



Ottawa County Planning Commission Right of Way Task Force Report: Narrow Street Benefits and Residential Street Dimensions

Produced by the Ottawa County Planning Department
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Introduction

I

The Ottawa County Right of Way Task Force was appointed by the Ottawa County Planning Commission, for the purpose of developing clear goals for preserving trees, shrubs, vegetation, and other natural features along transportation corridors in Ottawa County; and to work with the Ottawa County Road Commission and Ottawa County utility companies, to minimize the removal and trimming of trees, shrubs, and vegetation along transportation corridors.

This report has been compiled to assist the Task Force members in defending the argument that current development and maintenance practices are in need of change in Ottawa County.

The Task Force has chosen three transportation related areas where they believe different practices can be implemented to preserve natural features. The first area is **new street construction in residential developments**. The second area is private road standards. Third, is road-side maintenance methods that are used by utility companies and the Road Commission.

To accomplish their first and second goals, and overcome any potential objections, the Task Force requested a compilation of reports and publications to show that narrower streets can improve safety and calm traffic; increase air/water quality and permeability; enhance the quality of life, open space, and rural character in a community; protect scenery and aesthetic characteristics; decrease construction costs; and reduce noise. The Task Force also requested data from various municipalities around the State and Nation regarding utility, road, and right-of-way dimensions.

This report was created to provide answers to those Task Force requests mentioned above and is divided into seven sections. The first section consists of the Introduction; section two is entitled "Benefits of Narrow Streets". It contains references to literature, reports, periodicals, studies, books, and transportation manuals discussing the benefits of narrow streets. This information is displayed in a matrix at the beginning of the section. A written summary of the literature is provided along with specific quotes. Excerpts from the documents are included as attachments in the Appendix. The third section is "Residential Street Dimensions". It provides a matrix outlining various "street dimensions" from communities across the Country. An explanation of the rationale that was used to categorize each community's street measurements into the

standardized matrix is provided. It also provides a detailed clarification of street dimension values, as well as a listing of "personal contacts" that were used to verify the data used in this publication. Copied excerpts from the street standards documents are also included in the Appendix. Section four is entitled "Utility Dimensions Matrix" and provides a matrix that displays the location of utilities in relation to the street

itself. This matrix only displays utility dimensions for those municipalities that have detailed information available. Section five is the "Summary" portions of the report. This section provides a summary of the documentation in this report as well as other factors to consider as policy recommendations are made. Section six is entitled "Policy Recommendations" and provides the Right-of-Way Task Force recommendations for right-of-way and street widths in new residential developments. All "Attachments" (literature references) are in section seven. This material provides graphical and textual references for the data and information presented in this report.

Benefits of Narrow Streets

II

REPORTS

Skinny Streets

Charlie Hales, Commissioner

Portland Bureau of Transportation, Engineering, and
Development

(See Excerpt From Attachment A)

DESCRIPTION: The pamphlet defines the term "skinny street". It discusses the advantages of incorporating skinny streets into residential developments.

BENEFITS:

Safety/Traffic Calming

- "Encouraging Traffic Safety - Narrower streets discourage non-neighborhood traffic and force drivers to slow down."

Air/Water Quality and Permeability

- "Reduce Stormwater Runoff - Paved streets are a major source of stormwater runoff. Pollutants from autos, as well as fertilizer, pesticides, and other contaminants, are collected in stormwater, which flows into storm sewers. Eventually, this dirty water reaches area streams and rivers. Reducing pavement reduces stormwater runoff and allows more water to soak directly into the ground."

Quality of Life/Open Space/Rural Character

- "Maintaining Neighborhood Character - Construction of a wide paved street to replace a

narrow unimproved road can change a neighborhood's atmosphere. Skinny streets reduce the impact on slopes contours, on yards and on neighborhood self-image."

- "Encourage Better Land-Use - As stewards of our natural resources, we know that streets aren't the best use of existing undeveloped land. With skinny streets, in new developments, we have more room to house our growing population while reducing the amount of land reserved for traffic use."

Scenic Aesthetics

- "Saving of Vegetation and Trees - In existing neighborhoods, narrower paving widths reduce the need to cut trees and shrubs along the street."

Construction Cost Savings

- "Lower Construction Costs - Construction of narrower streets costs less. This means that residents who want to improve existing streets are able to do so for less money and developers can create new neighborhood streets less expensively."

Skinny Streets for Livable Communities

Amber Cole, Writer/Researcher

Livable Oregon and the Smart Development Program

Oregon DOT and Department of Land Conservation

(See Excerpt From Attachment B)

DESCRIPTION: This report provides a description of skinny streets and outlines their benefits.

BENEFITS:

Safety/Traffic Calming

- "Traffic Safety - Skinny streets encourage more cautious driving and slower speeds by eliminating the "speedway feel" of wide streets in residential areas."

Air/Water Quality and Permeability

- "Decrease Storm Water Run-off - Because storm water is not absorbed through paved surfaces, skinny streets reduce storm water run-off by minimizing pavement surface area. Less pavement also reduces the amount of contaminants from road surfaces that are carried into the storm water system by run-off."

Quality of Life/Open Space/Rural Character

- "Increased Market Value - Older residential areas in many existing towns and cities in Oregon often have skinny streets. These areas are characterized by high home values with more of a neighborhood feeling. New developments with skinny streets and other neighborhood friendly elements are currently in high demand."

- "More Efficient Land Use - Land saved by reducing paved surface area provides more opportunities for other land uses, such as open space, farms, community and commercial needs, and housing."

- "Encouraging Bicycling and Walking - Skinny streets reduce overall distances between destinations by using land more efficiently, making walking and bicycling more attractive to residents. Skinny streets also create a safer environment for pedestrians and bicyclists by encouraging reduced traffic speeds."

- "Sense of Neighborhood/Community - Skinny streets create an environment of safety and convenience which attracts residents to walk, bicycle and play in the neighborhood."

Construction Cost Savings

- "Lower Development Costs - With less paved surface, narrower streets cost less to build. Skinny streets also allow for more flexibility in subdivision layout by reducing the amount of land designated for streets, and may result in more lots per gross acre of land."

- "Lower Maintenance Costs - Local governments spend less money building, improving,, and maintaining roads when they have less paved surface."

Speed Control in Residential Areas Office of Safety Planning

Department of State Police, State of Michigan

November, 1993

(See Excerpt From Attachment C)

DESCRIPTION: This pamphlet describes traffic safety techniques.

BENEFITS:

Safety/Traffic Calming

- "Road narrowing is a method used mostly in residential areas to control vehicle speeds and reduce traffic volume to improve safety."

Michigan Bike: Livable Places Update

March, 1998

(See Excerpt From Attachment D)

DESCRIPTION: Discusses traffic safety techniques

BENEFITS:

Safety/Traffic Calming

- "Fewer Accidents - A 1997 study by Swift and Associates relating residential street typology to the frequency of accidents revealed that the most significant relationship to injury accidents were street width and street curvature. Their analysis revealed that as street width widens, accidents per mile, per year increase exponentially. From the study, data shows the safest residential road width is 24' from curb to curb."

Quality of Life/Open Space/Rural Character

- "Economic Revitalization - Where there was once a depressed, run-down, neighborhood that motorists sped through quickly, now people meet, children play, and real estate values have increased. The city permanently altered the streets, mostly narrowing them."

PERIODICALS

Planning Commissioners Journal: Building on Common Ground

Joseph Molinaro

Fall, 1993

(See Excerpt From Attachment E)

DESCRIPTION: This article briefly cites a study that shows narrow streets cost less to build.

BENEFITS:

Construction Cost Savings

- "Visual preferences surveys conducted by the planning firm of A. Nelessen Associates of

Princeton New Jersey, have also shown that people prefer communities with narrow streets. And, of course, narrow streets are less costly to build."

15 Ways to Fix the Suburbs

Newsweek

15 May, 1995

(See Excerpt From Attachment F)

DESCRIPTION: This article reviews Anton Neleson's study on what the "desirable" neighborhood should be. His research provides evidence that they aren't the kind of neighborhoods that are presently being developed.

BENEFITS:

Safety/Traffic Calming

- "Make Streets Skinny - Narrow streets as little as 26' wide and tight, right angled corners are a lot easier for walkers, and probably safer as well, because they force drivers to slow down."

