmental areas, recreation areas, and public plazas or squares; a diversity of housing types at medium to high densities; and convenient pedestrian access between uses.

Two MXD Districts are established: the MXD-3 and MXD-6 Districts. The two districts allow differing intensities of land use in order to ensure that mixed use developments are compatible with surrounding land uses.

A Mixed Use Development shall contain at least one focal point: an area of diverse, integrated land uses, designed to create a distinct focus for the development. Focal points should be scaled and oriented to pedestrian movement and should incorporate public transit access if available.

The MXD District regulations promote and allow planning innovation and design flexibility. Each plan submission for an MXD District must incorporate design considerations at an appropriate level of detail for the submission stage. A public hearing is required at the Preliminary Development Plan and Comprehensive Sketch Plan stages of the plan review process, to ensure adequate opportunity for public comment.

In order to allow appropriate uses prior to the approval of a Mixed Use Development, the MXD-3 and MXD-6 Districts are Overlay Districts. Uses allowed in the underlying district may be established prior to the approval of a Preliminary Development Plan for Mixed Use Development.

B. General Provisions

1. The minimum size of any MXD District shall be 25 contiguous acres. The maximum size of an MXD-6 District shall be 75 contiguous acres. Land which is divided by utility rights-of-way or street rights-of-way shall be considered contiguous for purposes of Section 127.

2. Development within the MXD Districts shall be guided by a Preliminary Development Plan and Preliminary Development Criteria approved by the Zoning Board in accordance with the procedures established in Section 127.D. Except as allowed by Section 127.B.3 below, no development shall occur within an MXD District prior to approval of the Preliminary Development Plan.

3. Prior to approval of a Preliminary Development Plan, use or development of MXD-zoned land shall be subject to all regulations applicable to the underlying zoning district. After a

Preliminary Development Plan is approved, existing uses which were established pursuant to the underlying zoning district may continue. Such uses shall not be expanded to occupy additional land area, and principal structures related to such uses shall not be constructed or expanded. No new principal use shall be established after a Preliminary Development Plan is approved except in accordance with the Preliminary Development Plan and the requirements of the MXD-3 or MXD-6 District.

C. Requirements for Mixed Use Development

The requirements given below apply to land in the MXD-3 and MXD-6 Districts at the Preliminary Development Plan stage and subsequent stages of plan processing and development.

1. Water and Sewer Service

All development shall be served by public water and public sewer.

2. Minimum Area of Preliminary Development Plan

The area encompassed by a Preliminary Development Plan is referred to in these regulations as a Mixed Use Development. An MXD District may be developed as one or more Mixed Use Developments, subject to the following:

a. The first Preliminary Development Plan approved for an MXD District must encompass at least 40 percent of the area of all contiguous MXD-zoned parcels or at least 25 acres, whichever is greater. Subsequent Preliminary Development Plans by a different petitioner for the same MXD District must encompass at least 25 acres. A petition to amend the plan for an existing Mixed Use Development may add areas of any size to the Mixed Use Development.

b. Where there are two or more contiguous MXD-zoned lots or parcels under single ownership, the Preliminary Development Plan shall include the petitioner's entire contiguous acreage.

3. Proportions of Uses

a. Each Mixed Use Development shall provide the following land uses in the following proportions. The term "Mixed Use Development" refers to all land shown on one Preliminary Development Plan.

Land Use	Minimum % of Gross Area of Mixed Use Development
Open Space	35%
Residential	20%
Employment	15%

b. Areas of a Mixed Use Development in which residential and employment uses are mixed within a single site or building may be used to satisfy the minimum percentage requirements, based on the projected proportions of building area (e.g., if 30% of the floor area of buildings will be devoted to residential use, then 30% of the site acreage

shall be applied to residential land use acreage.)

c. The first Mixed Use Development approved within an MXD District shall include at least one focal point which shall have an integrated mix of land uses. The focal points may include land uses such as office and/or residential buildings, retail stores and services, civic or public uses, open space, including features such as plazas, squares, or other useable landscaped areas. Subsequent Mixed Use Developments within the same MXD District are not required to have a focal point, however, the land-use mix for all MXD Developments must cumulatively meet the requirements of Section 127.C.3.a.

d. The Preliminary Development Plan for a Mixed Use Development shall include a staging plan establishing the timing or sequence of development. The staging plan shall establish the earliest reasonable time frame for the recordation of subdivision plats for a proportionate mix of land uses. Staging should take into consideration: extension of water and sewer service; efficient use of road network capacity; and the market for residential and employment uses.

The staging plan shall allow no more than 50 percent of the acreage designated for residential land use to be recorded prior to commencing plat recordation for employment areas. After plats have been recorded for half of the designated residential acreage, each succeeding stage of development must make substantial progress toward recording the approved mix of land uses.

e. Recorded open space parcels must always constitute at least 35 percent of the total recorded land within a Mixed Use Development.

4. Permitted Uses

a. The use of land in a Mixed Use Development shall be limited to the permitted uses specified in the approved Preliminary Development Plan and Preliminary Development Criteria. The uses permitted by the Preliminary Development Plan shall be limited to the uses listed in this Subsection and shall comply with the restrictions given in Subsections 5 through 9 below. The permitted uses allowed by the Preliminary Development Plan may be limited to a portion of the uses listed below.

b. For Mixed Use Developments larger than 75 acres, the permitted uses shall be drawn from the following list:

(1) Uses permitted as a matter of right in the POR, B-1 and M-1 Districts.

(2) One single-family detached dwelling unit per lot.

(3) One zero lot line dwelling unit per lot.

(4) Single-family attached dwelling units.

(5) Apartments.

(6) Private recreational facilities, such as swimming pools, basketball courts and tennis courts, reserved for the use of on-site residents and their guests. Such facilities may be located within condominium developments as well as within

communities where all properties are included within recorded covenants and liens which govern and provide financial support for operation of the facilities.

(7) Two-family dwellings.

(8) Cemeteries, mausoleums and crematoriums.

(9) Country clubs and golf courses.

(10) Fast food restaurants.

(11) Gasoline service stations.

(12) Movie theaters, legitimate theaters, dinner theaters.

(13) Public utility uses, including substations and commercial communication towers.

(14) Other uses, similar to those above, approved by the Zoning Board on the Preliminary Development Plan.

c. For Mixed Use Developments of 75 acres or smaller, the permitted uses shall be drawn from the following list:

(1) Uses permitted as a matter of right in the POR and B-1 Districts

(2) One single-family detached dwelling unit per lot.

(3) One zero lot line dwelling unit per lot.

(4) Single-family attached dwelling units.

(5) Apartments.

(6) Private recreational facilities, such as swimming pools, basketball courts and tennis courts, reserved for the use of on-site residents and their guests. Such facilities may be located within condominium developments as well as within communities where all properties are included within recorded covenants and liens which govern and provide financial support for operation of the facilities.

(7) Two-family dwellings.

(8) Movie theaters, legitimate theaters, dinner theaters.

(9) Other uses, similar to those above, approved by the Zoning Board on the Preliminary Development Plan.

d. Uses permitted only in the R-MH or M-2 District shall not be permitted in the MXD-3 or MXD-6 District.

e. The Preliminary Development Criteria may specify that particular uses are permitted only if certain stated conditions or criteria are met. The Preliminary Development

Criteria shall authorize the Planning Board to determine whether the required conditions or criteria are met following a public hearing, according to the procedures established in Section 127.G.

5. Accessory Uses

Unless different accessory uses are indicated in the Preliminary Development Criteria, accessory uses shall be as follows.

a. The accessory use provisions of Section 109 (the R-12 District) shall be applicable to all residential uses in the MXD-3 and MXD-6 Districts.

b. The accessory use provisions of Section 115 (the POR District) and Section 122 (the M-1 District) shall be applicable to all employment uses in the MXD-3 and MXD-6 Districts.

6. Residential Density

a. The number of dwelling units permitted within a Mixed Use Development shall be as established in the Preliminary Development Plan and Preliminary Development Criteria, but shall be limited to the following density:

Type of MXD District	Maximum Density
MXD-3	3.0 dwelling units per gross acre of the Mixed Use Development
MXD-6	6.0 dwelling units per gross acre of the Mixed Use Development

b. Moderate Income Housing

(1) If the allowed residential density established by a Preliminary Development Plan exceeds 2.3 dwelling units per gross acre of the Mixed Use Development, the development shall include moderate income housing units in accordance with regulations adopted by the County Council and procedures of the Howard County Office of Housing and Community Development.

(2) Moderate income housing shall be provided in the amounts indicated below:

Dwelling Units Per Gross Acre of the Mixed Use Development	Minimum Percentage of Moderate Income Housing Units
More than 2.3 but no more than 2.7	5% of total number of dwelling units
More than 2.7	10% of total number of dwelling units

c. The number of apartment dwelling units allowed by a Preliminary Development Plan for a Mixed Use Development in an MXD-3 District shall be limited to no more than 30% of the total number of dwelling units allowed in the development.

7. **Requirements for Employment Uses**

a. Floor Area Ratio (F.A.R.)

The Preliminary Development Plan and Preliminary Development Criteria shall establish a cap on the total square footage of floor area which may be devoted to employment uses in the Mixed Use Development. The maximum allowed F.A.R., calculated by dividing the maximum gross floor area by the total net square footage of land area designated for employment land use, shall be limited to the following:

Zoning District	Maximum F.A.R.
MXD-3	0.35
MXD-6	0.50

b. Warehouse and Manufacturing

In Mixed Use Developments larger than 75 acres, warehouses and light manufacturing may be allowed as principal permitted uses, provided that the acreage devoted to such uses shall be no more than 15 percent of the area designated for employment land use. Warehouse and manufacturing uses which are accessory to research and development laboratories shall not be included in the area calculation.

c. Retail Centers

A portion of the employment land in a Mixed Use Development may be used for one or more retail centers which provide opportunity for clusters of retail and service uses. Retail centers shall be subject to the following requirements.

(1) The general location of retail centers must be established on the Preliminary Development Plan. Uses permitted in retail centers shall be as established in the Preliminary Development Criteria, and may include retail stores, personal service establishments, and similar uses, as well as fast food restaurants and gasoline service stations. Retail centers may be integrated with other uses such as residences, offices and open space.

(2) Retail centers must be designed to service a community or neighborhood, rather than a regional market.

(3) For all retail centers in a Mixed Use Development, the total gross floor area which may be used for retail and personal service businesses shall not exceed the following limits:

Zoning District	Gross Acreage of Mixed Use Development	Maximum Retail Floor Area Per Gross Acre
MXD-3	Less than 400 acres	150 square feet
	400 or more acres	300 square feet
MXD-6	Any acreage	250 square feet

The floor area limit shall not apply to retail or service businesses which are permitted accessory uses to a manufacturing, warehousing or office facility.

In a retail center which is integrated with other uses, the floor area designed to be devoted to residences, business or professional offices, or institutional uses shall not be included in the floor area limit.

(4) No single retail center shall contain more than 150,000 square feet of gross floor area designated for use by retail and personal service businesses.

d. Retail Establishments

No individual retail establishment within a MXD-3 or MXD-6 District shall have a gross floor area greater than 65,000 square feet, except as allowed by Paragraph e below.

e. Redevelopment of Shopping Centers

To allow the redevelopment of existing shopping centers in the MXD District, such centers shall be permitted to retain or redevelop existing retail and personal service space in an amount not to exceed the existing gross square footage of floor area devoted to such uses, even if the floor area exceeds the limits established in Paragraphs c and d above. Such developments may not add additional space for retail and personal service businesses unless the proposed Mixed Use Development meets the requirements of Paragraphs c and d.

Such Mixed Use Developments shall comply with all other MXD District requirements.

8. Requirements for Open Space

Open space lots designated for public uses which require a building or buildings to accommodate the principal use shall constitute a maximum of 30% of the gross acreage of open space within the Mixed Use Development.

9. Bulk Regulations

Requirements regarding setbacks, lot coverage, lot sizes, building heights and all other bulk regulations for the MXD District not established in this section shall be established by the Planning Board through approval of a Comprehensive Sketch Plan and Development Criteria, in addition to any requirements imposed by the Zoning Board in the Preliminary Development Plan and Preliminary Development Criteria.

10. Other Requirements

The provisions of Section 128 (Supplementary Zoning District Regulations) and Section 133 (Off Street Parking and Loading Facilities) shall apply in the MXD-3 and MXD-6 Districts unless different requirements are specifically approved in the Comprehensive Sketch Plan and Development Criteria.

D. Preliminary Development Plan and Criteria

1. Petitions

A petition for approval of a Preliminary Development Plan and Criteria shall be submitted by person(s) owning an interest in the land included in the plan.

2. Community Meetings

Prior to submission of the petition, the petitioner shall identify all community associations and homeowners associations which represent neighborhoods adjoining the development and have registered with the Department of Planning and Zoning for notice of new Sketch Plan submissions. The petitioner shall also make a good faith effort to identify other homeowners associations and community associations for neighborhoods adjoining the proposed development. The petitioner shall send a notice to the presidents of the associations by certified mail, using the most recent available address. The notice shall include a brief description of the proposed Mixed Use Development and an invitation for the association to meet with the petitioner's representatives to discuss the project.

3. Submission Requirements

The Preliminary Development Plan and Criteria shall consist of a generalized plan of the Mixed Use Development, as well as text and other drawings, giving the following information:

a. The major existing built and environmental features of the site and its immediate environs. Immediate environs shall mean all land within a distance of at least 500 feet from the boundary of the development.

b. The major planning assumptions and objectives including the projected number of households and number of jobs.

c. A generalized traffic analysis for the Mixed Use Development in relation to major road improvements proposed in the General Plan, and a plan for the staged recordation of subdivision plats for the Mixed Use Development in relation to the road improvements.

d. The approximate boundaries and approximate acreage of proposed residential, employment, focal point, and major open space land use areas, and, if applicable, of existing interim land uses which will continue after Preliminary Development Plan approval. The initial Preliminary Development Plan for an MXD District shall include a conceptual land-use master plan for the entire MXD District. This conceptual master plan is not binding on other property owners, but is intended to provide both a probable context for evaluating the initial petition and direction for future petitions.

e. The general location of proposed retail centers.

f. The proposed circulation system, including the general location of proposed major roads and points of access to existing roads, and any existing or proposed public transit facilities.

g. A description of public facilities that will serve the proposed development, including any major public facilities for which land may be provided within the Mixed Use Development.

h. Preliminary Development Criteria that establish:

(1) The maximum allowed density for each residential land use area and the maximum overall density of residential development based on the gross acreage of the Mixed Use Development.

(2) The maximum allowed F.A.R. for each employment land use area and the

maximum F.A.R. for employment development based on the total net acreage of employment areas.

(3) Uses permitted within each land use area. The permitted uses for a specific area of a Preliminary Development Plan may be designated as uses permitted in a specific zoning district, as a list of itemized uses, as one specific use, or any combination thereof.

(4) Other requirements for the proposed development.

i. A vicinity map showing the context of the Mixed Use Development including existing land uses, the off-site road network, parks, streams, and open space corridors.

j. Proposed ownership and responsibility for maintenance of open space areas.

k. If the site includes multiple parcels under different ownership, a long term management plan for the development, including identification of the parties responsible for implementing each phase of the Preliminary Development Plan and a description of the legal agreements which will enforce the management plan.

l. Evidence of compliance with Subsection D.2 above, and a report on any meetings held by the petitioner with community associations or homeowners associations for the surrounding neighborhoods.

4. Subdivision Review Committee (S.R.C.) Review

The agencies comprising the S.R.C. shall review the Preliminary Development Plan and Criteria and submit comments to the Department of Planning and Zoning. The Director of Planning and Zoning may require the petitioner to submit additional information or analyses, as necessary to allow a thorough evaluation of the proposal, before scheduling a Planning Board meeting.

5. Recommendation of Planning Board

The Planning Board shall hold a public meeting on the petition and make a recommendation to the Zoning Board, based on the "Criteria for Approval" given in Section 127.D.7 below.

6. Decision by the Zoning Board

a. The Zoning Board shall hold a public hearing on the petition and may approve, approve with modifications or deny the Preliminary Development Plan and Criteria, stating the reasons for its Decision. The Zoning Board's Decision shall be based on the "Criteria for Approval" given in Section 127.D.7 below.

b. If the Petition is approved:

(1) The Zoning Board may modify or apply additional requirements to the Preliminary Development Plan or Preliminary Development Criteria, stating the reasons for such action. The Board, in its discretion, may hold such additional hearings on any modifications or additional requirements to the plan as it deems appropriate.

(2) A reproducible copy of the Preliminary Development Plan and Criteria, including all text material, shall be provided by the Petitioner and certified as approved by the Zoning Board. A verified copy of the same shall be forwarded to the Department of Planning and Zoning and the Petitioner.

7. Criteria for Approval of Preliminary Development Plan

The Preliminary Development Plan and Criteria shall be approved if the Zoning Board concludes that the plan and criteria, subject to any modifications required by the Board, will satisfy all of the following criteria:

a. The plan and criteria will foster orderly growth, integration of uses, and development consistent with the purposes of the MXD District.

b. The Mixed Use Development will be phased to conform to the phasing of road improvements specified in the General Plan (Chapter Eight: Phased Growth) that are needed to serve the proposed development, including improvements to road links, intersections and interchanges for both State and County roads.

c. The staging plan establishes the earliest reasonable time frame for development of the focal point and recordation of subdivision plats for a proportionate mix of land uses in accordance with Section 127.C.3.d.

d. The plan and criteria are consistent with all applicable environmental policies and requirements.

e. The minimum area, proportions of uses and the density or intensity of development will be consistent with the requirements of Section 127.C.

f. The relative proportions of residential, employment, and open space uses will be appropriate to the area surrounding the MXD District.

g. If required, the development will include at least one integrated focal point of sufficient size and variety of land uses to be a distinct focus for the community. A focal point is required only for the first Preliminary Development Plan within an MXD District.

h. The location of land designated for retail centers is appropriate for retail and personal service uses which will serve the local neighborhood or community.

i. The development will provide a mix of housing types.

j. When feasible, public transit facilities and routes will be integrated into the development.

k. The intensity and scale of land use, as determined by proposed densities, F.A.R. limits and other requirements, will be appropriate in relation to the environmental constraints of the site and the character of existing and planned development in the vicinity of the site.

l. The development will be compatible with existing and planned vicinal land uses. One or more of the following methods may be used to ensure an appropriate relationship between the Mixed Use Development and surrounding land:

Landscape Standards

CHAPTER IV

LANDSCAPE REQUIREMENTS

GENERAL LANDSCAPE REQUIREMENTS

Section 16.124 of the Subdivision and Land Development Regulations requires landscaping in the following situations:

- Perimeter planting between adjacent land uses;
- Perimeter planting along public roads;
- Internal and perimeter planting of parking lots;
- Perimeter planting of loading areas;
- Internal planting for residential developments of mobile homes, single family attached units and apartments; and
- Perimeter planting of stormwater management facilities.
- Street trees along new internal roads and existing County roads.

The primary requirements for landscaping stipulate the quantity of plant materials that shall be provided to meet the requirements of the regulations. However, optional landscape treatments may be substituted in full or in part for the required planting. Optional treatments include preservation of existing forests and trees, use of berms or other land forms, and the installation of fences and walls.

The major focus of the regulations is on perimeter landscaping. This type of landscaping, required around the perimeter of a new development, is based on the type of land use proposed and the compatibility of the proposed land use with adjacent land uses. *Table 1* identifies the range of perimeter landscape treatments, from buffer to screen, by letter designation. Buffering is the use of landscape materials to lessen the visual impact of a use, or to visually or physically separate uses, while not necessarily shielding a structure or use from view. Screening is the use of landscape materials to substantially shield a structure or use from view.

The planting requirements for each landscape type call for planting a specific minimum number of shade trees, evergreen trees and/or shrubs. Plant material requirements are based on linear feet of property line. Calculations of required plant quantities are to be rounded to the nearest whole number.

TABLE 1
PERIMETER LANDSCAPE TYPES - BASED ON ADJACENT LAND USE

Landscape Edge Type	Landscape Character	Shade Trees/ Linear Feet	Evergreen Trees/ Linear Feet	Shrubs/ Linear Feet
A	Light Buffer	1:60	0	0
B	Moderate Buffer	1:50	1:40	0
C	Heavy Buffer	1:40	1:20	0
D	Screen	1:60	1:10	0
E	Buffer - Parking Adjacent to Roadway	1:40	0	1:4

When the property line is crossed by a right-of-way, use-in-common access area or non-residential driveway, the width of these areas shall not be computed as part of the total linear footage of the required edge. No more than 15% of the required strip shall be covered with an impervious surface for pedestrian circulation or use.

All landscape types (perimeter and internal) require planting of shade or canopy trees. In many categories evergreen trees are also required. Shrub planting is required only for buffering of parking from adjacent roadways. Except as otherwise noted in this manual, the following plant substitutions may be allowed in lieu of the requirements listed in Table I, provided the substitutions meet the intent of the regulations:

2 small deciduous trees may be substituted for 1 shade tree
2 evergreen trees may be substituted for 1 shade tree
10 shrubs may be substituted for 1 shade tree or evergreen tree

Examples of landscape edge calculations and illustrations of planting schemes that fulfill the requirements of the regulations are provided throughout this chapter.

DESIGN GUIDELINES

Plant materials should be chosen and located to achieve the desired landscape character of the edge type. The landscaped edge treatment may be formal or informal; naturalistic

or architectural depending on the character desired by the project designer. Guidelines for spacing of plants to achieve an effective screen or buffer is as follows:

- Planting requirements listed in *Table 1* are not spacing requirements; they are the means to calculate the quantities required.
- Plant materials may be clustered in groups or planted in rows.
- To create an effective dense screen, evergreen trees should be 10-15 feet on center. Trees should be clustered in locations that are the most effective in screening undesirable views.
- Shade trees create a light buffer, open at ground level but with canopies that may eventually touch, if clustered at a spacing of 25 feet on center.
- Clusters of flowering trees are generally an effective buffer when planted 15-20 feet on center.

The sizes of plants to achieve an acceptable screen or buffer are noted in *Appendix D* and as follows:

- Shade trees should be a minimum of 2½" caliper unless otherwise noted in *Appendix D.*
- Small deciduous trees should be in the size range listed in *Appendix D* and must be at least 8-10 feet tall.
- Evergreen trees must be 6-8 feet tall, except for less commonly available or more expensive species as noted in *Appendix D.*
- Shrub planting in a Type E landscape buffer for a parking lot adjacent to a right-of-way must be a minimum of 24-30 inches tall at installation.
- Shrub planting to supplement a land use perimeter buffer must be a minimum of 24-30 inches tall for evergreen materials and 30-36 inches tall for deciduous materials unless otherwise noted in *Appendix D.*

Required planting in any landscaped edge may be transferred to another landscaped edge or to another area elsewhere within the project boundary, if such transfer meets the intent of the regulations as approved by the Department of Planning and Zoning.

FOREST CONSERVATION AND LANDSCAPE REQUIREMENTS

Reforestation and afforestation may not be credited towards landscaping requirements unless such plantings meet both the 2 to 2 1/2" caliper size, location criteria and surety requirements for landscaping described in this manual.

The forest conservation program allows that certain forms of landscaping (planting of canopy trees, understory trees, shrubs and groundcover other than grass) may be used to meet the reforestation or afforestation requirements of the forest conservation plan upon approval of the Department of Planning and Zoning. Although such landscaping may be credited for 100% of the landscape ordinance obligations, the amount of the landscaped area to be credited for forest conservation obligations is limited to no more than 20% of those requirements. Landscaping for forest conservation program credit must be done in conformance with the standards for such landscaping cited in the Howard County Forest Conservation Manual. Forest conservation program landscaping must be included in the required construction and post-construction protection and management agreements of the Forest Conservation plan and must be in open space or in areas protected by binding, long term protective agreements under the same terms that apply to other reforestation or afforestation areas as described in Section 16.1204(d).

TREE PRESERVATION AND LANDSCAPE REQUIREMENTS

Existing trees which do not meet the definition of a forest for the purpose of the forest conservation program may be used to fulfill landscaping requirements if such trees are in a healthy growing condition and if the trees are of an appropriate size and type.

Subdivision and site development plans should make all feasible attempts to accommodate existing trees. Relocation of existing trees within the site is also encouraged and all available measures should be taken to ensure the life and good health of the tree.

In determining which trees shall be preserved during the development process, consideration shall be given to preserving those which exhibit the following characteristics:

- Are significant specimen trees of 6 inch caliper or larger;
- Are part of small groves or clusters of trees or hedgerows that do not qualify as a forest stand (10,000 square foot minimum);
- Can tolerate environmental changes or stresses that may be caused by development (ie: increased sunlight, heat, wind and alteration of water regime);

- Have strong branching and rooting patterns, are in a healthy, vigorous growing condition, are disease and insect resistant; and

- Are located in required buffer areas.

The area below the dripline of an existing tree to be saved should remain undisturbed either by cutting or filling in the development process. No impervious material should be placed under the dripline and a tree protection fence will be required to be installed around the trees at the limit of disturbance. Specific guidelines for tree protection during the construction process can be found in the Forest Conservation Manual. Tree protection symbols, notes and details must be shown on the sediment and erosion control plan.

Should any tree designated for preservation, for which landscaping credit is given, die prior to release of bonds, the owner will be required to replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 3 inches in caliper and installed as required in the Landscape Manual.

PERIMETER LANDSCAPED EDGES

Perimeter landscaped edges are required along the outside boundary of a property. The regulations do not require landscaped edges, buffering, or screening between internal lots or parcels within the same development. For cluster subdivisions in the Rural Conservation and Rural Residential districts, the perimeter landscaped edge shall be located at the perimeter of the cluster subdivision, not at the perimeter of the entire parcel. It is not intended that the preservation parcel be buffered or screened from adjacent properties.

Landscaped edges for buffering or screening and their required treatment are based on land use. The type and character of a required buffer or screen is determined by the degree of compatibility between the site uses and adjacent land uses. For example, two fairly compatible residential land uses would only need a light buffer whereas a commercial use adjacent to a residential community should be more heavily screened.

Where possible, the landscaped edge should be planted within the required setbacks established by the County Zoning Regulations. In any event, a landscape edge of at least 20 feet wide in width is required, except in districts where zoning setbacks permit parking or principal structures in closer proximity to property lines. In such instances, the Department of Planning and Zoning may approve a narrower landscaped edge, a fence, hedge or wall, or relocation of landscaping elsewhere on site. Buildings, parking, loading areas, stormwater management facilities, utility easements, storm drainage channels, play areas, drive aisles, parking spaces and similar uses may not be located in landscaped edges. Necessary pedestrian circulation, utility easements and access driveways may cross the landscape edges perpendicularly. Upon approval of the Department of Planning and Zoning and the Department

of Public Works, necessary utility or other easements may overlap with up to 25% of the required edge, provided that the required landscaping may be placed in the reduced area.

The landscape edges required along public and private roads, based on land use, are shown in *Table 2*. The landscape edges required between adjacent properties, based on land use and zoning, are shown in *Table 3*. Required planting for the landscaped edge types identified in *Tables 2 and 3* can be found in *Table 1*.

Figure 1 illustrates the method of calculating landscape obligations for various residential landscaped edges. Sample calculations for perimeter landscaped edges for non-residential properties as shown in *Figure 2*. *Figure 3* and *Figure 4* depict examples of various landscape treatments that comply with the requirements for landscape edge types A, B, C, D and E.

TABLE 2
LANDSCAPED EDGES ADJACENT TO ROADWAYS

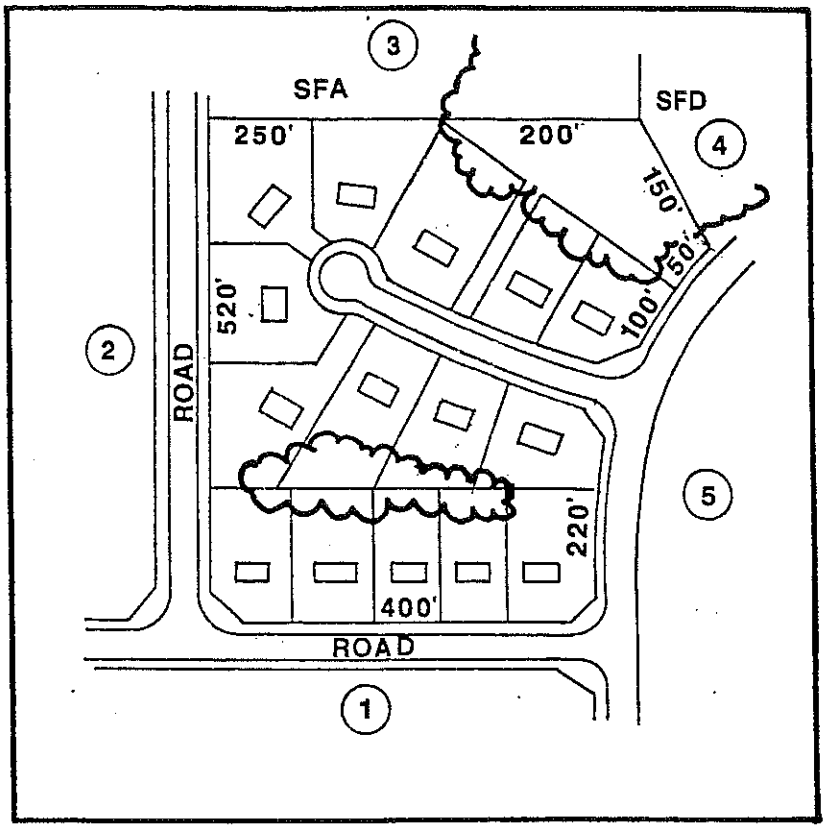
Land Use*	Orientation of Structure or Use to Roadway	Landscape Edge Type
Single Family Detached	Front Side/Rear	None B
Single Family Attached & Mobile Homes	Front Side/Rear	None C
Apartments	All Sides	B
Non-Residential	Front/Side Rear Rear - If Loading	B C D
Parking	NA	E

TABLE 3
LANDSCAPE EDGES ADJACENT TO PERIMETER PROPERTIES

Land Use*	Adjacent Land Use*	Landscape Type
Single Family Detached	All Uses	A
Single Family Attached, Mobile Homes & Apartments	SFD SFA & Mobile Homes All Other Uses	C B A
Non-Residential	Residential All Other Uses	C A
Loading	Residential All Other Uses	D C

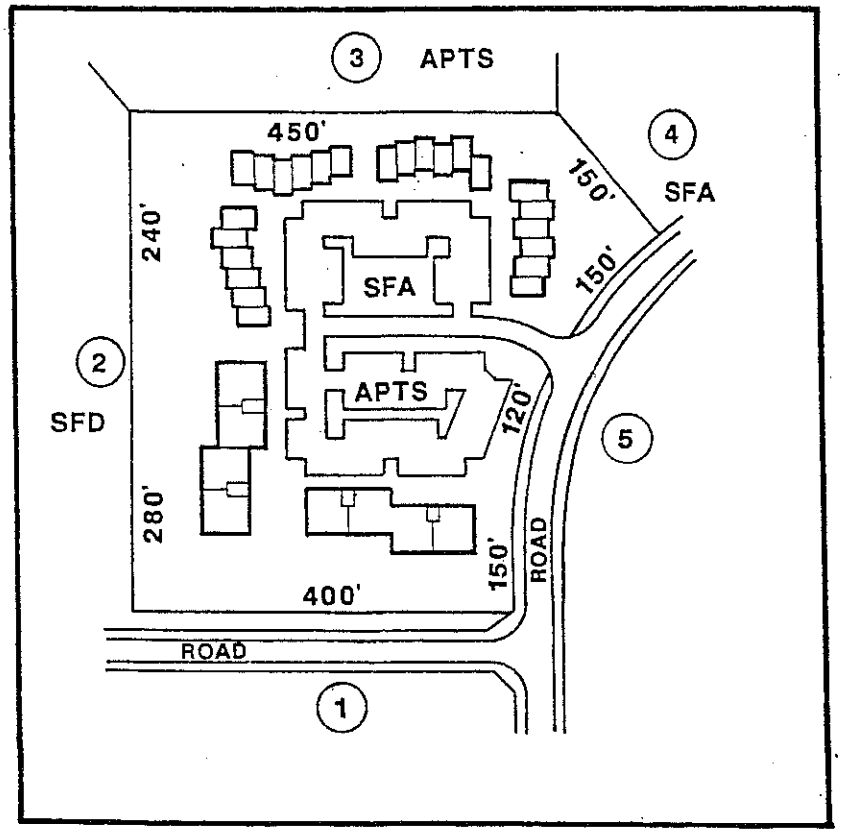
* Residential open space and unbuilt areas of a non-residential development are considered to have the same land-use as the principal use.