Scenic Aesthetics

- "Plant Trees, Aesthetics - Nothing humanizes a street more than a row of trees shading the sidewalk. They should be planted out at the curblin, where they will grow a canopy over the roadway. Why don't more places have such an obvious amenity already? Traffic engineers worry that people might drive into them."

STPP Progress

Hank Dittmar

Surface Transportation Policy Project

July, 1996

(See Excerpt From Attachment G)

DESCRIPTION: This article talks about benefits of traffic calming and narrowing street widths.

BENEFITS:

Safety/Traffic Calming

- "Reduction of Cut Through Traffic" - "Reduction of Speeding Traffic"
- "Increase in Security"

Scenic Aesthetics

- "Increase Visual Aesthetics"

STUDIES

Traffic Calming

David Engwicht

CART

(See Excerpt From Attachment H)

DESCRIPTION: Two myths of traffic planning are analyzed: bigger roads are safer roads and bigger roads advantage more people than they disadvantage. The study also highlights various traffic calming techniques. This study includes statistics showing that narrowing streets helps to reduce noise and pollution, increase the aesthetic quality

of the roads and neighborhood, and increases safety.

BENEFITS:

Safety/Traffic Calming

- "Myth: Bigger Roads are Safer Roads"
- "Narrow Traffic Lanes"
- "Top Speed of Traffic Down by 50%"

Quality of Life/Open Space/Rural Character

- "Myth: Bigger Roads Advantage more People than they Disadvantage"
- "Less 'rat running'"
 - "Extra space created by closing lanes or Narrowing Existing lanes is transformed into tree lined avenues, bikeways or walk ways, mini parks or squares."

Scenic Aesthetics

- "Enhancement of neighborhoods with an increase in greenery and a decrease in the visual intrusiveness of the roads and parked cars and a decrease in the number of traffic lights and signs."

Noise Reduction

- "Noise Pollution Reduced by 50%"

Swift and Associates Report

Peter Swift, Planning Engineer

Dan Painter, Transportation Planner of Longmont

Matthew Goldstein, Intern 1997

Swift and Associates

(See Excerpt From Attachment I)

DESCRIPTION: This study is the first of its kind. It compared the number of accidents versus streets width. The study provides information on how the data was compiled, the logic behind conducting the research, and the results. In conclusion, this study showed a direct link between increasing number of auto accidents and an increase in street width.

BENEFITS:

Safety/Traffic Calming

- "Traffic Safety Decreases as Roads Become Wider."
- "... the number of accidents per mile per year on a typical 36 foot wide residential street was 1.21 as opposed to .32 for a 24 foot wide street. In other words, the accident rate was almost four times greater on the wider street."

BOOKS

Take Back Your Streets ed. 3

Steve Burrington and Veronika Thiebach

Conservation Law Foundation

1998

(See Excerpt From Attachment J)

DESCRIPTION: This report discusses the advantages of having traffic move slower on residential streets, and the techniques used to bring about this effect.

Chapter 4 discusses the benefits of slower moving traffic and chapter 5 talks about narrowing streets along with other methods of slowing traffic.

BENEFITS:

Safety/Traffic Calming

- "Safety - Regardless of posted speed limits, motorists will drive faster when given the 'safety cushion' of a wider road and greater sight distances. Thus from the point of view of pedestrian safety, widening roads is counterproductive."
- "Skinny Streets - A primary way to slow down traffic is to narrow the real or perceived horizontal width of the pavement."
- "Breaking Up Straightaways - straightaways encourage speed, as do long, very gradual curves. Narrowing a street or travel lanes can help reduce traffic speeds."
- "Winding Roads - Most of New England's rural streets and roads, of course are anything but straight."

Air/Water Quality and Permeability

- "Air Quality - 'the greater the speed of vehicles in built up areas, the higher is the incidence of acceleration, deceleration and braking.' All of these cause higher emissions; by contrast, slowing vehicles down in such areas can reduce their emissions by as much as 50%."

- "Air Quality - Assertions that a road project will improve air quality usually assume that the project will 'improve traffic flow' by increasing travel speeds or reducing idling time. 'Traffic flow improvements' are usually made by widening or adding lanes or changing traffic lights or other controls. But these measures can actually result in more, not less, air pollution.

- "Air Quality - Once traffic reaches speeds greater than 15-20 miles per hour, the faster it moves, the more nitrogen oxides it emits. So, from the point of view of the region's ozone smog problem, slower may be better."

Quality of Life/Open Space/Rural Character

- "Driving Experience - When a road is expanded motorists will try to drive faster, but it is wrong to conclude that as a result there will be less traffic congestion, especially in the long term. In addition a bigger road will usually attract motorists from other routes who see an opportunity to shorten their travel time by driving faster on the new road. Finally, in many circumstances, road expansion produces sprawl...."

- "Walking and Bicycling Experience - ... faster roads are more dangerous road for non-motorists. Streets and roads designed solely or primarily with driving speed in mind deter people from walking and bicycling."

Construction Cost Savings

- "Cost - Roadwork is expensive.... Repaving generally costs between \$100,000 to \$400,000 per mile...."

Noise Reduction

- "Noise - Road projects can increase noise levels in a number of ways. As traffic speed increases,

noise levels increase. ... a reduction in average speed from 25 miles per hour to 12 miles per hour on residential streets was accompanied by a 14 decibel reduction in noise."

Residential Streets 2nd Edition

American Society of Engineers

National Association of Home Builders

Urban Land Use Institute

(See Excerpt From Attachment K)

DESCRIPTION: The "Residential Streets" publication is a a book of recommended guidelines which apply to the development of residential neighborhoods.

BENEFITS:

Safety/Traffic Calming

- "Pavement Widths - Widening the access street a few more feet does not significantly increase capacity but does permit wider moving lanes that, in turn, tend to encourage higher speed driving.

Air/Water Quality & Permeability

- "An alternative to the gutter-sewer closed system is the open system that encourages infiltration of stormwater into the soil. Sheet flow of water across street conveys water to swales and adjacent lawns, reducing the need for costly features.

Quality of Life/Open Space/Rural Character

- "Right-of-Way Widths - The right-of-way width should be only as wide as necessary for the street pavement and other facilities and uses, including sidewalks, utilities, drainage, street trees, snow storage, and grading. Blanket requirements for rights-of-way of 50

feet or more, often mandated by ordinances, are seldom justified for subcollectors and access streets.

Site Planning and Community Design for Great Neighborhoods

Frederick D. Jarvis

(See Excerpt From Attachment L)

DESCRIPTION: This book is dedicated to providing suggestions and guidelines to developing residential neighborhoods that have the following qualities: exciting, convenient, relatedness, affordable, traditional, united, safe, private, identifiable, luxurious, innovative, and varied.

BENEFITS: (Problems with Wide Streets)

Safety/Traffic Calming

- "Oversized streets encourage motorists to speed."

Air/Water Quality and Permeability

- "More paved areas increase runoff and add to storm drainage requirements."

Quality of Life/Open Space. Rural Character

- "Narrower residential street widths and more sensible design standards, including reduced curb radii, help promote the development of pedestrian-friendly streets."

Scenic/Aesthetics

- "Wide streets require more clearing and grading, and destroy natural landscaped resources."

Construction Cost Savings

- "Land development costs are increased resulting in more expensive homes."
- "Wide street pavements mean more maintenance and waste resources."

Higher Density Housing

Goodkin Group

(See Excerpt From Attachment M)

DESCRIPTION: This book briefly talks about the history of wide streets. It points out that the logic of the past is no longer rational in the present day. This information can be used as a counter argument to those opposed to implementation of narrow streets.

BENEFITS:

Safety/Traffic Calming

- Current Street Standards, Why The Logic is Irrational - "Traditional local codes typically specify two or three basic residential street design alternatives that must be used in project planning. The rights-of-ways and paving widths established in these codes are set without considering the actual use and traffic volume of a given street

- "It is interesting to note the origins of the wide street pavement requirements. In mid-19th century, Salt Lake City, Utah, Brigham Young needed 100' wide streets to turn around his mule teams. Those street standards are still in use today.