FIGURE 1
RESIDENTIAL PERIMETER LANDSCAPED EDGE CALCULATIONS



PERIMETER		EDGE TYPE
Perimeter 1		
SFD Front to Road - 400LF		NA
Perimeter 2		
SFD Side/Rear to Road - 520LF		B
1 Shade Tree/50 LF	10	
1 Evergreen Tree/40 LF	13	
Perimeter 3		
SFD to SFA - 250LF		A
1 Shade Tree/60 LF	4	
SFD to SFA - 200LF		A
Existing Trees to Remain		
Perimeter 4		
SFD to SFD - 150LF		A
Existing Trees to Remain		
Perimeter 5		
SFD to Road - 50LF		A
Existing Trees to Remain		
SFD Side to Road - 320 LF		B
1 Shade Tree/50 LF	6	
1 Evergreen Tree/40 LF	8	

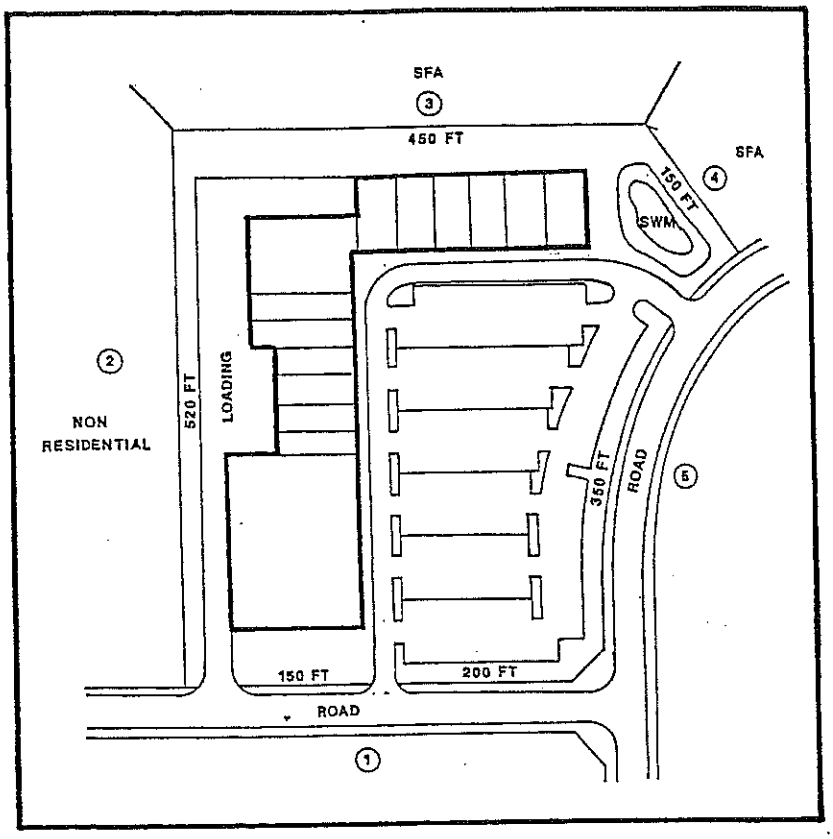
TOTAL PLANTING OBLIGATION	
Shade Trees	20
Evergreen Trees	21



Perimeter 1		
APTS to Road - 400LF		B
1 Shade Tree/50 LF	8	
1 Evergreen Tree/40 LF	10	
Perimeter 2		
APTS and SFA to SFD - 520LF		C
1 Shade Tree/40 LF	13	
1 Evergreen Tree/20 LF	26	
Perimeter 3		
SFA to APTS - 450LF		A
1 Shade Tree/60 LF	8	
Perimeter 4		
SFA to SFA - 150LF		B
Existing Trees to Remain		
Perimeter 5		
SFA Rear to Road - 150LF		C
Existing Trees to Remain		
Parking to Road - 120LF		E
1 Shade Tree/40 LF	3	
1 Shrub/4 LF	30	
APTS to Road - 150LF		B
1 Shade Tree/50 LF	3	
1 Evergreen Tree/40 LF	4	

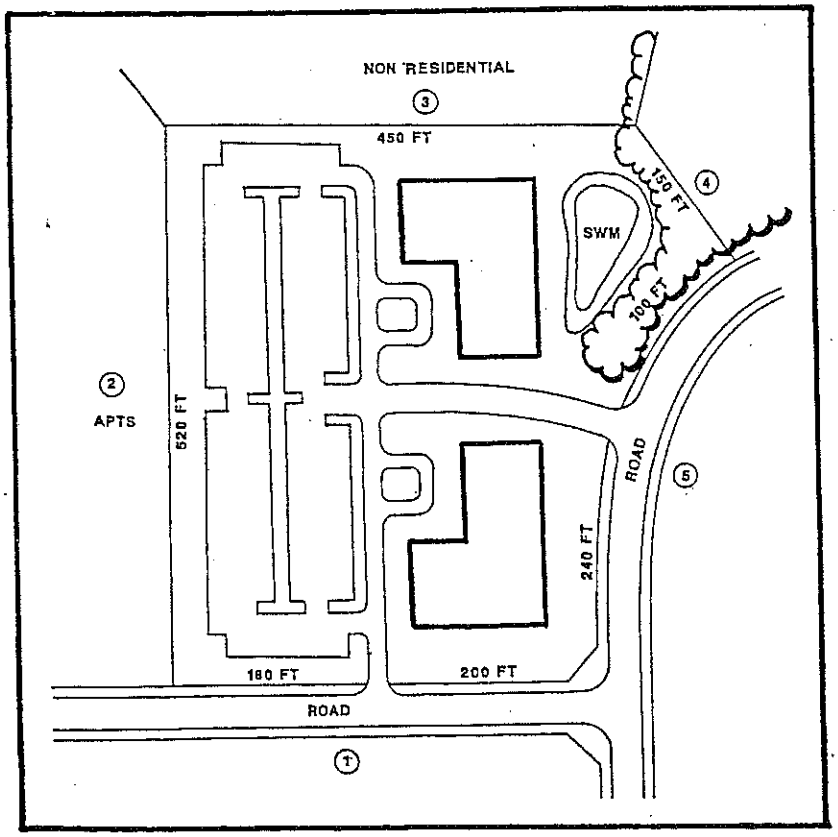
TOTAL PLANTING OBLIGATION	
Shade Trees	35
Evergreen Trees	40
Shrubs	30

FIGURE 2
NON-RESIDENTIAL LANDSCAPED EDGES



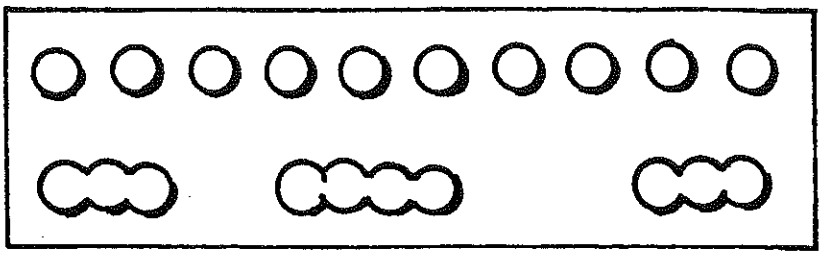
PERIMETER		EDGE TYPE
Perimeter 1		
Parking to Road - 200LF		E
1 Shade Tree/40 LF	5	
1 Shrub/4 LF	50	
Non-Res. Side to Road - 150LF		B
1 Shade Tree/50 LF	3	
1 Evergreen Tree/40 LF	4	
Perimeter 2		
Loading to Non-Res. - 520LF		C
1 Shade Tree/40 LF	13	
1 Evergreen Tree/20 LF	26	
Perimeter 3		
Non-Res.&Loading to Res.-450LF		D
1 Shade Tree/60 LF	8	
1 Evergreen Tree/10 LF	45	
Perimeter 4		
Non-Res. to Res. - 150LF		C*
1 Shade Tree/40 LF	4	
1 Evergreen Tree/20 LF	8	
Perimeter 5		
Non-Res. to Road - 70 LF		B*
1 Shade Tree/50 LF	1	
1 Evergreen Tree/40 LF	2	
Parking to Road - 350LF		E
1 Shade Tree/40 LF	9	
1 Shrub/4 LF	88	
TOTAL PLANTING OBLIGATION		
Shade Trees	43	
Evergreen Trees	85	
Shrubs	138	

(*Non-Res. buffer exceeds SWM buffer, therefore stricter requirement applies)



Perimeter 1		
Non-Res. to Road - 200LF		B
1 Shade Tree/50 LF	4	
1 Evergreen Tree/40 LF	5	
Parking to Road - 180LF		E
1 Shade Tree/40 LF	5	
1 Shrub/4 LF	45	
Perimeter 2		
Non-Res. to Res. - 520LF		C
1 Shade Tree/40 LF	13	
1 Evergreen Tree/20 LF	26	
Perimeter 3		
Non-Res. to Non-Res. - 450LF		C
1 Shade Tree/40 LF	11	
1 Evergreen Tree/20 LF	23	
Perimeter 4		
Non-Res. to Non-Res. - 150LF		A
Existing Trees to Remain		
Perimeter 5		
Non-Res. to Road - 180LF		B
Existing Trees to Remain		
Non-Res. to Road - 240LF		B
1 Shade Tree/50 LF	5	
1 Evergreen Tree/40 LF	6	
TOTAL PLANTING OBLIGATION		
Shade Trees	38	
Evergreen Trees	60	
Shrubs	45	

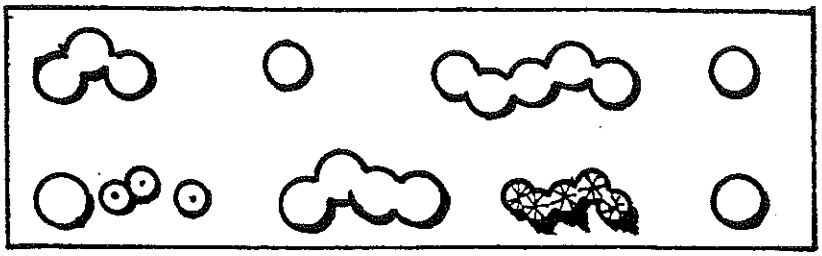
FIGURE 3
EXAMPLES OF LANDSCAPED EDGE TYPES



TYPE A BUFFER - 600 Linear Feet
1 Shade Tree/60 Linear Feet 10

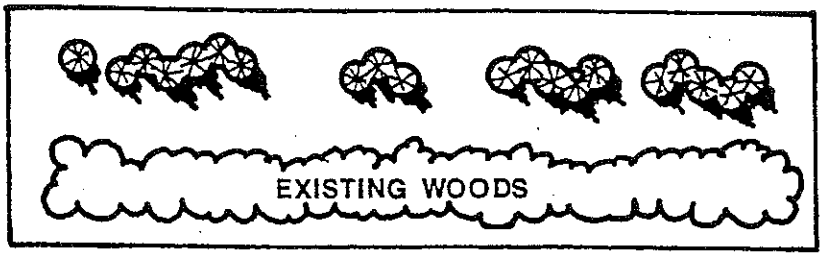
A. 10 Shade Trees

B. 10 Shade Trees



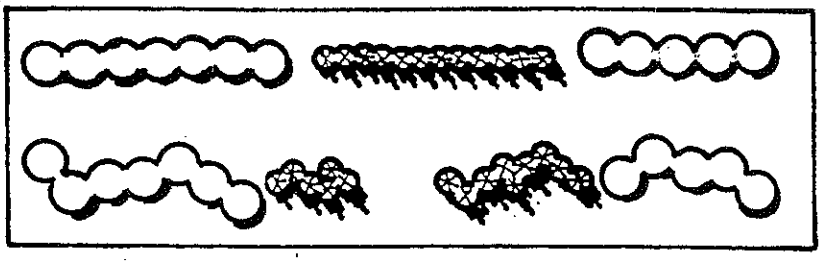
A. 10 Shade Trees

B. 6 Shade Trees
8 Other Trees (2/1 Shade Tree = 4)
5 Evergreen Trees
3 Small Deciduous Trees



A. 20 Evergreen Trees
(2/1 Shade Tree = 10)

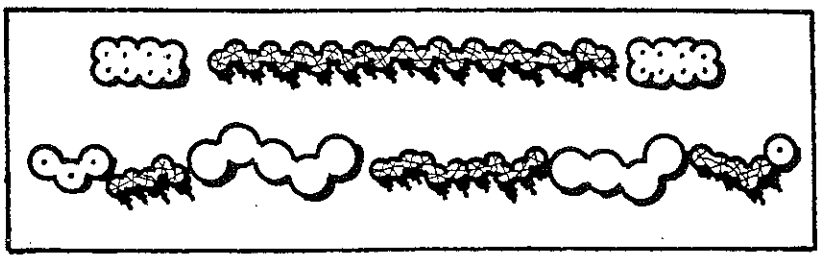
B. 0 New Trees Provided
Existing Woods Preserved



TYPE B BUFFER - 600 Linear Feet
1 Shade Tree/50 Linear Feet 12
1 Evergreen Tree/40 Linear Feet 15

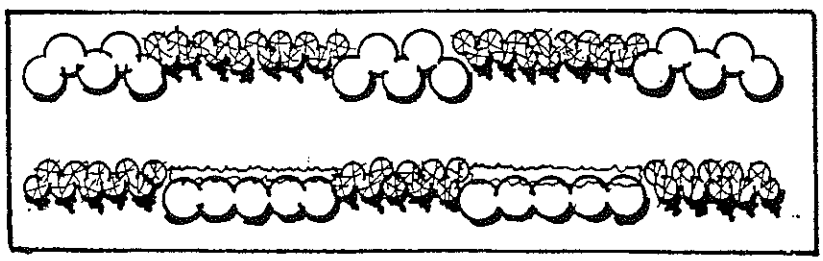
A. 12 Shade Trees
15 Evergreen Trees

B. 12 Shade Trees
15 Evergreen Trees



A. 7 Shade Trees
10 Other Trees (2/1 Shade Tree = 5)
4 Small Deciduous Trees
6 Evergreen Trees
15 Evergreen Trees

B. 24 Other Trees (2/1 Shade Tree = 12)
16 Small Deciduous Trees
8 Evergreen Trees
15 Evergreen Trees

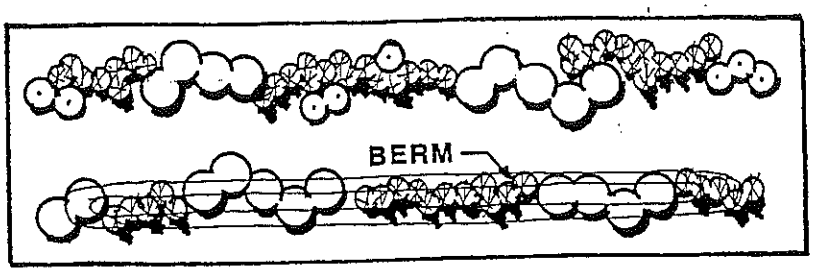


TYPE C BUFFER - 600 Linear Feet
1 Shade Tree/40 Linear Feet 15
1 Evergreen Tree/20 Linear Feet 30

A. 15 Shade Trees
30 Evergreen Trees

B. 10 Shade Trees
50 Shrubs (10/1 Shade Tree = 5)
30 Evergreen Trees

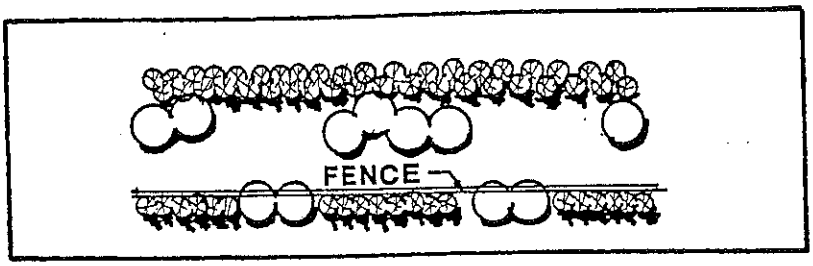
FIGURE 4
EXAMPLES OF LANDSCAPED EDGE TYPES



TYPE C BUFFER - 600 Linear Feet

A. 9 Shade Trees
12 Other Trees (2/1 Shade Tree = 6)
8 Small Deciduous Trees
4 Evergreen Trees
15 Evergreen Trees

B. Berm - 30% Credit for Required Trees
11 Shade Trees (70% of 15)
21 Evergreen Trees (70% of 30)



TYPE D BUFFER - 400 Linear Feet

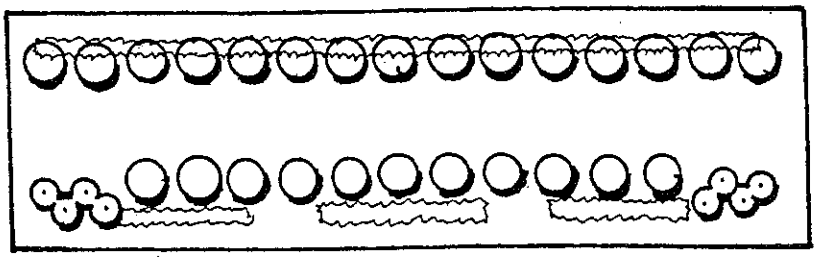
1 Shade Tree/60 Linear Feet	7
1 Evergreen Tree/10 Linear Feet	40

A. 7 Shade Trees
40 Evergreen Trees

B. Solid Wall or Fence-50% Credit
4 Shade Trees (50% of 7)
20 Evergreen Trees (50% of 40)

A. 4 Shade Trees
6 Flowering Trees
(2/1 Shade Tree = 3)
40 Evergreen Trees

B. Existing Trees to Remain
No Shade Trees Required
50% Credit for Required Evergreen Trees
20 Evergreen Trees Provided

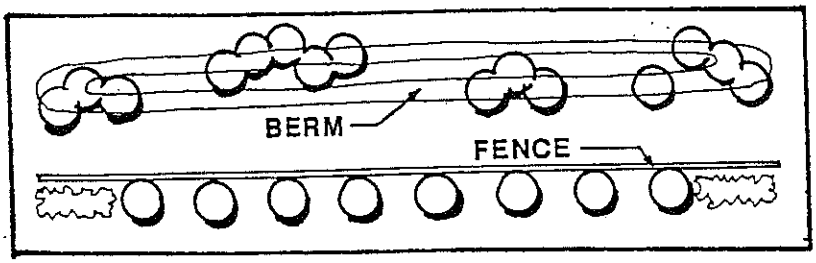


TYPE E BUFFER - 600 Linear Feet

1 Shade Tree/40 Linear Feet	15
1 Shrub/4 Linear Feet	150

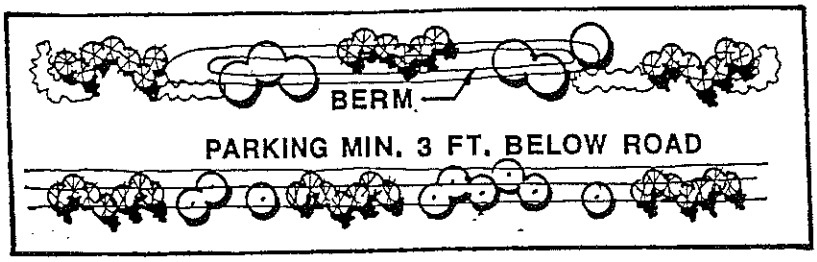
A. 15 Shade Trees
150 Shrubs

B. 11 Shade Trees
8 Small Deciduous Trees
(2/1 Shade Tree = 4)
150 Shrubs



A. Berm - No Shrubs Required
15 Shade Trees

B. Solid Wall or Fence
11 Shade Trees Required (1/60LF)
0 Shrubs Required
8 Shade Trees Provided
30 Shrubs (10/1 Shade Tree = 3)



A. 6 Shade Trees
18 Evergreen Trees
(2/1 Shade Tree = 9)
63 Shrubs
350 Linear Feet Berm - No Shrubs
250 Linear Feet Shrubs 1/4LF

B. 30 Other Trees (2/1 Shade Tree = 15)
9 Small Deciduous Trees
21 Evergreen Trees

Optional Treatments

A variety of landscape treatments other than the planting stipulated in *Table 1* may satisfy landscaping requirements. Optional treatments that may satisfy the landscape requirements include:

- *Preserving Existing Vegetation*

  Up to 100% of the planting requirement may be met by preserving existing vegetation. A minimum buffer width of 20 feet of existing vegetation must be preserved in single family detached developments and business districts; 25 feet in single family attached, or apartments developments; and 30 feet in all other non-residential districts. For preservation areas of lesser widths, a tree preservation plan showing the location of trees within the preserved area must be provided. In any case, the Department of Planning and Zoning may require the applicant to provide supplemental planting if existing vegetation cannot provide adequate screening or buffering.

- *Providing a Berm or Grade Change*

  A berm that is a minimum of 3 feet high, or a change in grade that causes a parking lot to be located lower than the adjacent roadway by 3 feet or more, may be substituted for shrub planting in a Type E landscape buffer. Berms may be substituted for evergreen trees or shrubs in meeting other perimeter landscaping requirements. In general, berms that buffer new development from an adjacent roadway should be a minimum of 3 feet high if the front or side of the structure(s) abut the roadway, and a minimum of 6 feet high if the rear of the structure or a loading area abuts the roadway. Berms between similar uses (i.e. residential to residential or non-residential to non-residential) should be a minimum of 3 feet high. Non-residential uses adjacent to residential properties should provide berms that are a minimum of 6 feet high to obtain a credit towards provision of required plant materials. In no instances will berms be substituted for required shade tree plantings.

- *Erecting a Fence, Hedge or Wall*

  Landscaped edges may be reduced to a width of 10 feet if a masonry wall, hedge, or solid fence is provided. Walls, hedges and fences may be credited towards meeting 100% of the required landscape planting; however the Department of Planning and Zoning may require at least 1 tree per 60 linear feet of wall or one shrub or vine per 10 linear feet of wall or fences if the fence or wall does not have architectural articulation. Where walls or fences abut a public or private road right-of-way, the planting should be on the street side of the wall.

A masonry wall or solid fence at least 5 feet high must be provided between adjacent land uses or where rears of residential buildings or loading areas abut roadways. A wall or fence at least 3-1/2 feet high is needed where parking lots abut roadways or where the fronts or sides of buildings abut roadways. In the latter case a solid or semi-transparent fence or wall may be approved.

Requirements and Guidelines for Parking Lots and Loading Areas

The requirements for buffering of parking areas are intended to reduce the visual impact of automobiles and large expanses of paving from adjacent roadways and from abutting properties.

For parking lots adjacent to roadways, a Type E landscaped buffer is required. This combination of low shrubs and canopy trees generally provides for some visual penetration of a site while partially screening car parked immediately adjacent to the roadway. The goal of creating a buffer at the edge of a roadway that is a minimum buffer of 3 feet high can be accomplished with shrubs, a change in grade, a berm, a fence or a wall.

In most commercial areas, the desire to identify buildings from the roadway requires that eye level sight lines be preserved. Thus, the use of evergreen trees or small deciduous trees with low canopies may not be desirable. However, when commercial parking lots abut residential land uses, required planting should be clustered in the areas where it is most needed to buffer or screen objectionable views. In such instances, it may be appropriate to substitute evergreen trees, small deciduous trees or shrubs for the required perimeter shade trees.

In residential areas, the preservation of existing vegetation as a buffer between parking areas and roadways or other perimeter land uses is strongly recommended. Substitution of evergreen trees or small deciduous trees for required shade trees may be appropriate to buffer residential communities from surrounding roadways. When residential parking lots abut other residential properties, clustering of evergreen trees or use of dense mixed plantings between the parking areas and the property perimeter is recommended.

Loading and service areas include dumpster and compactor areas as well as truck loading facilities such as dock areas, drive-in loading bays and at grade service entrances to structures. For all loading and service areas adjacent to roadways or residential properties, a landscaped edge with a Type D screen shall be provided between the loading or service area and any public or private road, residential structure or lot. For loading area adjacent to perimeter boundaries other than those specified above, a Type C landscaped edge shall be provided. As mentioned previously, landscaping of perimeter boundaries is not required for adjacent parcels within the same property.

Perimeter landscaping of parking lots and loading areas for special exception uses may exceed those specified in the landscaping regulation if required by the decision and order issued by the Board of Appeals.

PARKING LOT INTERNAL LANDSCAPING

All parking lots must provide permanently landscaped areas consisting of planted islands, peninsulas, or medians within the interior of the lot. Landscaped areas should divide lots into groups of parking spaces to relieve the monotony of large expanses of paving and contribute to efficient and safe circulation of traffic in the parking areas.

Expansion of an existing parking lot or loading area that increases the area or number of spaces by 50% or more shall be required to provide landscaping for the entire parking lot or loading area in accordance with these regulations. Expansions of less than 50% shall be required to provide landscaping for the additional development only.

Required screening along the perimeter of any parking lot cannot be credited as part of the interior landscaping requirements. Moreover, where a parking lot abuts buildings on the site, plantings adjacent to those buildings shall not be considered as part of the interior landscaping requirements.

Landscaped islands shall be minimum of 12 feet in width (face of curb to face of curb) and completely curbed or otherwise protected. The minimum size of an internal landscaped area shall be 200 square feet. Walkways will be permitted within the landscaped island, but cannot be counted as part of the minimum width or minimum size.

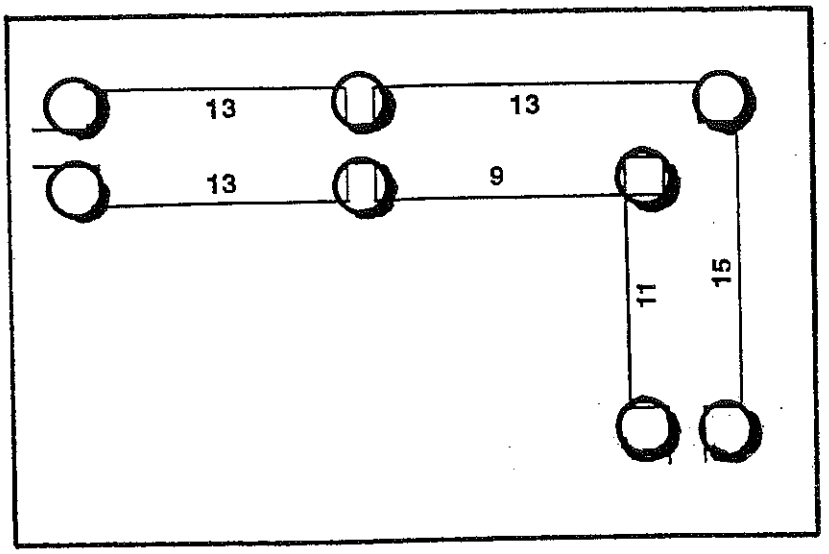
The primary trees to be used in parking lots shall be large shade trees. Small deciduous trees or evergreen trees may be used if it can be demonstrated that they will not inhibit visibility and safe circulation of pedestrians and vehicles. When allowed, small deciduous trees and evergreen trees must be substituted for shade trees at a 2:1 ratio.

Internal parking lot landscaping shall be shown on the site development plan.

Residential Parking Lots

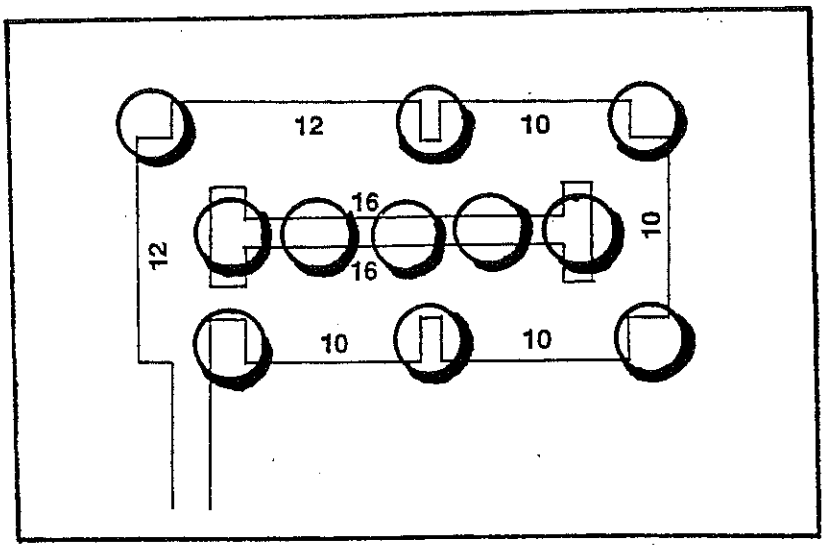
Parking lots for single family attached and apartment dwelling units shall have 1 landscaped island per 10 parking spaces and 1 shade tree per 10 parking spaces. This requirement does not necessarily mean that an island with a shade tree must occur every 10 spaces; the requirement is a means of calculating planting requirements. Grouping of parking spaces should generally not exceed 12 in a row for residential land uses. Landscaped areas in residential parking lots may be internal islands and peninsulas, perimeter corner green areas formed where two rows of parking spaces abut or peninsula areas formed where parking areas and access roads or entrance driveways abut. Trees provided to meet internal planting requirements may be located in internal landscaped areas, perimeter corner areas or entrance area peninsulas. *Figure 5* shows how to compute requirements for internal islands and trees for residential parking lots and depicts parking lot planting plans that satisfy the regulations.

FIGURE 5
RESIDENTIAL PARKING LOT INTERNAL PLANTING



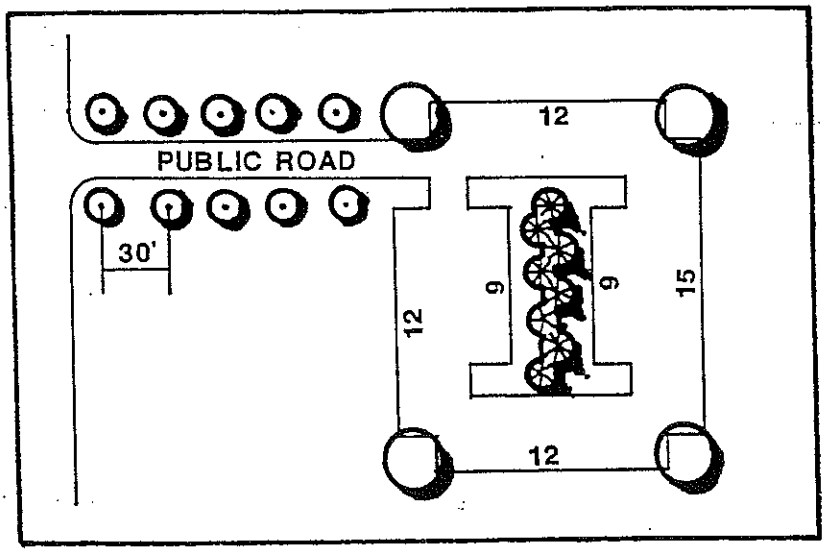
EXAMPLE 1

Number of Parking Spaces	74
Islands Required	8
1/9 Spaces	
Islands Provided	8
Shade Trees Required	8
1/9 Spaces	
Shade Trees Provided	8



EXAMPLE 2

Number of Parking Spaces	96
Islands Required	11
1/9 Spaces	
Islands Provided	20
200 Sq. Ft./Island	
Shade Trees Required	11
1/9 Spaces	
Shade Trees Provided	11



EXAMPLE 3

Number of Parking Spaces	69
Islands Required	8
1/9 Spaces	
Islands Provided	28
200 Sq. Ft./Island	
Shade Trees Required	8
1/9 Spaces	
Trees Provided	
Shade Trees (50% required)	4
Evergreen Trees (2/1 Shade = 4)	8

PUBLIC ROAD

No Parking Spaces Along Road	
Street Trees Required	
Small Deciduous Trees	10
30 Feet Apart	

As described in *Chapter V, Street Trees*, internal parking lot landscaping provided in single family attached developments will satisfy the street tree obligations for internal public rights-of-way. In such cases, plantings within the public right-of-way need not be shown on the road construction drawings, but must be included on the site development plan.

Non-Residential Parking Lots

Parking lots for office, industrial, retail, institutional and related commercial use shall have 1 landscaped island per 20 parking spaces and 1 shade tree per 20 parking spaces. This requirement is a means of calculating planting obligations. Grouping of parking spaces should generally not exceed 24 in a row for commercial and institutional lands uses but may be permitted at up to 30 in a row for large regional shopping centers and malls. In large parking lots, the creation of large islands that permit the planting of groups or rows of trees is encouraged.

Landscaped areas may be internal islands and peninsulas. For non-residential parking lots, perimeter green areas formed where two rows of parking spaces abut or where parking areas and access roads or driveways abut may not be counted as internal islands. Trees provided to meet internal planting requirements must be located in internal landscaped areas. *Figure 6* shows how to compute requirements for internal islands and trees for non-residential parking lots. It also depicts parking lot planting plans that satisfy the intent of the regulations.

RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

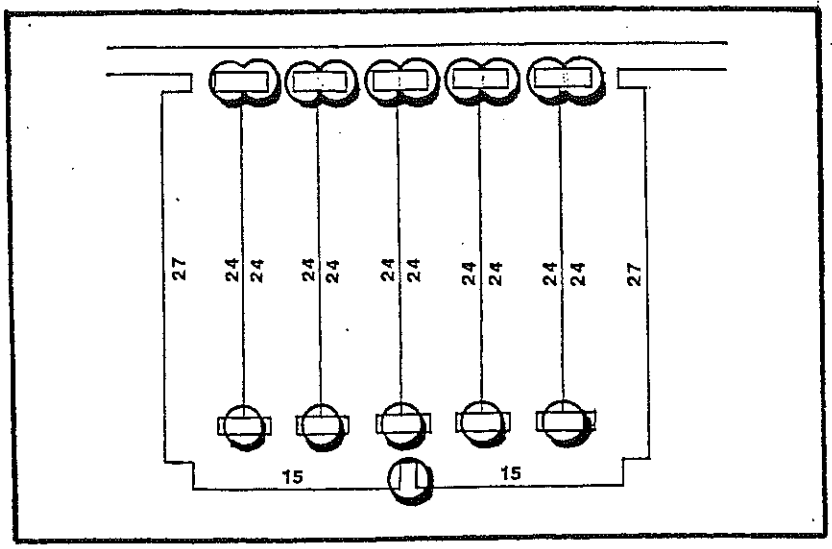
Internal landscaping is required within all new single family attached, mobile home, and apartment developments. Expansion to existing development that increases the number of single family attached units or apartments by 50% or more shall be required to provide landscaping for the entire site in accordance with these regulations. Expansion of less than 50% of the number of existing units shall be required to provide landscaping for the additional development only.

Single Family Attached

The following requirements apply for single family attached projects in any district or for mobile home projects:

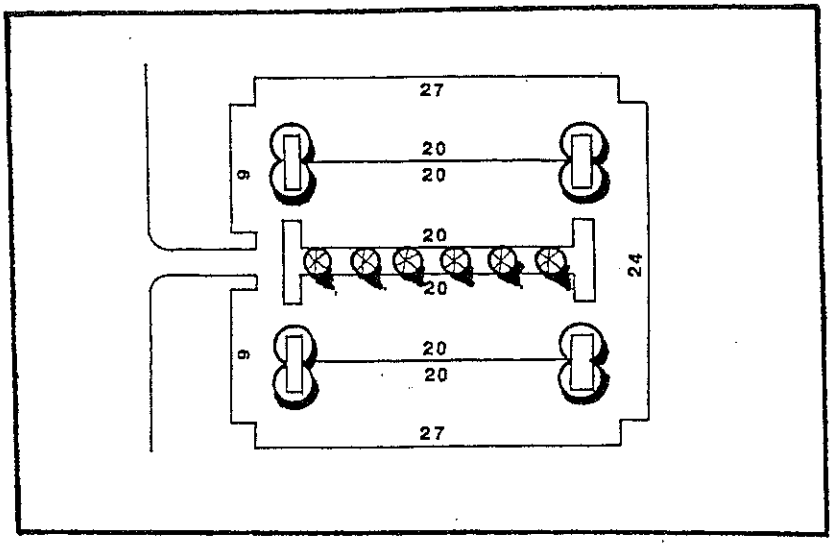
- 1 shade tree per unit.
- Small deciduous or evergreen trees may be substituted for shade trees at a 2:1 ratio up to a maximum of 50% of the required shade trees.
- Trees may be placed on residential lots, in open space lots or at other on-site locations that meet the intent of the regulations.
- Landscape planting requirements shall be shown on the site development plan.
- A minimum 15 foot wide landscaped area shall be provided between common parking areas and any adjacent residential structure.