- "Studies demonstrate, however, that in an actual emergency no vehicle can exit easily from a cul de sac or any residential street regardless of pavement width. In the case of a fire, for example, fire trucks, the chief's car, ambulances,

police cars, and neighborhood residents' vehicles all block easy egress. The point to remember is pavement width alone doesn't guarantee good access."

A State Highway Program in Your Town

Wick

DESCRIPTION: none

BENEFITS:

Safety/Traffic Calming

- "Consistency in road conditions contributes greatly to safety. A stretch of road that is uniformly too narrow, too curvy, too steep, may in fact be safer than the same stretch with several short "improved" sections. This is because motorists get an idea of what to expect with consistent albeit standard conditions."

TRANSPORTATION MANUALS

Eugene Local Street Plan

City of Eugene

August 1996

(See Excerpt From Attachment N)

DESCRIPTION: Section 5 of the Eugene Local Street Plan talks about the benefits of narrowing streets and other various traffic calming techniques."

BENEFITS:

Safety/Traffic Calming

- "Increase Traffic Safety - Narrow street designs will discourage the use of local streets by through traffic and help reduce traffic volumes and speeds. This will help to create quiet, safe residential streets with low traffic volumes and speeds."

Air/Water Quality and Permeability

- "Reduce Water Run Off - Paved streets are impervious surfaces which prevent the filtration of storm water into the ground. Therefore, streets increase the volume of storm water runoff, which can cause flooding, erosion, and habitat destruction."

Quality of Life/Open Space/Rural Character

- "Encourage Efficient Land Use - The land saved by using narrow street designs can be used for other purposes including housing, landscaping and open spaces."
- "Reduce Negative Environmental Impacts - A narrow street cross section will help minimize environmental impacts by requiring less land than a wider street."
- "Improve Neighborhood Character - The positive environmental, land use, and traffic safety impacts of narrow streets all work to improve the character and livability of residential neighborhoods."

Construction Cost Savings

- "Cost Reduction - Less road base is needed and less surface area is paved. The result is lower ... costs."

Vermont State Standards

Vermont Agency of Transportation

October 22, 1997

(See Excerpt From Attachment O)

DESCRIPTION: This transportation manual is the official text which addresses the recommended guidelines for all street dimensions constructed in Vermont. Specifically Vermont has set aside criteria, "special guidelines," for minimizing, or mitigating negative impacts upon the environment and other sensitive resources.

BENEFITS

Quality of Life/Open Space/Rural Character and Scenic Aesthetics

- "These Special Design Guidelines (mentioned below) are presented to assist the designer in avoiding, minimizing, or mitigating negative impacts upon the environment and other sensitive resources as well as to enhance the design to fit the context of the project site. Under this Functional Classification there are guidelines for:
 - historic/archaeological resources
 - recreational resources
 - natural resources
 - scenic resources
- "Collector roads and streets should be designed to allow both local access and mobility and as such should make the most use of tools to avoid impact to sensitive resources. Reduction in the size/area of impact, and the utilization of creative design and engineering solutions should be pursued. The following strategies are described as 'common tools' in the following subsection to avoid impact to the resources.

- reduction/minimization of lane and shoulder widths
- reduction/minimization of clear zones
- Sharpening of horizontal curbs with advisory speed postings
- alterations to typical cross sections including road side ditches shallower than normal, sideslopes steeper than normal, use of curb and closed drainage systems, retaining walls
- other traffic calming techniques such as intersection diverters, roundabouts, channelization, speed humps, speed tables, angle points, and gateways

Residential Street Dimensions III

	WELLS RIVER	DELFORD	AARFORD	DE	KENTWOOD	VERMONT	COLORADO SPRING	BEAUMONT	BAILEY'S GROVE	ALLEGAN COUNTY	KENT COUNTY	OTAWA COUNTY
ROW WALKS												
cul de sac	12	10	N/A	N/A	10	10	10	N/A	10 to 15	10	10 to 15	10
minor street	10	10	10	10 to 15	10	10	10	10	10 to 15	10	10 to 15	10
major collector	15	10	10 to 15	10 to 15	10	10	10	10	10 to 15	10	10 to 15	10
PAVEMENT DIMENSIONS												
cul de sac	120 000 311 12	211 140 150 12	N/A	N/A	211 000 321 12	370 414 11	370 375 321 12	N/A	312 400 321 21	311 400 321 21	311 400 321 21	311 400 321 21
minor street	120 210 311 12	211 140 150 12	300 170 12	300 170 12	211 000 321 12	370 414 11	370 375 321 12	370 11 100 12	312 400 321 21	311 400 321 21	311 400 321 21	311 400 321 21
major collector	120 210 311 12	211 140 150 12	300 170 12	300 170 12	211 000 321 12	370 414 11	370 375 321 12	370 11 100 12	312 400 321 21	311 400 321 21	311 400 321 21	311 400 321 21
UTILITY EASEMENT												
cul de sac	5'	N/A	N/A	N/A	5'	N/A	N/A	N/A	5'	5'	5'	N/A
minor street	5'	N/A	15'	10 to 15'	5'	N/A	N/A	N/A	5'	5'	5'	N/A
major collector	10'	N/A	N/A	10'	5'	N/A	5'	N/A	5'	5'	5'	N/A
CUL DE SAC RADII												
cul de sac	75	75	N/A	N/A	75	N/A	75	N/A	75	75	75	75

Dimensional Breakdown by Local Municipality

WILMAPCO, DeLDOT, AASHTO, ITE, ASCE

CONTACTS

Charles Baker, Wilmington County Planner

(302) 737-6222

Delaware DOT (302) 739-4643

Bob Walters, AASHTO Chairman of AKSHTD (501) 569-2301

Mike Hewitt, Pipeline Engineer Urban Planning Development
and Transportation (703) 295-6115

Laura Hazen Records (202) 554-8050

NOTE: ITE and AASHTO are two of the five organizations/municipalities which provided verbal confirmation about their street dimensions, but were reluctant to go into detail.

STREET DESIGNATION

Minor streets/collectors have been defined by the average trips taken per day and by the number of houses each road serves. (Minor street < 50 homes and < 500 trips/day. Minor collector 50-300 homes and 500-3000 trips/day.) These road characteristics are assumed to be the same for DeLDOT, AASHTO, ITE, ASCE, and WILMAPCO because they are all on the same document. Street designations were made from the figures listed above.

1. Cul de sac information was not provided.
2. Minor streets were considered to have low volume traffic and have been designated as minor streets.
3. Minor collectors have been designated as minor collectors for

having medium volume traffic.

RIGHT-OF-WAY WIDTH

The right-of-way (ROW) dimensions were found on the table provided in the "WILMAPCO - Mobility Friendly Design Standards Study." (See attachment Q). The right-of-way dimension is given for all five organizations. The right-of-way dimension for the ASCE can also be found in their "Residential Streets Manual."

PAVEMENT DIMENSIONS

The WILMAPCO study provided pavement widths for all five organizations. In addition, it also gave specific lane dimensions, for traffic and parking lanes. Curb widths could only be found for WILMAPCO and DelDOT. The curb width is added on to the traffic and parking lane widths.

UTILITY EASEMENT

Utility easement information was provided for WILMAPCO, AASHTO, ITE, and the ASCE. The width provided is a strip that is to be used for both the placement of utility lines and for planting curbside trees.

CUL DE SAC RADIUS

Cul de sac radii were only provided for WILMAPCO, 38'; DelDOT, 38'; and ASCE, 30'. This information was acquired either by phone conversation or from the ASCE, "Residential Streets Manual."

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT P

ALLEGAN COUNTY, MI

CONTACTS

Bill Nelson, Allegan County Road Commission

(616) 673 2184

NOTE: Allegan County is one of the five municipalities/organizations that provided verbal confirmation about their street dimensions, but were reluctant to go into detail.

STREET DESIGNATIONS

Allegan County does not divide their roads into categories within residential areas. They have one set of dimensions for roads that are in residential plats. Therefore, the cul de sac, minor street, and minor collector all have the same values.

RIGHT-OF-WAY WIDTH

The right-of-way width is 66' for streets in residential plats.

PAVEMENT WIDTH

The local street cross section shows that there is a total of 30' of pavement set aside for two 5' parking lanes, and two 11' traffic lanes. There is a 2' wide gutter strip that is included in the traffic and parking lane widths.