FIGURE 6
NON-RESIDENTIAL PARKING LOT INTERNAL LANDSCAPING



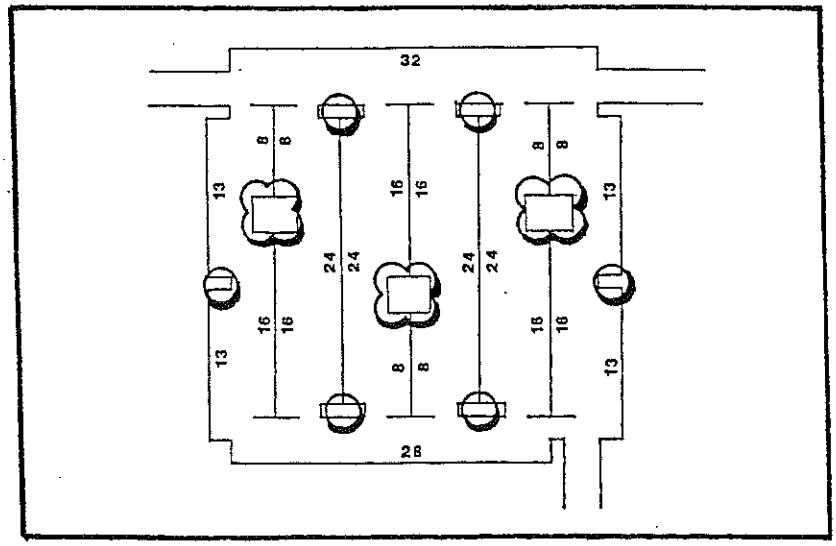
EXAMPLE 1

Number of Parking Spaces	324
Internal Islands Required 1/20 Spaces	16
Internal Islands Provided	21
Shade Trees Required 1/20 Spaces	16
Shade Trees Provided	16



EXAMPLE 2

Number of Parking Spaces	216
Internal Islands Required 1/20 Spaces	11
Internal Islands Provided 200 Sq. Ft./Island	28
Shade Trees Required 1/20 Spaces	11
Trees Provided	
Shade Trees	8
Evergreen Trees (2/1 Shade = 3)	6



EXAMPLE 3

Number of Parking Spaces	352
Internal Islands Required 1/20 Spaces	18
Internal Islands Provided 200 Sq. Ft./Island	29
Shade Trees Required 1/20 Spaces	18
Shade Trees Provided	18

Apartments

The following requirements apply for apartments projects in any district:

- A minimum of 1 shade tree per 3 units shall be provided.
- Small deciduous trees or evergreen trees may be substituted at a 2:1 ratio for up to 50% of the required shade trees.
- A minimum 15 foot wide landscaped area shall be provided between common parking areas and any adjacent residential structure.

Figure 7 exhibits calculations for and internal landscaping of a residential development with townhomes and apartment units.

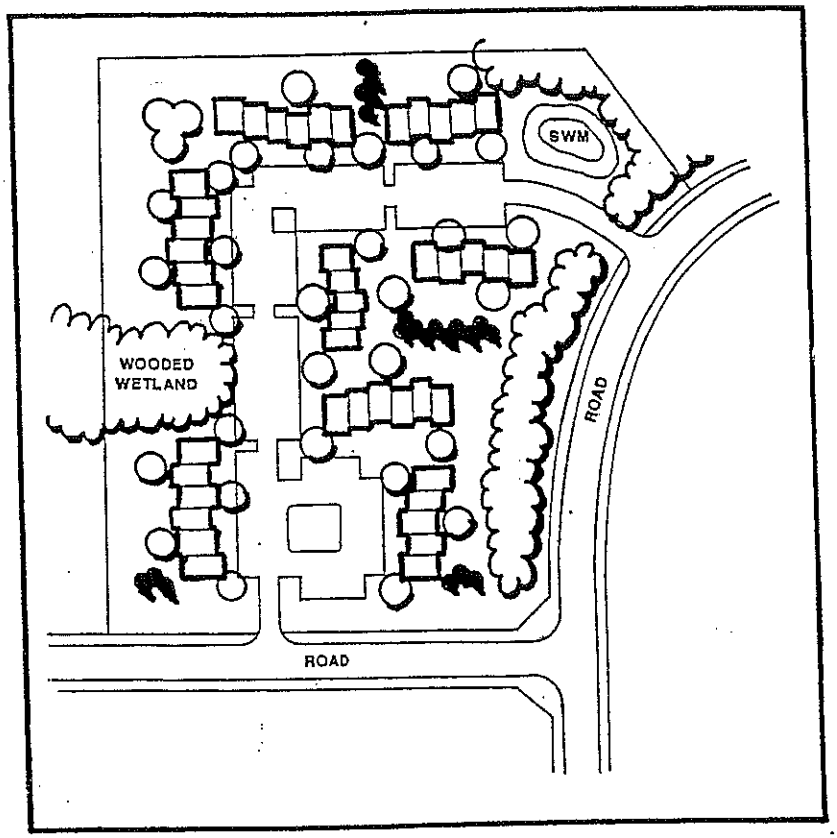
STORMWATER MANAGEMENT AREA LANDSCAPING

Landscaping of new or expanded stormwater management areas is required in all zoning districts excluding M-1 and M-2 parcels where stormwater management areas are not adjacent to residential zoning or a public road.

For stormwater management facilities that have an internal location within the development, a landscaped edge shall be provided between the stormwater management area (wet, dry or extended detention) and any adjacent structure or lot. Perimeter length is calculated along the lot or easement boundary. The landscaped edge shall contain a Type B buffer. For stormwater management facilities adjacent to roadways or perimeter properties, a Type B buffer is required unless a Type C buffer is required in Tables 2 or 3.

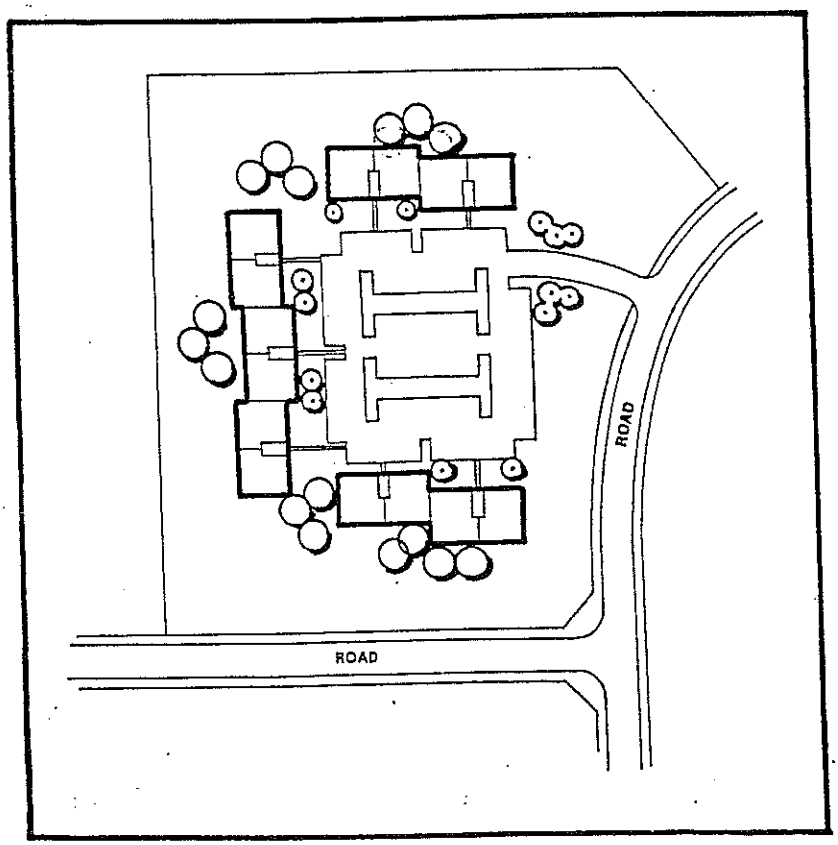
Planting within the landscaped edge may not encroach on maintenance access to the facility as required by the Department of Public Works. Planting will not be allowed on any stormwater management facility dam/berm or in any other location that could threaten the structural integrity of the facility. This restriction does not supersede perimeter landscaping requirements. Stormwater management facilities must be located to avoid conflict with perimeter plantings. If this conflict cannot be avoided, the required stormwater management perimeter planting shall be relocated elsewhere on site as approved by the Department of Planning and Zoning. *Figure 8* illustrates the method of calculating landscape obligations for internal stormwater management areas and identifies the general location of the landscaped edge. An example of a stormwater management area planting that fulfills the requirements of the regulations is shown in *Figure 9.* Depending on the type of stormwater management facility, landscaping within the facility may be substituted for perimeter landscaping if the Department of Planning and Zoning determines this provides a more attractive design and steep slopes do not necessitate a physical buffer along the perimeter.

FIGURE 7
RESIDENTIAL INTERNAL LANDSCAPING



SINGLE FAMILY ATTACHED

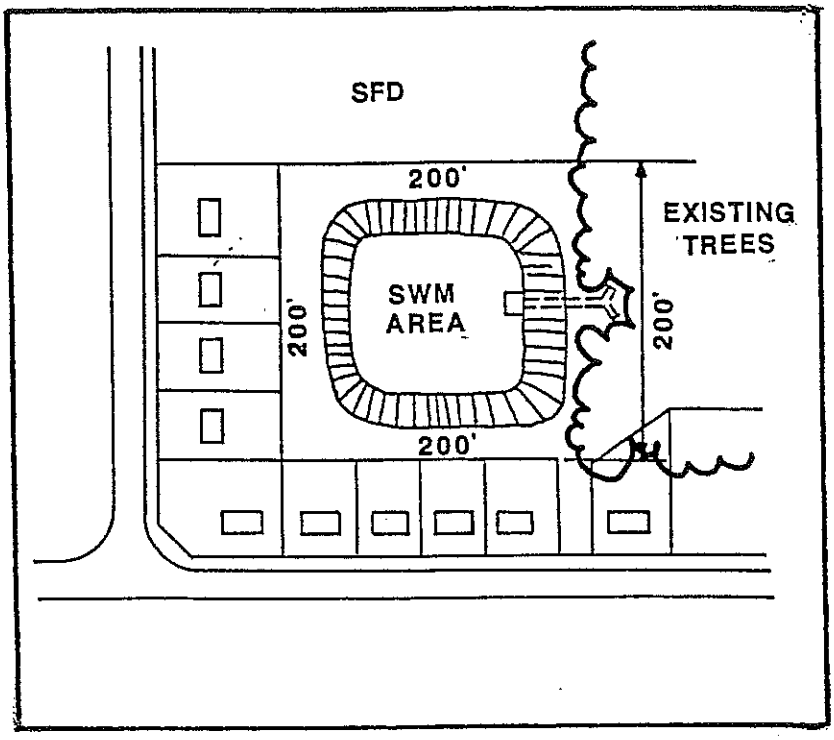
Number of Units	44
Shade Trees Required	44
1/3 Units	
Trees Provided	
Shade Trees	33
Evergreen Trees	22
(1/2 Shade Trees = 11)	
Internal Landscaping Provided	
In 15' Wide Landscaped Area	
Between Parking and Building	
Between Buildings	
In Rear Yards	
Screening Rear Yards	



APARTMENTS

Number of Units	70
Shade Trees Required	23
1/3 Units	
Trees Provided	
Shade Trees	16
Small Deciduous Trees	14
(1/2 Shade Trees = 7)	
Internal Landscaping Provided	
Along Entrance Road	
In 15' Wide Landscaped Area	
Between Parking and Building	
Between Buildings	
Behind Buildings	

FIGURE 8
STORMWATER MANAGEMENT AREA PERIMETER CALCULATIONS

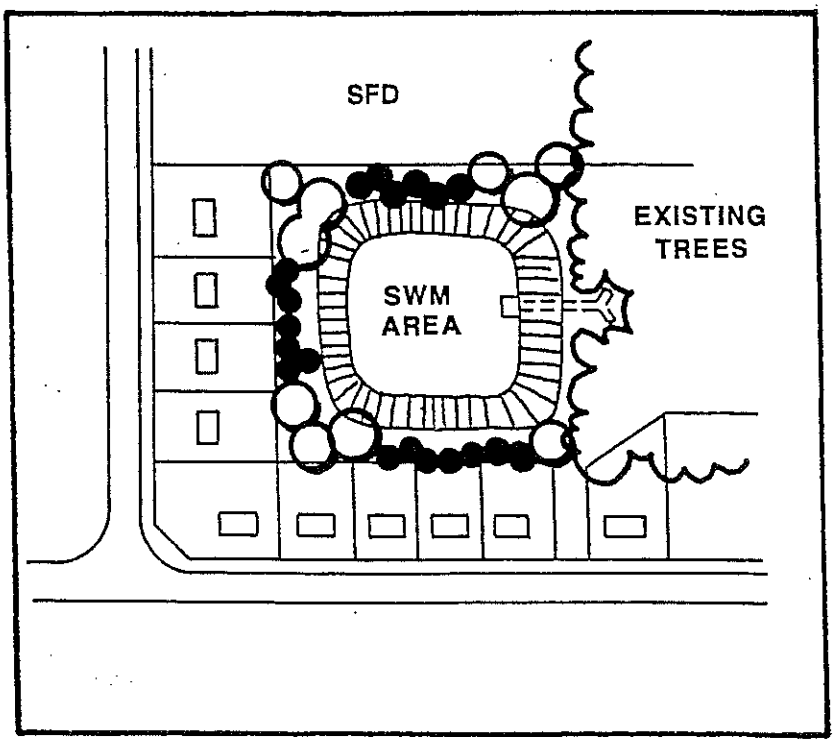


PERIMETER LANDSCAPING REQUIRED

Perimeter Length	800LF*
Existing Woods	200LF
Buffer Length	600LF
Buffer Type	B
Trees Required	
1 Shade/50LF	12
1 Evergreen/40LF	15

(* SWM perimeter area includes required 20 foot setback area)

FIGURE 9
STORMWATER MANAGEMENT AREA LANDSCAPING



PERIMETER LANDSCAPING PROVIDED

Shade Trees	10
Evergreen Trees	4
(2/1 Shade Tree = 2)	
Evergreen Trees	15

Small deciduous trees or evergreen trees may be substituted for shade trees at a 2:1 ratio for a maximum of 50% of the required shade trees. Shrubs may be substituted for shade trees at a ratio of 10:1 for a maximum of 25% of the required shade trees.

Existing vegetation to remain or perimeter planting provided to meet other landscaping requirements may be credited towards fulfilling up to 100% of the requirement for landscaping of stormwater management areas.

It is recommended that planting around stormwater management areas be native vegetation. Plants that are associated with stream, pond or wetland habitat provide an attractive character for such facilities but should be used only if suited to site conditions. But, in any case, the plant material selected should be appropriate to the specific environmental conditions created. Plant materials may be selected to provide screening of potentially objectionable views (from residential properties), to provide barriers to potentially undesirable relationships (to pedestrian circulation) or to enhance an amenity feature. In the first case, evergreen trees may be preferred; in the second case, dense shrubbery might be provided; in the latter case, plants with ornamental characteristics would be preferred.

Planting within stormwater management basins is also recommended. Properly done, such planting can reduce maintenance, enhance wildlife habitat values, encourage the creation of wetland environments and improve the appearance of such facilities. The County's Stormwater Management Committee suggests the following:

- Dams and spillway planting be limited to grass, crown vetch or similar materials;
- Bottoms be planted with emergent wetland vegetation if sufficient hydrology is expected (unless specifically approved by all relevant agencies, such planting will not be credited towards wetland mitigation);
- The sides be planted with crown vetch or similar groundcover if slopes are too steep to mow; and
- Upper slopes be planted with shrubs, groundcover and/or perennials as long as access is maintained and leaves will not clog outfall pipes.

While such planting is not required, it should be considered. Planting of basins, if authorized by the Department of Planning and Zoning and the Department of Public Works, may be approved to meet the obligations for stormwater management area landscaping by utilizing the alternative compliance provisions of the regulations described in *Chapter V.*

CHAPTER V

STREET TREES

STREET TREES AND OTHER LANDSCAPING REQUIREMENTS

Street trees are required by the Subdivision and Land Development Regulations. Street tree requirements must be met in addition to the requirements for perimeter and internal landscaping required in Section 16.124. Street tree obligations and other landscape obligations must always be computed separately.

Street trees should preferrably be located in the road right-of-way either adjacent to the road pavement or within a landscaped median. However, if utilities cannot be configured to provide sufficient space for street tree planting within the right-of-way, the Department of Planning and Zoning may approve location in a street tree maintenance easement adjacent to the right-of-way. Trees required to satisfy perimeter landscaping requirements may be planted within the public right-of way if approved by the Department of Planning and Zoning and the Department of Public Works. Street trees planted adjacent to the right-of-way may be clustered with existing trees or proposed perimeter landscaping to provide a more effective buffer or screen to satisfy the intent of the ordinance. This option must also be approved by the Department of Public Works and the Department of Planning and Zoning.

In single family attached or apartment developments where internal roads are designed as part of the parking lots, internal parking lot landscaping provided in accordance with the requirements of Section 16.124 and *Chapter IV* of the Landscape Manual shall satisfy street tree obligations. Internal parking lot landscaping will be allowed to fulfill street tree requirements only for those segments of the roadway that are lined with parking spaces perpendicular to the roadway (see *Figure 5*, Example 3).

GENERAL REQUIREMENTS

Roadway alignments should seek to preserve existing forests, stands of mature trees and specimen trees on all development sites. Furthermore, the preservation of vegetation adjacent public rights-of-way is encouraged. The Forest Conservation Manual, arborists and tree specialists, and/or texts listed in *Appendix F, Bibliography*, should be consulted for methods of tree preservation. Credit for up to 100% of the street tree planting requirement may be granted for preservation of existing trees immediately adjacent to the right-of-way.