UTILITIES

All sewer laterals are to be placed 10' beyond ROW line.

Utilities are on the South and West side of the street

Telephone conduit or cable - 2' or 17 to 20' inside of ROW line

Sanitary Sewer 23' from cl.

Catch Basin (2' wide) 14'6"

Utilities on the North and East side of street

Storm Gutter Catch Basin (4' wide) 14'6" from cl.

Water Main 23' from cl.

Storm Manhole 7' to 10' inside of ROW line

Power Poles .5' to 5' inside of ROW line

Gas Main 3' to 8' inside of ROW line

Power conduit or cable 3' to 8' inside of ROW line

CUL DE SAC RADIUS

The radius dimension is 40'.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT W

AUSTIN, TX

CONTACTS

George Adams, Author of TND Criteria Manual

(512) 499-2146

Paul Urbanek, Water/Sewers Utility (512) 322-2763

Judy Fauler, Electric/Cable Utility (512) 322-6107

STREET DESIGNATION

The Austin TND Criteria Manual has 7 sub categories of residential streets. The following three best matched the streets of this study.

1. Cul de Sac information is not available because of the strict regulations placed on the development of dead end roads. Under the guidelines of the TND manual, a highly connected street network is desirable. Development of cul de sac's are counter productive to reaching the desired subdivision street network. Due to a heavy ban on cul de sacs, the TND manual does not have a design criteria for them.

2. Mixed Residential Lanes and Streets have an ADT between less than 1000 and less than 500. These streets are characterized as low speed thoroughfares providing access for mixed residential areas. Both of these streets have been reclassified as minor streets.

3. Mixed Residential Avenues have an ADT between 1000 and 2000. These streets are defined as a short thoroughfare which connects important locations within a Mixed Residential area. These streets have been reclassified as minor collectors.

RIGHT-OF-WAY WIDTH

The right-of-way width includes pavement for the traffic and parking lanes, and areas for sidewalks and a planting strip. The widths can be found on the TND Manual diagrams of street cross sections in the attachment.

PAVEMENT WIDTH

Pavement widths on the Residential Avenue accommodate two 9' lanes for traffic, and 8' two lanes for parking. The residential lanes and streets only accommodate one 10 to 12' lane of traffic with two 8' lanes of parking. These narrow streets allow for two way traffic. The space inconvenience is a traffic calming technique. Two cars can still pass each other tightly, if the parking lanes are full. The City of Austin believes that the parking lanes won't be full all the time, so this will allow for cars to use some of the parking lane to travel on, thus making it slightly more comfortable for passing. The 2' curb/gutter widths are part of the parking lane width. .

UTILITY EASEMENT

All of the utilities are placed within the ROW unless a special easement is granted.

Electricity/Telephone - uses both a 10' easement for the placement of its transformers and some line. Otherwise all other lines are placed within the detachment area between the curb and the sidewalk. This width varies from street to street.

Water - 14.5' off of cl.

Sewer - 5' off cl on opposite side of water under pavement.

Storm Drains - 2' gutter strip next to curb and pavement

CUL DE SAC RADIUS

This information is not available.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT Z

BAILEY ' S GROVE (KENTWOOD , MI)

CONTACTS

Dale Kraker, Eastbrook Companies Developer

(616) 455 0200

STREET DESIGNATION

The Bailey Grove Development has only two main types of streets. The first is the minor collector. The main entrance street coming in from 52nd street and the "loop street" are considered minor collectors. They collect all traffic and channel it out to the arterial roads from the smaller residential streets. However, the entrance street and loop street do have different dimensions. The rest of the streets within the development make up the smaller residential roads or minor/cul de sacs.

RIGHT-OF-WAY WIDTH

The entry road has a width of 60' and the "loop road has a width of 50'. The residential side streets either have a width of 50' or 40' depending on whether a sidewalk is constructed. A road with a sidewalk has a 50' right-of-way width. The construction of a sidewalk depends on the number of lots being served by a street.

PAVEMENT DIMENSIONS

The entry and residential roads all have 24' of pavement which allows for parking on one side of the street, even though a parking lane is not designated. The "loop street" has a width of 28' and will allow for parking on both sides of the street. There is a 2' roll curb. along all streets which keeps storm water on the asphalt. The curb is

considered to be part of the traffic lane width.

UTILITY EASEMENT

All of the utilities except for telephone and electric lines are under the pavement. Telephone and electric use a 10' private easement located on either side of the road. Even though the 10' of land is cleared for the easement, only 3' is used. The following is a list of specific utility dimensions

40' ROW street

East or South Side Street

storm sewer 11.5' from cl.

gas main 18' from cl.

water stop box 19' from cl.

West or North Side of Street

water stop box 16' from cl.

water main 16' from cl.

storm drain catch basin 11.5' from cl.

sanitary sewer on cl.

50' ROW street

East or South Side Street

storm sewer 11.5' from cl.

gas main 18' from cl.

water stop box 17' from cl.

West or North Side of Street

water stop box 24' from cl.

water main 16' from cl.

storm drain catch basin 11.5' from cl.

sanitary sewer on cl.

60' ROW street

East or South Side Street

storm sewer 13.5' from cl.

gas main 18' from cl.

water stop box 22' from cl.

West or North Side of Street

water stop box 22' from cl.

water main 19' from cl.

storm drain catch basin 13.5' from cl.

sanitary sewer on cl.

All other utilities are in a 10' easement next to right of way.

CUL DE SAC RADIUS

Bailey Grove's cul de sac are island cul de sacs. The radius from the center of the island to the curb is 42'.

FOR ALL REFERENCE MATERIALS SEE ATTACHMENT V

BELMONT, NC

CONTACTS

Bob Cook, MPO Gaston County (704) 866-6980

STREET DESIGNATION

A fax was sent consisting of diagrams of the different streets of the Belmont subdivision hierarchy. The two that best fit the streets of this study are the local and neighborhood streets.

In the Traditional Neighborhood Design (TND) concept of Belmont's new subdivision planning, cul de sacs are discouraged because they reduce the amount of connectivity the neighborhood can have. Therefore the cul de sac information is not available.

Based on Average Daily Trips (ADT) levels, the neighborhood streets are considered the minor streets and local streets are considered the minor collectors.

RIGHT-OF-WAY WIDTH

The right-of-way of both streets consists of pavement for traffic and parking lanes, and an area for sidewalks and planting of street trees.

PAVEMENT WIDTH

The pavement width varies within each street type depending on the volume of traffic it is anticipated to carry. Because of the different volumes, the pavement widths have been listed as a range. The curb width is not known for Belmont.

UTILITY EASEMENT

Information is not available.

CUL DE SAC RADIUS

Information is not available.

FOR ALL REFERENCE MATERIALS SEE ATTACHMENT T

BOULDER, CO

CONTACTS

John Hinkelman, Transportation Planner (303) 411-3240

STREET DESIGNATION

The City of Boulder has made four different classes of neighborhood streets. This study will look at three of them.

1. The Access Lane is designed to serve no more than 25 dwellings, and carry an ADT of 250 or less. The Boulder access lane will be considered a cul de sac for this study's purposes.

2. The Residential Street is supposed to provide neighborhood circulation. The ADT level is 500 to 1000. This street matches this study's minor streets.

3. The Residential Collector Street distributes neighborhood traffic from residential streets to community collectors and arterial transportation systems, and provides access to individual properties. The ADT levels range from 1000-2500 trips per day. This Boulder street matched this study's minor collector.

RIGHT-OF-WAY WIDTH

The right-of-way consists of pavement for traffic and parking lanes, a detachment area between the curb and the sidewalk for the planting of trees, and an area set aside for sidewalks. The access lane is the only exception to this. The access lane does not permit on street parking or sidewalks.

PAVEMENT WIDTH

The pavement widths for the Residential collector and street include parking lanes on both sides of the street, but the access lane does not have pavement for parking. The curb width is included with the parking lane width.

UTILITY EASEMENT

This information is not available.

CUL DE SAC RADIUS

The radius dimension is 25'.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT AA

BUCKS COUNTY, PA

CONTACTS

Joe Bush, Public Works (215) 345-3950

STREET DESIGNATION

The designations for Buck's County were made after reviewing the street definitions from the Bucks County Performance Streets Manual. Here are the following conclusions:

1. Residential access streets are the smallest of the Bucks County Roads. Their design will not allow for average daily traffic (ADT) levels greater than 200. Residential access streets have been reclassified as this study's cul de sac's.
2. Residential sub-collector streets were defined as streets which collect traffic from the access streets. These streets were designed to carry traffic of 500 ADT or less. The Buck's County sub collector has been re-categorized as this study's minor street.
3. Residential collector streets are designed to handle traffic under 3000 ADT. Bucks County mandates any street over 3000 ADT as a street on a higher level than the collector roads. These roads collect traffic from the subcollectors and channel it to larger streets connecting residential areas to commercial/industrial zones. Bucks County collector streets are similar enough to be considered the minor collectors.

RIGHT-OF-WAY WIDTH

The Bucks County ordinance report states that the ROW values provided are the minimum dimensions for usage by a municipality and are based upon commonly used standards and street design references. These right-of-way of values are

assumed to include traffic lanes, parking lanes, curb widths, and anything else set aside for development beyond the curb, such as sidewalks, utility easements, etc. The right-of-way widths for the residential access, sub-collector, and collector streets are 50', 50', and 60' respectively.

PAVEMENT WIDTH

The Buck's County access street can be built to accommodate one lane of parking or no parking. Therefore, there are two pavement widths provided, 24' and 18' respectively. The sub collector is designed to accommodate two lanes of parking and two lanes of traffic in a 36' paved area. The sub collector is designed for only two lanes of traffic, 20' to 24'.

UTILITY EASEMENT

This information is not available.

CUL DE SAC RADIUS

The radius dimension is 35'.

FOR ALL REFERENCE MATERIALS SEE ATTACHMENT U

YANKEE TRACE

(CENTERVILLE, OH)

CONTACTS

Steve Feverston, City Planner (937) 428-4761

STREET DESIGNATION

The Yankee Trace Golf Community has been designed with three types of streets: A minor collector, which carries traffic to and from the arterial road, a residential street, which is used to make small loop roads, and the cul de sac. Even though the residential street and the cul de sac serve different purposes, their dimensions are still the same

The following designations have been made.

1. The cul de sac is this study's cul de sac.
2. The residential street is the minor streets
3. The main entry road, minor collector is the minor collector. However, in the near future, the Yankee Trace Development will be changing the dimensions of this road to accommodate 4 lanes of traffic and a central turn lane with a right-of-way of 90'. At this point in time, this street do not apply to this study's street criteria.

RIGHT-OF-WAY WIDTH

For the minor streets and cul de sacs the right-of-way is 50'. Currently the entry road to the Yankee Trace Development is 50'.

PAVEMENT DIMENSIONS

In the original blueprints, the residential streets had a 21' pavement width. This has been changed to 22'. There is one, 9' travel lane, and a one 9' parking lane. The curbs width is added on to the travel and parking lane widths for a total of 22' of pavement. Parking is allowed on the opposite side of the road from where the lots are located.

UTILITY EASEMENT

This information is not available.

CUL DE SAC RADIUS

The cul de sacs in the Yankee Trace Development are island cul de sacs. The radius from the center of the island to the outside curb is 49'.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT DD

COLORADO SPRINGS, CO and HILLSIDE

CONTACTS

Larry Lane Sr. Traffic Planning Engineer (719) 385-5908

STREET DESIGNATION

The designations for Colorado Springs were made by analyzing the road definitions from the Colorado Spring Subdivision Manual. Taken into consideration for street classification were the factors of function, number of lanes, and traffic characteristics. The following classifications were made:

1. The minor local and local streets have been hybridized. The new hybrid street encompasses both this study's cul de sacs and minor streets.
2. Colorado Spring's collector streets fit under this studies definition of the minor collector.

The Colorado Springs Hillside Developments adhere to slightly different street guidelines due to the unique terrain and topography of the land. There is only one Hillside street category. It has been designated as a minor street.

RIGHT-OF-WAY WIDTH

The hybrid street right-of-way is 50' and includes pavement width, detached sidewalks on both sides of the street, curbs, and the utility area. The right-of-way for the collectors contain the same components, but have a 60' right-of-way.

When sidewalks are waived from construction, the ROW width

is decreased by the width of the sidewalk. The sidewalks are 5', but they run on both sides of the street. Therefore, the total width subtracted from the ROW is 10'.

The Hillside minor street has a right-of-way of 40' with two 5' private utility easements on either side.

PAVEMENT WIDTH

A phone conversation confirmed a change from what the "Colorado Springs Subdivision Policy Manual" states. Both the hybrid and collector streets have a pavement width of 34'. This includes two 8' lanes of traffic, two 7' parking lanes, and two 2' gutter strips. The gutter strips are added to the traffic and parking lane widths.

The Hillside minor street has a pavement width of 24'. It accommodates two lanes of traffic, both 12'. On street parking is allowed, but parking lanes aren't designated. The 2' curbs are considered part of the traffic lanes.

UTILITY EASEMENT

The 10' area between the curb and the sidewalk, is used by the electric and cable utility companies to bury their lines. It was also mentioned that all utilities must reside within the right-of-way. Specific dimensions for the minor collector were obtained from the street cross section diagram. Other than what is described here, no other specifications are available. Here are the following minor collector utility dimensions:

Minor Collector 60' ROW

North and East Side of Street

electricity and cable 22' from cl.

water 10' from cl.

South and West Side of Street

electricity and cable 22' from cl.

gas 18' to 22' from cl.

sanitary sewer on cl.

Hillside

Minor Street 40' right-of-way

electricity 15' from cl. on right 20' on left

water 6' from cl. on right

sanitary sewer 5' from cl. on left

gas on cl.

CUL DE SAC RADIUS

The radius dimension is 42'.

FOR ALL REFERENCE MATERIALS SEE ATTACHMENT S

EUGENE PAVEMENT DIMENSIONS

STREET TYPE TRAVEL PARKING

LANES WIDTH LANES WIDTH TOTAL

Low Volume 2 10' 0 0' 20

Residential

Low Volume 1 14' 1 7' 21

Residential

Low Volume 1 14' 2 7' 28

Residential

Medium 2 10' 0 0' 20

Volume

Residential

Medium 2 10' 1 7' 27

Volume

Residential

Medium 2 10' 2 7' 34'

Volume

Residential

EUGENE, OR

CONTACTS

Allen Lowe, Eugene Planning Dept. (541) 682-5113

Jay Bozievich, Eugene Water and Electric Board

(541) 484-1125

STREET DESIGNATION

Eugene County's lower level streets are designed to have only one lane for traffic. The reason is because they are trying to revert back to an older style of neighborhood where the homes are closer to the road, sidewalks are protected by a row of planted trees, and streets are narrow. These one lane streets (queuing streets) are still intended to handle oncoming traffic. Spaces have been built into the curb so that if two opposing cars come to an impasse, then one will pull over and let the other pass. It is possible to have two cars pass by one another, but the clearance will be mere inches. Their philosophy of neighborhood street networking works toward higher connectivity, which reduces the use of the cul de sac and the use of collector streets. Because of this, it is difficult to match Eugene's streets with other streets in this report. Additionally, Eugene does not have a street that carries two lanes of traffic that fits under this study's definition of a cul de sac. Therefore all cul de sac information is considered not available. However the following designations have been made by comparing ADT levels.

1. Low Volume Residential Streets have an ADT between 250 and 750. It has been characterized as a street designed to grant primary access to individual residential property or to adjacent streets. This type of street has been reclassified as a minor streets.

2. Medium Volume Residential Streets have an ADT between 750 and 1500. These streets function to allow access to individual property and to connect roads of lower function to higher. These streets have been reclassified as minor collectors.

RIGHT-OF-WAY WIDTH

The right-of-way for both low and medium volume streets consists of two traffic lanes, varied number of parking lanes, and sidewalks and buffer strips on either side of the street. The right-of-way width with walks for a low volume residential street is 45'. The other right-of-way widths only accommodate one lane of traffic, which is not applicable to this study. On the medium volume streets, two lanes of traffic can be accommodated so the right-of-way are as follows: 50' for no parking, 55' for one lane, and 60' for two lanes.