Street trees of at least 2-1/2 inch caliper must be provided for public and private rights-of-way in all districts. Spacing for required street trees shall be as follows:

- Small trees shall be planted a maximum of 30 feet apart.

- Medium or large trees shall be planted a maximum of 40 feet apart.

If the number of street trees provided in a subdivision or development meets the intent of the minimum spacing requirements (i.e., approximately 1 tree per 30 or 1 tree per 40 feet), the Department of Public Works and the Department of Planning and Zoning may approve clustering of street trees. Clustering of street trees could result in the location of trees within the right of way and in street tree maintenance easements adjacent to the right-of-way. Spacing of trees in clusters could result in the spacing of small trees at 15-20 feet apart and the spacing of medium or large trees at 25-30 feet apart. In such cases, gaps between clusters could be double the minimum spacing required above. *Figure 10* depicts formal, regular layout of street trees and informal clustering of street trees.

For recommended tree species that are acceptable for adaptability and survivability in Howard County, see *Appendix B*. Alternates to these species may be proposed by a registered landscape architect or professional horticulturalist subject to approval by the Department of Public Works and the Department of Planning and Zoning.

All street trees and plant materials installed in a public right-of-way must conform to the "AAN STANDARDS FOR NURSERY STOCK", latest edition, and be installed in accordance with Department of Public Works standards and specifications.

STREET TREE LOCATION REQUIREMENTS

Figure 11 illustrates alternatives for layout of street trees. The following standards shall govern the placement of street trees in public rights-of-way:

- When the distance between the curb and sidewalk is 6 feet or greater, trees shall be located within the right-of-way and shall be centered between the curb and the sidewalk.

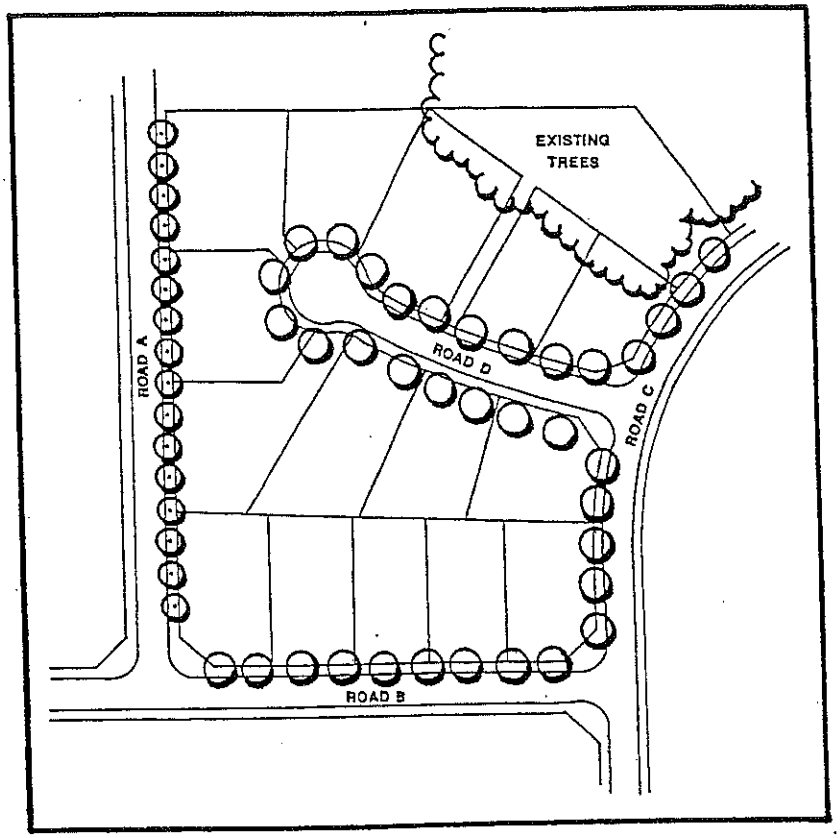
- When the distance between the curb and the sidewalk is less than 6 feet, and where trees are planted closer than 3 feet to the sidewalk, a biologic root inhibitor barrier or physical container barrier shall be required.

- When the distance between the curb and the sidewalk is less than 6 feet, trees may be planted 3 feet from the sidewalk in the direction away from the road. A 10 foot wide tree maintenance easement shall be required if the right-of-way is limited.

- Trees shall be planted 6 feet behind the curb when there are no sidewalks.

- Trees shall be placed a minimum of 30 feet from all signs and intersections when planted between sidewalk and curb, and be located with consideration of underground utilities and structures. Street trees may not be planted within 5 feet of a drain inlet structure, 5 feet of an open space access strip, or 10 feet of a driveway.

FIGURE 10
STREET TREE PLANTING



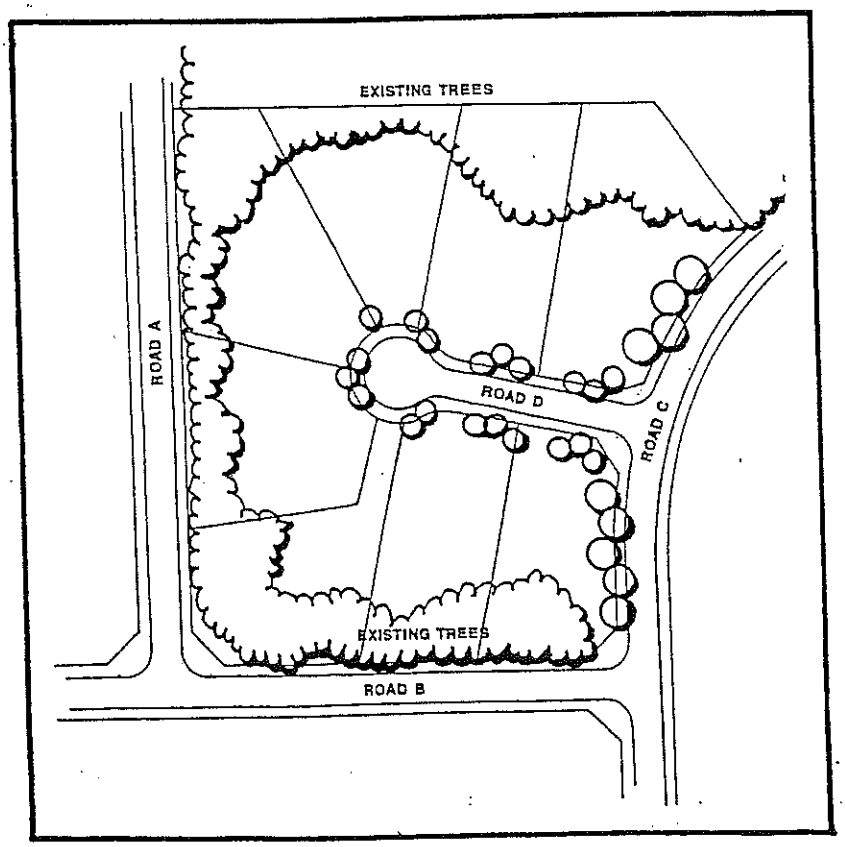
FORMAL STREETSCAPE

Road A
No Sidewalks
Small Deciduous Trees (Cherry)
30 Feet Apart
In Right-of-Way

Road B
No Sidewalks
Large Street Trees (Maple)
40 Feet Apart
In Right-of-Way

Road C
Sidewalks
Large Street Trees (Oaks)
40 Feet Apart
In 6 Foot Wide Planting Strip
In Right-of-Way

Road D
Sidewalks
Large Street Trees (Ash)
40 Feet Apart
In 10 Foot Wide Street Tree
Maintenance Easement



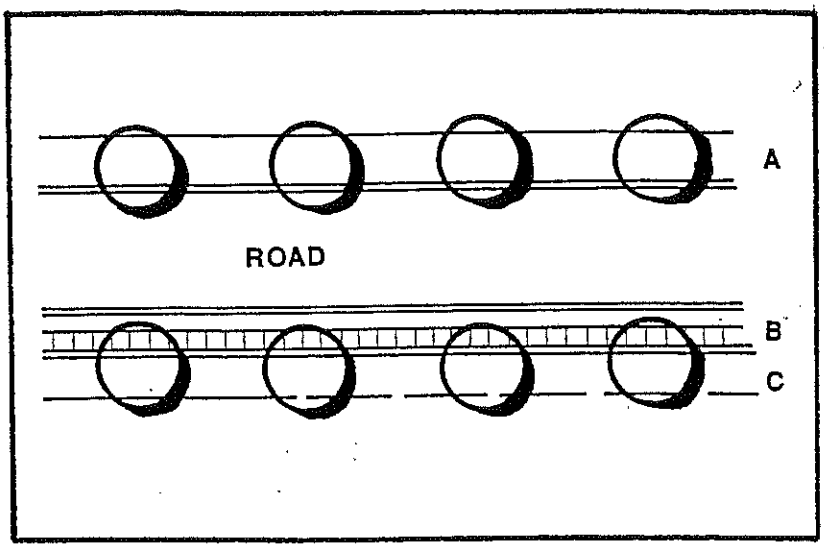
INFORMAL STREETSCAPE
May be appropriate in Rural Areas

Roads A and B
Existing Trees to Remain

Road C
No Sidewalk
370 Linear Feet of Right-of-Way
9 Street Trees Required
40 Feet Apart
9 Trees Provided (London Planetree)
Clustered 25 Feet on Center
In Right-of-Way and Easement

Road D
No Sidewalks
600 Linear Feet of Right-of-Way
20 Street Trees Required
30 Feet Apart
20 Trees Provided (Crabapple)
Clustered at 20 Feet on Center
In 10 Foot Wide Street Tree
Maintenance Easement

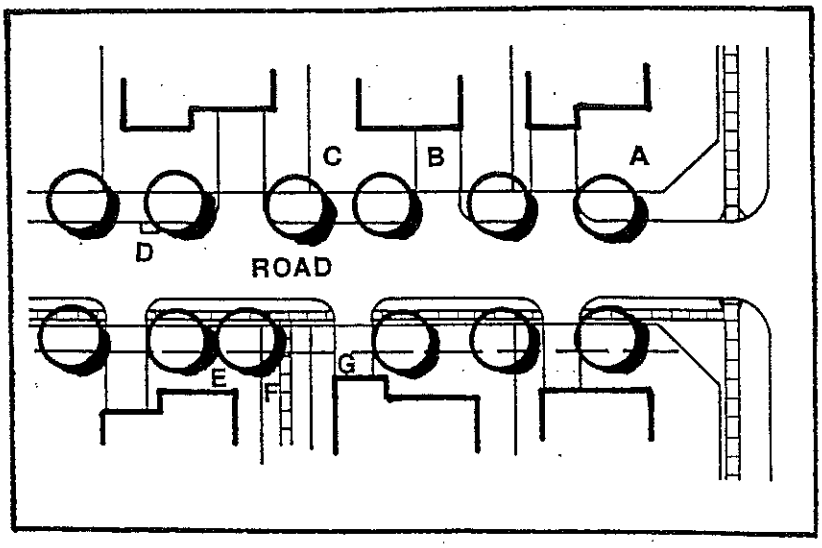
FIGURE 11
STREET TREE LOCATION CRITERIA



A. No Sidewalk in Right-of-Way
Street Trees 40 Feet Apart
In Right-of-Way
Minimum 6 Feet from Curb

B. Sidewalk in Right-of-Way
Less than 6 Feet from Curb to Sidewalk
Street Trees Permitted Only with Root Barrier or Container

C. Street Trees 40 Feet Apart
In 10 Foot Wide Street Tree Easement
Minimum 3 Feet from Sidewalk



A. Street Trees Minimum 30 Feet from Right-of-Way Intersection
Minimum 10 Feet from Driveway

B. Street Trees 45 Feet Apart Due to Driveway Location

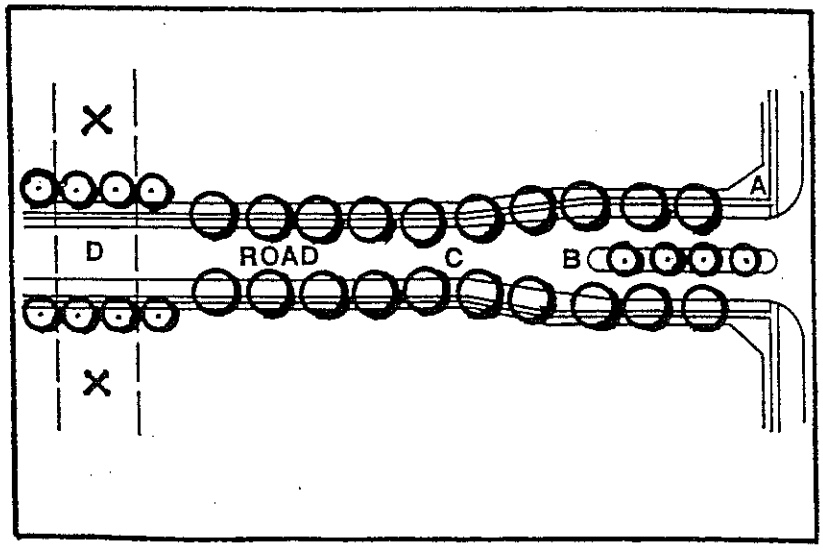
C. Street Trees 35 Feet Apart Due to Driveway Location

D. Street Tree 5 Feet from Drain Inlet

E. Street Trees 30 Feet Apart Due to Driveway and Open Space

F. Street Trees 5 Feet from Open Space Access Strip

G. Street Trees 60 Feet Apart Due to Driveway and Open Space



A. Sidewalk in Right-of-Way

B. Small Trees in Median Strip
20 Feet from Nose of Median

C. Street Trees 40 Feet Apart
In Right-of-Way

D. Small Trees Beneath Power Lines
Trees 30 Feet Apart
In 10 Foot Wide Street Tree Maintenance Easement

TREE SELECTION CRITERIA

The following criteria must be addressed when selecting street trees for a particular location:

- Trees must fit the space limitations when mature. The species, ultimate size of the tree and the canopy desired should be appropriate to the size of the right-of-way and the road classification (i.e., local, collector or arterial road).

- Trees must survive the environmental stresses of the proposed location. The recommended street tree list includes trees selected for appropriate branching habits, tolerance of local environmental conditions such as soil and rainfall, and have relatively low susceptibility to pests and disease.

- Medium and large trees are preferred as street trees. Small trees are desirable as they provide variety in the streetscape.

- Small trees are not permitted in situations where they inhibit sight distance, conflict with pedestrian circulation or create maintenance problems. Small trees will be permitted under the following conditions and in the following locations:

  - Within street rights-of-way when:

    no sidewalk is required;

    the distance between the curb and the sidewalk is 8 feet or greater; or

    the tree may be pruned to 8 foot clear trunk without destroying the shape of the crown of the tree.

  - In street tree easements adjacent to the right-of way.

  - In median strips of divided highways, provided that trees are located a minimum of 20 feet from the nose of the median island and will not interfere with travel lanes.

- Small trees must be selected for planting under power lines.

- No needle evergreen trees will be permitted in a public right-of way. No thorn bearing trees or trees with rigid, sharply pointed leaves (such as holly trees) will be permitted adjacent to sidewalks.

- Every effort shall be made to diversify species and cultivars of species of trees planted on different streets or between blocks on very long streets. This practice provides for long term survival of the landscape, should one species suffer a blight.

- Street trees should be selected so that the County's roadway network exhibits a variety of species with differing colors, textures and forms.

SIGHT TRIANGLES

When a driveway or private roadway intersects a public right-of-way or when the site abuts the intersection of two or more public rights-of-way, all landscaping within the sight triangle areas shall provide unobstructed across-visibility.

Nothing at an elevation greater than the top of curb plus two (2) feet shall be allowed in any sight triangle area except single trunk trees whose lower branches are pruned to a height of seven (7) feet.

CHAPTER VI

ALTERNATIVE COMPLIANCE

ALTERNATIVE COMPLIANCE

Site conditions or a specific set of project design criteria may justify approval of an alternative method of compliance with the landscaping standards by the Department of Planning and Zoning.

Examples of conditions which justify alternative compliance include situations where:

- Topography, soil, vegetation or other site conditions that make full compliance impossible or impractical; or when improved environmental quality would result from the alternative compliance.
- Space limitations, unusually shaped lots, and existing conditions on adjacent properties may justify alternative compliance for in-fill sites, and for improvements or redevelopment of sites in older communities.
- Expansion or change of use on an existing site requires a larger buffer or screen than is feasible due to the lack of available space.
- Safety considerations make alternative compliance necessary.

The proposed alternative compliance landscaping must be equal to or better than normal compliance in terms of quantity, quality, effectiveness, durability, and ability to fulfill the intent of the regulations and the manual.

A request for alternative compliance shall be submitted to the Department of Planning and Zoning at the time the plan is submitted. Requests for alternative compliance shall be accompanied by sufficient written or graphic explanation and justification to allow appropriate evaluation and decision.

Alternative compliance shall be limited to the specific project under consideration and shall not establish precedents for acceptance in other cases.

NEW TOWN ALTERNATIVE COMPLIANCE

Alternative compliance approval will be granted to any landscape plan prepared for a property zoned New Town that meets the "Guidelines for Residential Planting" or the

"Guidelines for Commercial-Industrial Development" prepared by The Rouse Company for Columbia, Maryland. A letter from Howard Research and Development (HRD) stating that the plan has been prepared in accordance with their guidelines must be submitted with the plan application. The Department of Planning and Zoning has determined that New Town guidelines are equal to or exceed the requirements of Section 16.124 and the Landscape Manual. Surety for New Town planting may be based on the approved alternative compliance landscape plan or on a computation of the number of trees required to fulfill the landscape obligations stipulated in *Chapter IV* of this Manual.