PAVEMENT WIDTHS

The pavement widths for Eugene have been listed separately because the dimensions would not fit in the allotted space in the matrix. The curb/gutter width is part of the traffic or parking lane width.

UTILITY EASEMENT

Eugene uses a common trench to hold the majority of the hardware used for the electric, cable, water, sewer, and sometimes gas utilities. In most cases gas lines run on the opposite side of the road from the common trench. The common trench is 24" without gas and 36" with gas. The common trench is currently located on 7' private easement that is 12' to 15' off the edge of the curb. The rest of the space within the easement is for the placement of the utility connections, mains, etc. For specific location of utility lines within the common trench, refer to attachment Y.

CUL DE SAC RADIUS

Body

The radius is 35'.

FOR ALL REFERENCE MATERIALS SEE ATTACHMENT CC

KENT COUNTY, MI

CONTACTS

Roger Schildroth, Kent County Road Commission

(616) 242-6911

NOTE: Kent County is one of the five municipalities/organizations that provided verbal confirmation about their street dimensions, but were reluctant to go into detail.

STREET DESIGNATIONS

Kent County does not divide their roads into categories within residential areas. They have one set of dimensions for roads that are in residential plats. Therefore, the cul de sac, minor street, and minor collector all have the same values.

RIGHT-OF-WAY WIDTH

The right-of-way width is 66' for streets in residential plats

PAVEMENT WIDTH

The cul de sac is 26' wide. The diagram of a local street cross section shows that there is a total of 34' of pavement set aside for two 6' parking lanes, and two 11' traffic lanes, and a 2' gutter strip which is used for the street gutters. This 2' is part of the 6' parking lane.

UTILITIES

Electric and telephone conduits or cables are usually located within in the 10' private utility easement.

Utilities are on the South and East side of street

Sanitary Sewer 6' from cl.

Street Gutter Catch Basin 14' from cl.

Telephone Poles 8' to 12' inside of ROW line

Telephone Conduit or Cable 3' inside of ROW line

Cable TV .05 inside of ROW line

Gas Main 7' inside of ROW

Utilities are on the North and West side of street

Storm Gutter Catch Basin 14' from cl.

Water Main 19 from cl.

Power Poles and Street Lights 8' to 12' inside of ROW line

Telephone Conduit or Cable 4' inside of ROW line

Cable TV .05' inside of ROW line

Storm Manhole on cl.

CUL DE SAC RADIUS

The cul de sac diagram shows the radius is 40'

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT X

KENTWOOD CITY, MI

CONTACTS

Tim Cochran, Kentwood Planner (616) 554-0730

Gordon Start, Kentwood Engineer (616) 554-0736

STREET DESIGNATION

The City of Kentwood breaks their subdivision streets down into 3 types: minor (1-15 houses served), local (16-46 houses served), and sub collector (46-75 houses served). Based on the amount of traffic generated by the number of houses served, the following designations were made:

1. Minor locals were considered to be cul de sac's
2. Major locals were considered to be minor streets
3. Sub-collectors were considered to be minor collectors

RIGHT-OF-WAY WIDTH

The street cross sections sent from the City of Kentwood were used to determine the ROW width because they show the standards Kentwood is using for street construction. The information found in the "Kentwood Housing Task Force" document are only recommendations not the adopted standards.

PAVEMENT WIDTH

The street cross section diagrams were used to obtain the pavement dimensions. No on street parking space is allotted, but cars still park on the street. The 2' curbs are added to the traffic lane width.

UTILITY EASEMENT

The street cross section diagrams were referred to again to obtain this information. (cl) stands for center line of road.

cul de sac

electricity, cable, telephone - these are placed in a private easement, 10' adjacent to the ROW.

water - water main 16' to cl

water stop box 19' to cl on both sides of road

sewer - storm sewer 11.5' to cl

sanitary sewer on cl.

storm drains - catch basin 11.5' to cl.

gas - gas main 18' to cl.

minor street

electricity, cable, telephone - same as above

water - water main 16' to cl.

water stop box 24' to cl. on right side, 17' on left

sewer - storm sewer 11.5' to cl.

sanitary sewer on cl.

storm drains - catch basin 11.5' to cl.

gas - gas main 18' to cl.

minor collector

electricity, cable, telephone - same as above

water - water main 19' to cl.

water stop box 22' both sides of road

sewer - storm sewer 6' to cl. on right side

sanitary sewer 6' to cl. on left side

storm drains - catch basin 14.5' to cl.

gas - gas main 18' to cl.

CUL DE SAC RADIUS

The radius dimension is 35'. This was obtained through a phone conversation with the City of Kentwood.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT Q

OTTAWA COUNTY, MI

CONTACTS

Tim Palarz Ottawa County Road Commission

(616) 842-5400

NOTE: Ottawa County is one of the five municipalities/organizations that provided verbal confirmation about their street dimensions, but were reluctant to go into detail.

STREET DESIGNATIONS

Ottawa County does not divide their roads into categories within residential areas. They have one set of dimensions for roads that are in residential plats. Therefore, the cul de sac, minor street, and minor collector all have the same values.

RIGHT-OF-WAY WIDTH

The right-of-way width is 66' for streets in residential plats

PAVEMENT WIDTH

The cul de sac is 26' wide. The diagram of a local street cross section shows that there is a total of 30' of pavement set aside for two 13' traffic lanes, and a 2' roll curb which is used to keep storm water from running off the street.

UTILITIES

This information is not available.

CUL DE SAC RADIUS

The cul de sac 40 to the front of the curb.'

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT Y

PORTLAND, OR

CONTACTS

Terrance Bray, Planner Engineer (503) 823-7004

GENERAL

Portland's skinny street system differs greatly from Ottawa County's. Due to their unique zoning system, the specific pavement values have been left off the matrix. Refer to attachment X to obtain pavement dimensions. The following is an explanation of how to read the Portland pavement dimensions: Comprehensive Plan Single Dwelling zone R5 refers to a streets that serves residential lots that are 5000 sq. feet. R7 and above refers to residential lots that are 7000 sq. feet and beyond. Zoning R5 through RF are considered low density living lots and are eligible for the development option of skinny streets.

A skinny street has an ADT of 1000 with an avg. of 100 homes. As a standard rule of thumb, these residential streets have a ROW maximum of 50'. Within this ROW they factor in space for sidewalks, planting strip (between curb and sidewalk, traffic lanes and parking lanes. Most of these streets have one lane of traffic with 0 to 2 lanes of parking (hence the concept of the skinny street).

The pages found in the attachment will show the street dimensions for the Portland Skinny Streets. Since right-of-way widths without walks aren't provided in the *New Standards for Residential Streets*, it is noteworthy to mention, that if in the event sidewalks were to be waived from street construction, the ROW width would remain the same.

UTILITY EASEMENT

Water is 3.5 to 6' off the curb under pavement on the opposite side of the road as the public sewer. Sewer is 4'

off center line of the road. The Storm sewers are also under the pavement off the edges of the curb. All other utilities such as electricity, cable, telephone, and gas are private and therefore are placed in a utility easement under the sidewalk or on a private utility easement on the owners private land. This easement is typically 5' wide. Private utilities can be placed under the pavement, but they can't conflict with the other public utilities.

CUL DE SAC RADIUS

The cul de sac radius is 35'.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT BB

VERMONT AGENCY OF TRANSPORTATION (VAOT)

CONTACTS

Allan Wright, Chief of Utilities and Permits

(802) 828-2667

Robert Shattuck, Roadway Design and Traffic Engineer/
Chairman of Standards (802) 828-2664

STREET DESIGNATION

VAOT has broken their roads down into 5 sub-categories, freeways, principle arterial streets, minor arterial streets, collector streets, and local streets. The roads that this study is concerned with are the collector and local streets. The following designations have been made for the following reasons:

Local roads and streets were not given a service level ranking, but were given slightly lower speed limits. It is assumed that these roads and streets carry a lower level of traffic. The VAOT has placed cul de sac under this category. Therefore, VAOT's local roads encompass both this study's minor streets and cul de sac.

Collector roads have been classified as minor collectors for purposes of this study. The reasons for this determination are because of its service level, the amount of traffic this street can hold, is ranked C through D; and because of the speed limit range placed on these roads. Because of these characteristics, it's logical to assume that the collector roads of Vermont carry a medium level of traffic density.

RIGHT-OF-WAY WIDTH

It was clarified, through a phone conversation with the VAOT, that the local and collector roads all have a right-of-way width of 50'.

PAVEMENT WIDTH

The pavement widths are given for both rural and urban streets. The urban specifications have been chosen because of their closer relation to this study's focus on suburbs and neighborhood street dimensions. The parking lane and curb width are unknown. The local streets have two different lane width designations:

1. For low traffic volume and highly restricted or no truck traffic.
2. Higher volumes of traffic.

In this case, the former is applicable. VAOT has deemed that 7' lanes are appropriate for low traffic volumes and 9' is appropriate for high volumes of traffic. It is important to note that the pavement widths were calculated by doubling the lane widths provided in the VAOT ordinance report.

Like the local streets, the collector streets have two different lane width designations for varying levels of traffic: 9' for low traffic volumes and 11' for high traffic volumes.

UTILITY EASEMENT

The determination of the placement of utilities is done on a case by case, site by site basis. Therefore no specifications are available. An accommodation plan was received, but it only dealt with specifications of utility placement for highways.

CUL DE SAC RADIUS

This information is not available.

FOR ALL REFERENCE MATERIAL SEE ATTACHMENT R

Utility Dimensions Matrix

IV

UTILITY DIMENSIONS

KENTWOOD CITY			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
CUL DE SAC		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	16 L	
	stopbox	19 R and L	
	STORM SEWER		
	catch basin	11.5 L	
	SANITARY SEWER	0	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	11.5 L	
	gutter	11.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

KENTWOOD CITY			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
MINOR STREET		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	16 L	
	stopbox	24 L 17 R	
	STORM SEWER		
	catch basin	11.5 L	
	SANITARY SEWER	0	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	11.5 L	
	gutter	11.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of the utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

KENTWOOD CITY			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
MINOR COLLECTOR		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	19 L	
	stopbox	22 R and L	
	STORM SEWER		
	catch basin	6 R	
	SANITARY SEWER	6 L	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	14.5 L	
	gutter	14.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

BAILEY'S GROVE			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
MINOR STREET W/O WALKS 40' ROW		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	16 L	
	stopbox	19 R and L	
	STORM SEWER		
	catch basin	11.5 R	
	SANITARY SEWER	0	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	11.5 L	
	gutter	11.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

BAILEY'S GROVE			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
MINOR STREET W/ WALKS 50' ROW		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	16 L	
	stopbox	24 R 17 L	
	STORM SEWER		
	catch basin	11.5 R	
	SANITARY SEWER	0	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	11.5 L	
	gutter	11.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

BAILEY'S GROVE			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	EASEMENT
MINOR COLLECTOR 60' ROW		ROAD CENTER LINE	WIDTH
	ELECTRICITY		10 R and L
	CABLE		10 R and L
	TELEPHONE		10 R and L
	WATER		
	main	19 L	
	stopbox	22 R and L	
	STORM SEWER		
	catch basin	13.5 R	
	SANITARY SEWER	0	
	GAS		
	main	18 R	
	STORM DRAINS		
	catchbasin	13.5 L	
	gutter	13.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	

UTILITY DIMENSIONS

ALLEGAN COUNTY			
STREET TYPE	UTILITY TYPE	DISTANCE FROM	DISTANCE FROM
GENERAL		ROAD CENTER LINE	INSIDE ROW LINE
	ELECTRICITY		
	power poles		0.5 and 5 R
	CABLE		17 to 20 L 3 to 8 R
	TELEPHONE		
	conduit		2 L
	WATER		
	main	23 R	
	STORM SEWER		
	manhole		7 to 10 R
	SANITARY SEWER	23 L	
	GAS		
	main		3 to 8 R
	STORM DRAINS		
	catchbasin	14.5 and 14.5 R and L	
	gutter	14.5 and 14.5 R and L	
LEGEND			
Easement Width refers to the width of private easement in which some of the utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	NOTE: all sewer laterals are to be placed 10' beyond ROW line

UTILITY DIMENSIONS

KENT COUNTY				
STREET TYPE	UTILITY TYPE	DISTANCE FROM	DISTANCE FROM	
GENERAL		ROAD CENTER LINE	INSIDE ROW LINE	
	ELECTRICITY			
	power poles		8 to 12 L	
	conduit		3 L	
	CABLE		0.05 and 0.05 R and L	
	TELEPHONE			
	poles		8 to 12 R	
	conduit		3 R	
	WATER			
	main	N/A		
	STORM SEWER			
	manhole		0	
	SANITARY SEWER	6 R		
	GAS			
	main		7 R	
	STORM DRAINS			
	catchbasin	14 R and L		
	gutters	14 R and L		
LEGEND				
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road	NOTE: power and telephone conduit or cable is normally in a 10' utility easement	

UTILITY DIMENSIONS

EUGENE				
STREET TYPE	UTILITY TYPE	COMMON TRENCH	OTHER	
GENERAL		width		
	ELECTRICITY	7		
	CABLE	7		
	TELEPHONE	N/A		
	WATER	7		
	STORM SEWER	N/A		
	SANITARY SEWER	7		
	GAS		on opposite side of road from trench	
	STORM DRAINS			
	gutter		2' part of parking lane	
LEGEND				
Easement Width refers to the width of private easement in which some of utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road		

UTILITY DIMENSIONS

COLORADO SPRINGS		
STREET TYPE	UTILITY TYPE	DISTANCE FROM
60' ROW		ROAD CENTER LINE
	ELECTRICITY	22
	CABLE	22
	TELEPHONE	N/A
	WATER	10
	STORM SEWER	N/A
	SANITARY SEWER	0
	GAS	18 to 20
	STORM DRAINS	N/A
LEGEND		
Easement Width refers to the width of private easement in which some of the utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road

UTILITY DIMENSIONS

COLORADO SPR. HILLSIDE		
STREET TYPE	UTILITY TYPE	DISTANCE FROM
40' ROW MINOR STREET		ROAD CENTER LINE
	ELECTRICITY	15 R 20 L
	CABLE	N/A
	TELEPHONE	N/A
	WATER	6 R
	STORM SEWER	N/A
	SANITARY SEWER	5 L
	GAS	0
	STORM DRAINS	N/A
LEGEND		
Easement Width refers to the width of private easement in which some of the utilities are located	R signifies the utility is on the right side of the road	L signifies the utility is on the left side of the road

Summary

V

SUMMARY

The popularity accompanying innovative transportation street standards for residential developments has been increasing at a steady rate over the past several years. The new buzz words in transportation planning circles are "traffic calming, skinny streets, and neo-traditional design." More and more, residents are seeing new subdivisions being developed with two-lane streets as narrow as 14 feet, and right-of-ways as narrow as 40 feet. The reason for this reversal in transportation design is that planners and developers are learning that current street standards are less safe, they are the source of several social and environmental problems, and are founded on outdated logic.

This report has provided a foundation for arguing that there are many positive benefits which accompany narrow streets; and further, that it is not extraordinary since narrow streets are being used across the country and around the world with plenty of accolades about the results. Although this data provides a solid foundation, there are several other considerations that should be studied before making a final recommendation about future street standards in Ottawa County.

The first consideration is that there is limited knowledge, and even outdated logic, being utilized to determine our present-day street standards. For instance, our 66' right-of-way was established when surveyors were still using a "rod" as a unit-of-measure to conduct surveying measurements, which was a standard unit of measure (see Attachment EE). Further, the 66' right-of-way was used for purposes of National Defense during the Cold War. In case of national emergency the government wanted to ensure that fully armored trucks and tanks could travel unobstructed, and two abreast, down every road. During its time, these rationales lent strong credence to 66' standards. However, in our present day and age, this logic has no merit and is counter productive to good, logical development standards. The same is true of other street design standards such as pavement width, curvature, and curbing.

Another consideration is whether safety benefits are actually provided by having wider, straighter streets in residential settings.