Sign and Parking Guidelines

SIGN STANDARDS

1. Monument(ground signs) only.

2. Permit signs to be at right of way line.

3. Limit number of signs..

4. Regulate portable signs.

5. Require low level lighting.

6. Limit size of directional signs.

PARKING STANDARDS

1. Same parking ratios for all communities with flexibility to adjust the ratio if the required number of spaces is not needed by the land use.

2. Standard size for parking stalls.

3. Standard lighting requirements; height of pole, type of fixture (shoebox, 100% light cutoff), maximum wattage, minimum distance from residential areas.

4. Require maximum number of parking spaces with flexibility to allow more if need is demonstrated.

5. Require the majority of parking to be placed on the sides or in the rear of buildings.

6. Establish appropriate setbacks for parking lots.

7. Require minimum landscaping standards.

8. Require parking lot design which protects pedestrians and shoppers from vehicles passing in front of building entrances.

9. Allow alternative parking lot surfaces such as grasscrete, or crushed stone for spaces which are little used or for employees in order to reduce the amount of impervious surface.

Bicycle Parking Ordinance

General Bicycle Parking Requirements. Bicycle parking requirements shall apply to new development, changes of use, and building expansions. Bicycle parking shall be provided in conjunction with all multiple dwelling units (3 or more units); all uses in commercial and industrial zoning districts; at churches; in all new automobile parking structures; in any zone in conjunction with institutional uses; and at planned park and ride lots and major transit stops; in the following manner:

(a) Bicycle parking spaces shall be at least six feet long and two feet wide with an overhead clearance of at least seven feet, and with a five foot access aisle.

(b) Bicycle parking spaces shall consist of a securely fixed structure that supports the bicycle frame in a stable position without damage to wheels, frame, or components and that allows the frame and both wheels to be locked to the rack by the bicyclist's own locking device.

(c) Shelters from precipitation for bicycle parking shall be provided in the following amounts:

Bicycle Parking requirement	Percentage of Sheltered Spaces
5 or fewer	No shelter required
6 to 10	100% of spaces sheltered
11 to 29	50% of spaces sheltered
30 or more	25% of spaces sheltered

(d) Long term bicycle parking spaces are meant to accommodate employees, adult students, residents, commuters, and other persons who can be expected to leave their bicycle parked for more than two hours. Employers and building owners are encouraged to provide long term bicycle parking where it is more appropriate than short term parking. Long term bicycle parking shall I be provided in a well-lighted, secure location within a convenient distance of a primary employee entrance. A secure location is defined as one in which the bicycle parking is clearly visible from employee work areas, or in which the bicycle parking is provided within a lockable room, a lockable bicycle enclosure, or a bicycle locker. Bicycle parking provided in outdoor locations shall not be farther than the closest employee auto parking space (except disabled parking).

(e) Short term bicycle parking spaces are meant to accommodate visitors, customers, messengers, and other persons expected to depart within two hours. The minimum number of required spaces is one bicycle parking space for every ten required automobile parking space. Short term bicycle parking shall be provided within a convenient distance of, and clearly visible from the primary entrance to the building as determined by the city. But it shall not be farther than the closest automobile parking space (except disabled parking).

(f) Paved access to the public right-of-way, with access ramps if necessary and pedestrian access from the bicycle parking to the building entrance must be provided. Clear signing may be necessary.

(g) Shared bicycle parking may be allowed if it remains convenient and clearly visible for users.

(h) A minimum of four spaces shall be provided at each new site.

(i) The city manager or designee may allow exemptions to required bicycle parking regulations for the following:

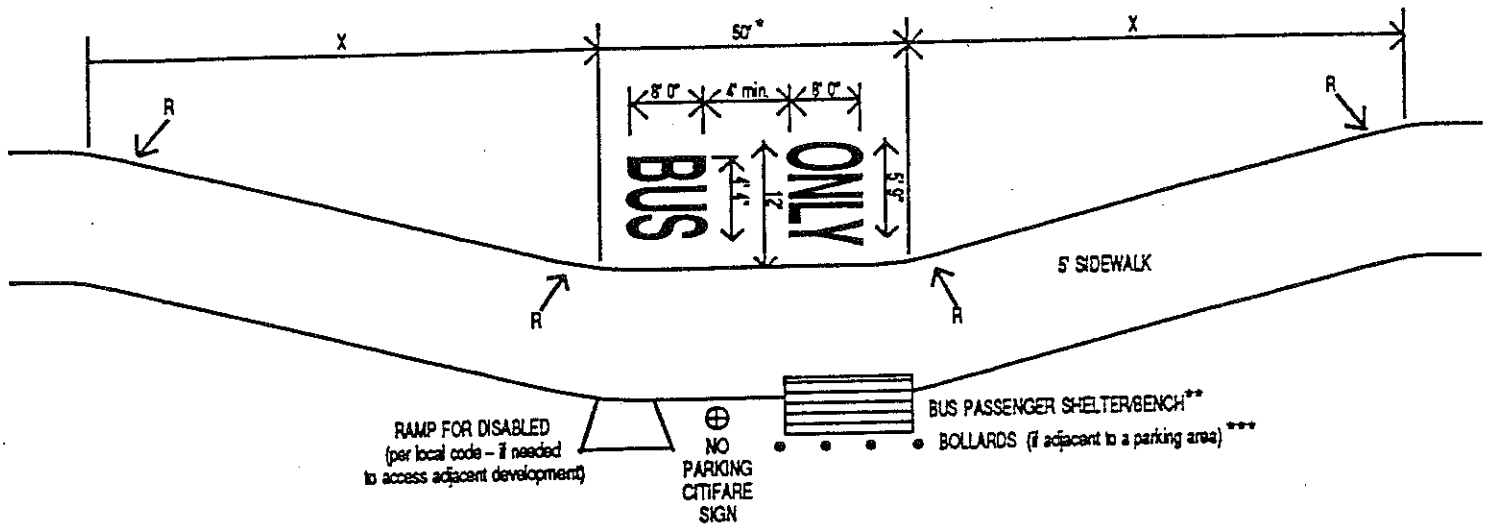
1. Exemptions for required bicycle parking in connection with temporary uses or uses that are not likely to generate a great need for bicycle parking;
2. Exemptions to long-term and short-term bicycle parking ratios and other bicycle parking standards, depending on the characteristics of the land use to which they apply.

(j) The following uses are exempted from these requirements:

1. Seasonal uses, such as fireworks stands and Christmas tree sales;
2. Drive-in theaters;
3. Storage facilities for household consumer goods;

Bus Turnout Guidelines

Figure 15: DESIGN FOR MID-BLOCK BUS TURNOUT



NOTES

R = 50' Radius (NOTE: A straight line taper of adequate length may be substituted)

X = Length of pull-in and pull-out per posted speed limit from chart below.

X	POSTED SPEED
40'	25 mph or less
60'	26 to 35 mph
80'	36 to 45 mph
100'	above 45 mph

* = This berth is for a single 40 foot vehicle. RTC Staff should be contacted to determine if multiple berths will be needed. A minimum of 12" clearance for the bus mirror is required behind the curb.

** = Pad section minimum 4 in. PCC on proper base. See Figures 13 and 14 for detail.

*** = See Figure 13 for detail.

Not to scale

Access Management Standards and Ordinance Model

TRAFFIC AND SAFETY DIVISION NOTE

SUBJECT: **Spacing for Commercial Drives and Streets**

ACTIVITY: MDOT Guidelines for Access Spacing on State Highways

PURPOSE: To Promote a Uniform Practice in Determining Access Spacing

ORIGINATING UNIT: Geometric Design Unit

INFORMATION:

The spacing of access for commercial driveways and streets is an important element in the planning, design, and operation of roadways. Access points are the main location of crashes and congestion. Their location and spacing directly affect the safety and functional integrity of streets and highways.

DISTRICT REVIEW:

The District Utility and Permit Engineer shall forward the site plan and the access request to the District Traffic and Safety Engineer for review. In general, one access point is adequate for a single business. However, in some cases multiple access points are requested. In this case, the District Traffic and Safety Engineer may require a traffic impact study from the business owner/property owner to justify the need for the multiple access. A copy of the Traffic Impact Study Note (Traffic Safety Note #7.8) may be sent to the business owner/property owner to outline the traffic analysis needed.

INFORMATION (continued next page)

Action Required: Traffic and Safety and Utilities and Permit Engineers shall be guided by this note when evaluating access location and spacing.

Implementation/Completion: This note will become effective immediately following signed approval by the Engineer of Traffic and Safety.

10/28/96
Date

James D. Culp
Engineer of Traffic and Safety

INFORMATION (Continued)

Unsignalized Access Spacing:

1. Adjacent accesses should be spaced as far apart as on-site circulation allows. In some cases the District Traffic and Safety Engineer may require that the business owner/property owner re-design his site plan, and relocate the access point to meet the desirable spacing distance. Table (1) shows the desirable unsignalized access spacing as a function of posted speed. These distances are based on average acceleration and deceleration considered adequate to maintain good traffic operations. The sight distance at the access points must also be investigated.

Posted Speed (MPH)	Center-to-Center of Access	
	FT	m
25	130	40
30	185	55
35	245	75
40	300	90
45	350	105
50 and above	455	140

Table (1)

INFORMATION (Continued):

1a. Lack of Sufficient Frontage to Maintain Adjacent Spacing:

In the event that a particular parcel lacks sufficient frontage to maintain adequate spacing, the District Traffic and Safety and Utility and Permit Engineers have the following options.

a. Choose the next lowest spacing from Table (1). For example, on 30 mph roadway requiring 55m (185 ft.) spacing, the distance may be reduced to no less then 40m (130 ft.) which is the spacing for 25 mph speed.

b. Encourage a shared driveway with the adjacent owners. In such case the driveway midpoint may be located at the property line between two parcels. However, all parties must agree to the joint driveway in writing.

c. Provide an access point to the side street when it is possible.

d. In areas where frontage roads or service drives exist or can be constructed, individual properties shall be provided access to these drives rather than directly to the main highway.

e. After all the above options are exhausted, an access point may be allowed within the property limits as determined by the District Traffic and Safety and the Utility and Permit Engineers.

Intersection Corner Clearance:

AASHTO specifically states that driveways should not be situated within the functional boundary of at-grade intersections. This boundary includes the longitudinal limits of auxiliary lanes. An access point may be allowed within the above boundary if the entire property frontage is located within this boundary. In all quadrants of an intersection access points should be located according to the dimensions shown on page 7.9D.

Conflict Reductions:

Restricting or prohibiting left turns at unsignalized access points aligned across from each other can greatly reduce safety and operational problems. A typical four-legged intersection, such as where two accesses line up across a four-lane roadway, has 36 conflict points. By prohibiting left turns and through movements the number of conflicts can be reduced from 36 to four, as illustrated on page 7.9E.

INFORMATION (Continued)

In cases where these movements cannot be prohibited, as illustrated on page 7.9E, the District Traffic Engineer may choose to offset the access points. Table (2) provides the desirable distances between two access points on the opposite side of the roadway.

Posted Speed MPH	Desirable Offset Distance Between Access Points on Opposite Sides of the Roadway Center-To-Center of Access on Undivided Highways	
	FT	m
25	255	80
30	325	100
35	425	130
40	525	160
45	630	190
50	750	230

Table (2)

Passing Flares at Driveways:

To evaluate the need for passing flares at driveways on two-lane, two-way roadways, refer to Traffic and Safety Note #7.3.

Right-turn Lanes or Tapers at Intersection:

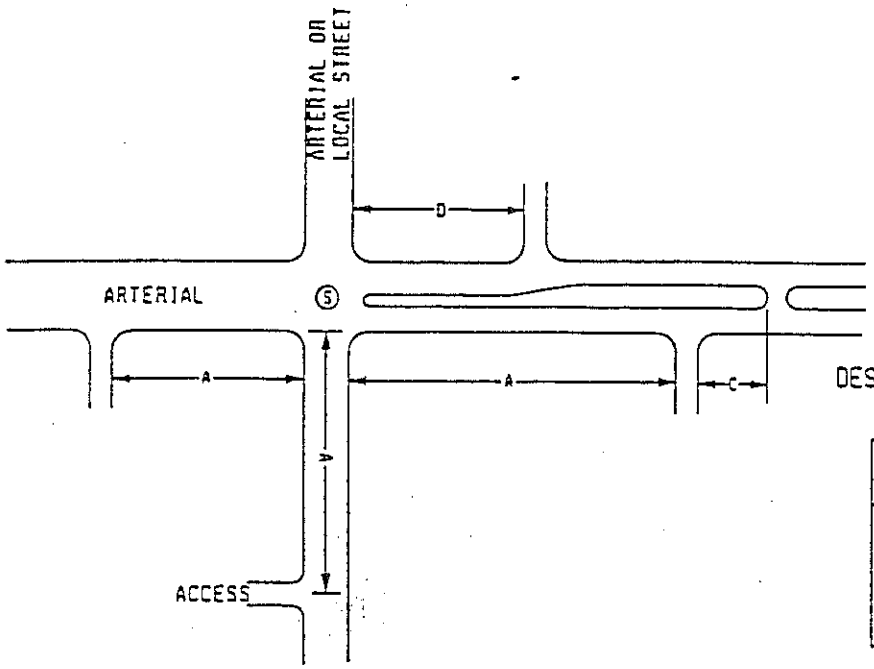
The addition of right-turn lanes or tapers should be considered to enhance the movement of traffic through intersections.

To evaluate the need for right-turn lanes and tapers, refer to Traffic and Safety Note #7.5.

Left-Turn Lanes or Passing Flares at Intersections:

To evaluate the need for left-turn lanes or passing flares at intersections, refer to Traffic and Safety Note #7.6.

SIGNALIZED INTERSECTION CONTROL



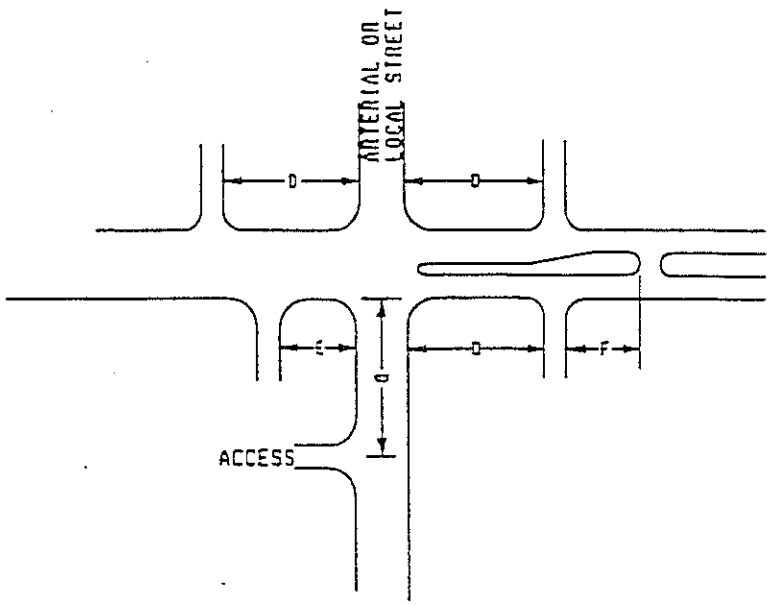
DESIRABLE CORNER CLEARANCES

ITEM	(FT)	(m)
A	230	70
B	115	35
C	75	22

THE ABOVE DIMENSIONS ASSUME A 30 TO 35 MPH POSTED SPEED. FOR A POSTED SPEED OF 40 TO 55 MPH, THESE VALUES SHOULD BE DOUBLED.

COORDINATE WITH THE LOCAL GOVERNMENT AGENCY REGARDING THE LOCAL STREET CLEARANCES.

STOP SIGN INTERSECTION CONTROL

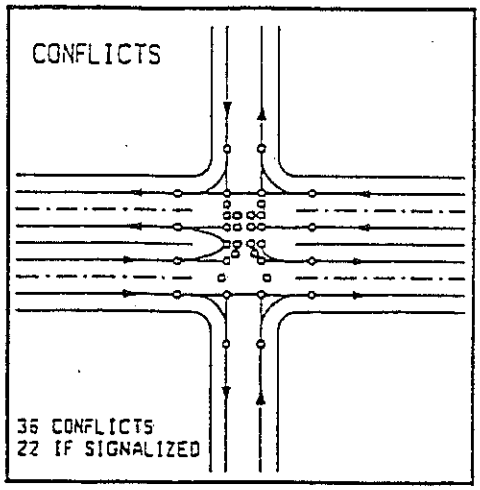


DESIRABLE CORNER CLEARANCES

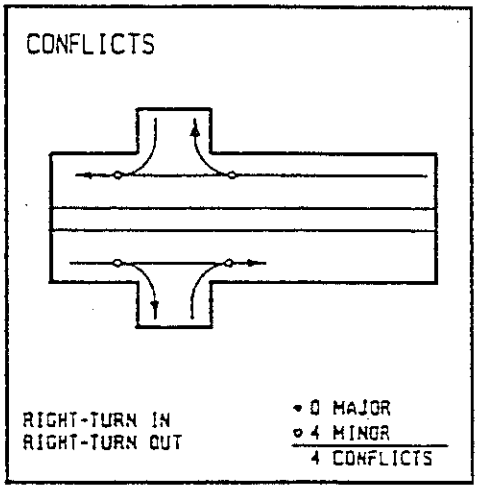
ITEM	(FT)	(m)
D	115	35
E	85	25
F	75	22

THE ABOVE DIMENSIONS ASSUME A 30 TO 35 MPH POSTED SPEED. FOR A POSTED SPEED OF 40 TO 55 MPH, SE VALUES SHOULD BE DOUBLED.

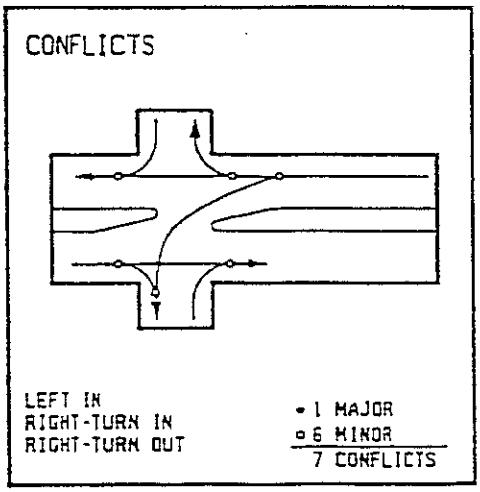
COORDINATE WITH THE LOCAL GOVERNMENT AGENCY REGARDING THE LOCAL STREET CLEARANCES.



A TYPICAL FOUR-LEGGED INTERSECTION SUCH AS WHERE TWO DRIVEWAYS LINE UP ACROSS A FOR LANE ARTERIAL, HAS 36 CONFLICT POINTS OR 22 IF SIGNALIZED.



RESTRICTING LEFT TURNS AND THROUGH MOVEMENTS CAN REDUCE THE NUMBER OF CONFLICTS TO FOUR WHICH IS TWO PER ARTERIAL DIRECTION OF TRAVEL.



NOTICE THE DISTINCTION BETWEEN MAJOR AND MINOR CONFLICTS. MERGE AND REAR-END CONFLICTS ARE LESS SEVERE THAN CROSSING OR HEAD-ON CONFLICTS. SOMETIMES IT IS APPROPRIATE TO "TRADE" MAJOR CONFLICTS FOR MINOR CONFLICTS.

INFORMATION (Continued):

Access Design:

All access points shall be designed to meet the Michigan Department of Transportation guides, standards and Construction Permit Manual.

Signalized Intersection Spacing

Traffic signal spacing criteria should apply to all intersecting public streets and access drives. They should take precedence over unsignalized spacing standards where there is a potential for signalization. Ideally, locations of signalized intersections should be identified first. Various studies have shown that the number of traffic signals per mile has an even greater influence on travel speeds than the traffic volume per lane. Therefore, selecting a long and uniform signalized intersection spacing is the first essential element in establishing access spacing guides. The variables involved in the planning, design and operation of signalized roadways are reflected in the relationship between speeds, cycle length and signal spacing which yield maximum bi-directional progression band widths.

Thus, a signal timing plan must be able to provide efficient traffic flow with a speed compatible to the roadway posted speed. Table (3) represents the relationship between cycle length, speed and approximate distances between signals for bidirectional progression. The traffic engineer may elect to relocate or consolidate drives in order to meet the spacing in Table 3. Spacing criteria can be relaxed when only one direction of travel is signalized.

Peak Hour	Speed (mph)													
Cycle	25		30		35		40		45		50		55	
Length	Distance													
(sec)	FT	m	FT	m	FT	m	FT	m	FT	m	FT	m	FT	m
60	1,100	335	1,320	400	1,540	470	1,760	540	1,980	600	2,200	670	2,430	740
70	1,280	390	1,540	470	1,800	550	2,050	625	2,310	700	2,500	760	2,820	860
80	1,470	450	1,740	540	2,050	625	2,350	720	2,640	800	2,930	890	3,220	980
90	1,630	500	1,980	600	2,310	700	2,640	800	2,970	900	3,300	1,000	3,630	1,100
120	2,200	670	2,640	800	3,080	940	3,520	1,070	3,960	1,210	4,400	1,340	4,840	1,475

Table 3. Approximate Distances Between Signalized Intersections Needed to Achieve Efficient Bidirectional Progression at Various Speeds and Cycle Lengths

CHAPTER 19

Section 19.01 Title: Ingress / Egress Provisions and Off-Street Parking & Loading Requirements

Section 19.02 Intent:
It is the purpose of this Section to establish guidelines for location and design of driveways that can be used for new construction in undeveloped areas and for redevelopment of existing developed areas. The objectives of these requirements are to reduce the frequency of conflicts between vehicular movements and to increase the spacing between conflict points, thereby providing motorists with increased decision process time which will increase safety and assure smoother traffic flow.

Section 19.03 General Provisions:

1. ***Lanes Per Driveway:*** The number of driveway lanes shall be based on analysis of expected trip generation and peak turning volumes. If expected egress left turns exceed 100 per hour, two egress lanes shall be provided.

2. ***Turn Prohibitions:*** Left turns may be prohibited at the discretion of the approving Township Official or Body to and/or from driveways under the following conditions:

   a. Inadequate corner clearance.

   b. Inadequate sight distance.

   c. Inadequate driveway spacing.

3. ***Relationship to Opposing Driveways:*** To the extent desirable and reasonably possible, driveways shall be aligned with driveways on the opposite side of the street.

4. ***Sight Distance:*** Adequate sight distance shall be ensured for all vehicles exiting from a proposed development. If certain movements cannot be made safely, then they shall be prohibited or joint access with adjoining property shall be encouraged.

5. ***Driveway Permits:*** Prior to the granting of a building permit for any construction involving a new or expanded driveway opening to a public street, a permit for such driveway from the State and/or County Agency having jurisdiction over the public street shall be submitted to the building inspector.

Section 19.04 Non-Residential Ingress and Egress Provisions:
(Revised Section: See Ordinance #1 of 1993)

1. *Driveway Spacing:* The minimum spacing allowed between a proposed driveway and all other driveways (located on the same side of the public street which the proposed driveway abuts or adjoins) or public or private streets (where the street intersects the public street which the proposed driveway abuts or adjoins) shall be in accordance with the Table 19-A, as provided below.

TABLE 19 - A

Minimum Driveway Spacing Requirements

Legal Driving Speed Limit on the Public Road Which Adjoins or Abuts the Proposed Driveway (MPH)++	Minimum Spacing (feet)*
30 or less	100
35	160
40	210
45 or over	300

++ These traffic speeds are based upon the limits posted in Cascade Charter Township on the effective date of this zoning ordinance amendment (see Appendix - "B"). Should the posted speed limit change on a public road in the Township, it is intended that the minimum spacing requirement effective on the adoption date of this amendment would remain in force, unless amended at a later date by the Township Board.

(Note: This amendment became effective February 9, 1993.)

** These spacings are based on average vehicle acceleration and deceleration rates and are considered necessary to maintain safe traffic operation. The spacing is measured from centerline of the proposed driveway to the centerline of the nearest existing driveways or the edge of the right-of-way or easement of the nearest intersecting private or public street in either direction. See Illustration 19-B*

2. In the event that a particular parcel or parcels lack sufficient road frontage to maintain adequate spacing, the landowner(s) have one of two options:

2. *Non-residential*: All driveway openings for non-residential uses permitted in the residential zoning districts shall be reviewed and approved by the Township as part of site plan approval or the provision contained in Chapter 17, Special Use.

(Sections 19.06 through 19.10 intentionally left out for future use)

Section 19.11: Off-Street Parking and Loading Provisions:

Section 19.12 Intent:
The purpose of this Chapter is to permit and regulate off-street parking of motor vehicles and the off-street loading and unloading of vehicles in all zoning districts.

In all zoning districts, off-street parking facilities for the storage and parking of self propelled motor vehicles for the use of occupants, employees and patrons of buildings erected, altered or extended after the effective date of this Ordinance shall be provided as prescribed herein. Such areas shall be maintained and shall not be encroached upon so long as the main building or structure remains, unless an equivalent number of spaces and area are provided elsewhere on the site in accordance with this Ordinance.

Section 19.13 Size and Units of Measurement:
All off-street parking facilities required by this Chapter shall be of adequate size and design to provide safe ingress and egress to all parking spaces. For the purposes of this Ordinance the average parking area consisting of one parking space with maneuvering lane shall be deemed to be 300 square feet.

1. Minimum Size Standards: The minimum standards for parking spaces and aisles are as indicated in Schedule "19 C".

Schedule 19-C

Parking Pattern	Parallel	30 - 50 degrees	51 - 74 degrees	75 - 90 degrees
Maneuvering lane width				
1 - way	11 ft.	12 ft.	13 ft.	15 ft.
2 - way	18 ft.	20 ft.	24 ft.	26 ft.
Parking Space Width [1]	9 ft.	9 ft.	9 ft.	9 ft.
Parking Space Length [2]	25 ft.	21 ft.	21 ft.	20 ft.
Total Width of 2 tiers of Parking, plus lane				
1 - way	29 ft.	55 ft.	55 ft.	55 ft. *
2 - way	36 ft.	62 ft.	66 ft.	66 ft.

[1] Measured perpendicular to the space centerline
[2] Measured along the space centerline

Section 19.14 Access Drives:
Each lane of driveway providing access to parking areas shall be a minimum of ten (10) feet in width. Where a turning radius is necessary, it shall be of an arc that allows unobstructed vehicle flow.

Section 19.15 Required Construction:
All parking and loading facilities and access drives for uses other than single family residential and agricultural shall be provided with a pavement surface consisting of bituminous concrete or asphalt. Driveways shall be constructed with materials equal to or better than the standards set forth by the Kent County Road Commission for commercial driveways. Parking lots and driveways shall be completely constructed prior to the issuance of an occupancy permit, weather permitting. All parking surface shall be maintained in good condition, free from dust, trash and debris.

Section 19.16 Entrances and Exits:
All non-residential parking and loading facilities shall have entrances and exits within the zoning district in which the principal use is permitted.

Section 19.17 Drainage:
All off-street parking and loading areas shall be graded and drained to dispose of surface water. No surface water shall be permitted to drain onto adjoining property unless there is a common engineered drainage system shared with the adjoining property or an appropriate watershed easement has been obtained.

Section 19.18 Location:
Unless otherwise regulated under the provisions of Chapter 17, the location of all non-residential parking facilities shall be as specified in the regulations of each

Flood Plain, Wetland, Stream and Steep Slope Protection Ordinance

Sec. 16.114. General.

(a) ***Design Consistent With Subtitle:*** In designing a subdivision or site development plan, the developer shall comply with the requirements of this Subtitle.

(b) ***Consideration Consistent With Subtitle:*** The Department of Planning and Zoning in considering an application for the subdivision or development of land shall be governed by the standards of this Subtitle.

(c) ***Consistent With General Plan and Zoning Regulations and Map:*** The subdivision or site development plan layout shall be consistent with:

(1) The transportation, and the water and sewer elements of the General Plan of the County; and

(2) The zoning regulations and map, especially in relation to development densities, the permitted uses of land and the bulk requirements.

(d) ***Reflect Unique Characteristics of Site:*** Subdivisions and site development plans shall reflect the uniqueness of the site responding to its topography, wetlands, streams, forests, historic resources and its relationship to adjoining land uses and roads, both proposed and existing.

Sec. 16.115. Floodplain Preservation.

(a) ***Development Restricted in 100-Year Floodplain:*** Development within the boundaries of the 100-year floodplain shall be pursuant to Section 16.700 of this Title. Most land within the 100-year floodplain is considered a protection area (i.e., a stream valley or valuable ecological area or scenic resource) which is shown:

(1) In the General Plan of Howard County for conservation status; or

(2) In the master plan of parks for acquisition as a conservation area; or

(3) In the capital improvement program for acquisition as a conservation area.

(b) ***Floodplain Protection:*** In subdivisions and site development plans containing a 100-year floodplain, the floodplain land shall be protected in accordance with one of the following alternatives. Prior to the recordation of the final plat and final acceptance of the construction drawings, a deed description of the floodplain will be provided when requested by the Department of Public Works.

(1) *Deed the floodplain land to the County:* Developers are encouraged to dedicate and deed the land in the 100-year floodplain to Howard County as permanent open space.

(2) *Grant a floodplain easement to Howard County:* If the floodplain is not dedicated to the County, the developer shall grant the County right of entry through a perpetual easement, and shall:

(i) Dedicate and deed the land area within the 100-year floodplain in fee simple to a legally constituted property owners association. The property owners association may use the area in any manner consistent with the maintenance and preservation of the area as a floodplain; or

(ii) Include the 100-year floodplain within the boundary of the lots in accordance with Section 16.120(B)(4) of this Title. The property owner whose lot includes floodplain area may use the area in any manner consistent with the maintenance and preservation of the area as a floodplain.

(c) ***Prohibitions On Use of Floodplain Land:***

(1) Building materials and other debris shall not be discarded in floodplains.

(2) No work may be done on floodplain land except that work which is required or authorized by the Department of Planning and Zoning upon the advice of the Department of Public Works, the Department of Recreation and Parks, the Soil Conservation District, or the Maryland Department of the Environment.

(d) ***Delineation on Final Plats and Site Development Plans:*** Floodplain limits shall be clearly defined, except for agricultural preservation subdivisions and rural cluster subdivisions where the floodplain is obviously not critical to the proposed development as defined by the Design Manual. Final plats and site development plans shall show the following information:

(1) Floodplain elevations at every bearing change to be designated along floodplain limits. Elevation shall be designated at not greater than 200-foot horizontal intervals.

(2) Bearings and distances or coordinated values along each line.

(3) The area shall be labelled as "100-year floodplain, drainage, and utility easement."

Sec. 16.116. Protection of Wetlands, Streams, and Steep Slopes.

(a) ***Streams and Wetlands:***

(1) Grading or removal of vegetative cover shall not be permitted within 25 feet of a wetland in any zoning district.

(2) Grading, removal of vegetative cover and new structures shall not be permitted within:

(i) 50 feet of an intermittent stream; or

(ii) 75 feet of a perennial stream in residential zoning districts and 50 feet of a perennial stream in nonresidential zoning districts.

(3) In residential subdivisions, wetlands shall be located in required open space rather than on residential lots unless the Department of Planning and Zoning determines that location in open space cannot reasonably be achieved. Wetland buffers and stream buffers may be located on residential lots in accordance with Section 16.120(B)(4) of this Title.

(4) Wetlands and the required buffers for wetland and streams shall be delineated on final plats and site development plans with a clear notation of use restrictions. Wetlands need not be delineated for agricultural preservation subdivisions or rural cluster subdivisions if a qualified professional certifies that wetlands and buffers will not be impacted by the proposed lots or development.

(b) ***Steep Slopes:*** Steep slopes are slopes of 25% or greater.

(1) Grading or removal of vegetative cover shall not be permitted on land with existing steep slopes, except when:

(i) The contiguous area of steep slopes is less than 20,000 square feet; and

(ii) There is sufficient area outside of stream and wetland buffers for required sediment and erosion control measures.

(2) Areas containing existing steep slopes should preferably be included in open space lots.

(c) ***Necessary Disturbance:*** Grading or removal of vegetative cover on wetlands, streams, wetland buffers, stream buffers or steep slopes is not permitted unless the Department of Planning and Zoning determines based on justification provided by the developer that it is necessary for road or utility construction, trails, pathways, or storm water management facilities, and there is no other reasonable alternative. If permitted, the grading or removal of vegetative cover shall only be to the extent necessary to accommodate the proposed development. In these cases, the Department of Planning and Zoning may require planting of the areas where grading or removal of vegetative cover has taken place.

Sec. 16.117. Forest Conservation and Preservation of Natural Cover.

Land to be subdivided or developed shall be designed and improved in reasonable conformity to existing topography in order to minimize clearing or alteration of existing plant communities, especially forest areas, and to minimize associated storm water runoff and soil erosion impacts. Where required by Subtitle 12 of this Title, a forest conservation plan shall be submitted.

Sec. 16.118. Protection of Historic Resources.

(a) ***Historic Resource Identification:*** Historic districts identified on the zoning map and historic sites designated by resolution of the County Council shall be shown on subdivision and site development plans. Human burial grounds shall also be identified by the developer.

(b) ***Guidelines:*** The following guidelines suggest ways to improve project design and do not prohibit either demolition of historic structures or relocation of burial grounds in accordance with State law. This Section applies upon adoption of a list of historic sites and criteria for nomination adopted by council resolution.

(1) Historic buildings, structures and landscape features which are integral to the historic setting should be located on a single lot of suitable size to ensure protection of the historic structure(s) and setting. If demolition is proposed, information explaining this decision shall be provided (structural condition, cost to retain, etc.).

(2) Whenever possible, historic resources should be integrated into the design of the subdivision or site plan. If comparible, new and historic structures may be juxtaposed. Alternately, open space may be used to buffer the historic resources from new development.

(3) Access to the historic property should be via its existing driveway, wherever possible.

(4) The new subdivision road should be sited so that the lot lay-out does not intrude on the historic resources. The road should be oriented so that views of the historic property from the public road are of its primary facade(s).

(5) Grading, construction and landscaping on the adjacent lots should enhance views to and from the historic property, while buffering views of new development.

(c) ***Cemeteries:*** Cemeteries shall be dealt with in accordance with Subtitle 13 of this Title. In any case, no grading or construction shall be permitted within 30 feet of a cemetery boundary or within 10 feet of individual gravesites.

Sec. 16.119. Highways, Streets, and Roads.

Streets, roads and highways within Howard County shall be located, designed and constructed in accordance with the Howard County Design Manual.

(a) ***General Guidelines:*** In designing a highway, street, or road system, the following guidelines shall apply:

(1) Safe vehicular and pedestrian access shall be provided to all parcels of land.