There are many who now say that wider streets are in fact less safe and promote higher vehicular speeds in residential developments. One such study was conducted by Peter Swift. His conclusions are documented in a report entitled *Street Typology versus Frequency of Accidents Report*. Mr. Swift provides statistics that track fire service reports (Longmont, Colorado) that occurred on narrow streets over an 8 year period. Mr. Swift's report shows that there were no associated injuries and/or deaths that resulted from emergency vehicles having to access a fire from a narrow street. The argument that narrow street standards restrict access to emergency vehicles is also being disproved in many developments and locales that have adopted and used narrow street standards over the past several years. Mr. Swift also provides statistical data to show that vehicular accidents are actually reduced as street widths and curvature decrease. "This study indicates a clear relationship between accident frequency and street widths decrease and curvatures increase. The findings support the theory that narrower, so called skinny streets, are safer than standard width residential streets (Swift)."

In another document entitled "Skinny Streets", the Portland Bureau of Transportation, Engineering, and Development (BTED) states that "The Fire Bureau participated in exercises in older neighborhoods with narrow streets. The Bureau found that street widths based on skinny street guidelines will provide adequate access for emergency vehicles."

One last issue that should be considered prior to establishing guidelines is the issue of utility placement. One solution that has been implemented in many locations including, but not limited to, Oregon, Alaska, Colorado, and even now in West Michigan is the practice of "joint trenching". Simply put, a common or joint trench is a shared area which houses several utilities. These trenches can either be placed within the right-of-way or adjacent to it within a private easement. If space for the utilities is a concern, grouping them together is a practice that can work. Consumers Power is now regularly burying electric and gas lines together (see typical layout in Attachment FF) and when possible cable and telephone companies are joining in to take advantage of joint trenching. The most commonly expressed drawback is the difficulty in organizing and coordinating schedules so companies can all be present at the same time. Even if there are concerns about joint trenching being used for combined gas and electric lines, there are still joint trenching opportunities for

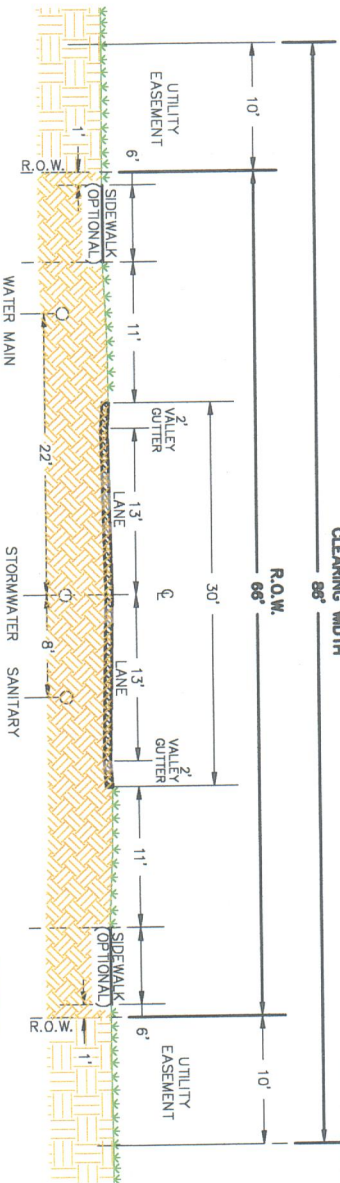
other utility groupings. Further, joint trenching proves that compact placement of utilities is feasible.

Convincing others to adopt narrower street standards is a difficult challenge, but results show that narrow designs are safer, enhance the quality-of-life, and provide greater opportunities to preserve our natural and cultural heritage (see Street and ROW calculations for selected Ottawa County subdivisions in Attachment GG).

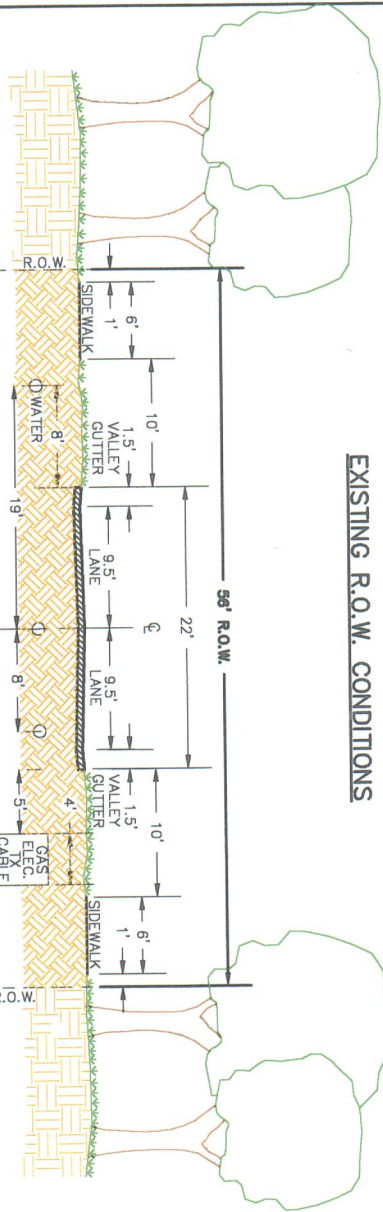
Policy Recommendations

VI

CLEARING WIDTH
96'



EXISTING R.O.W. CONDITIONS



PROPOSED R.O.W. CONDITIONS - WITH SIDEWALKS

THE FOLLOWING ASSUMPTIONS ARE TIED TO THE NEW RESIDENTIAL STREET STANDARDS THAT ARE BEING RECOMMENDED:

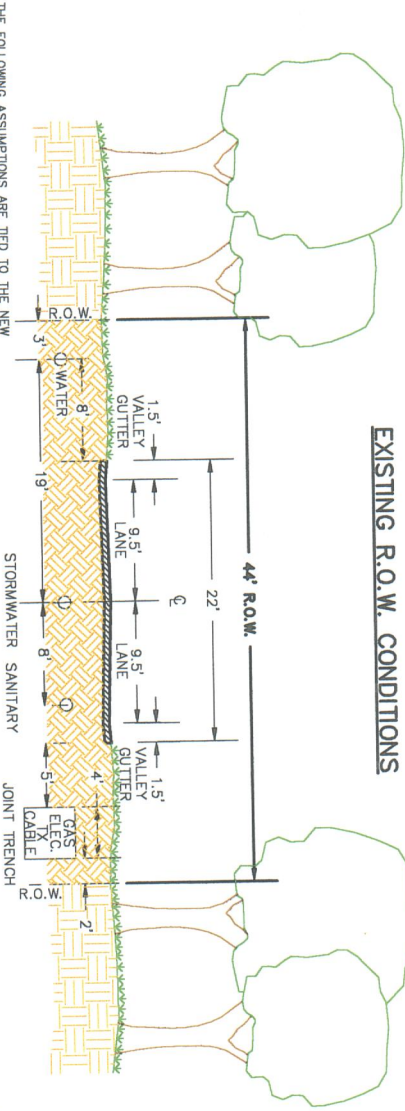
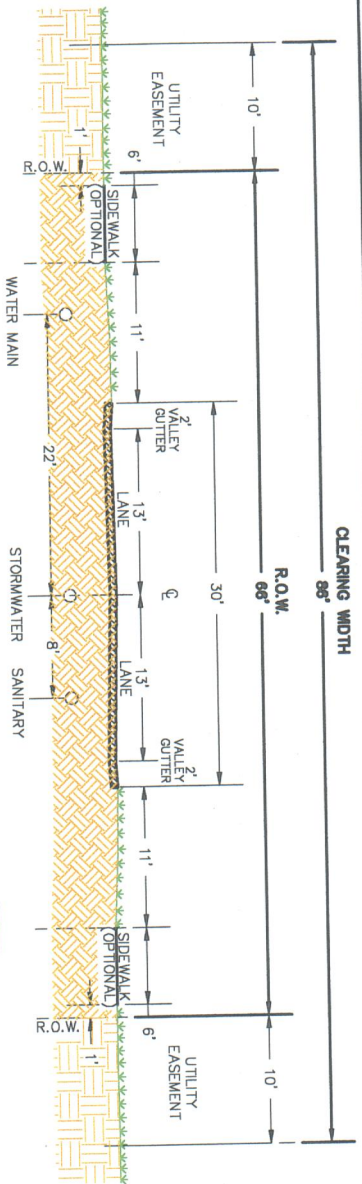
1. ALL UTILITIES WILL BE PLACED UNDERGROUND.
2. THE SPEED LIMIT WILL BE SET AT 25 MPH.
3. ROWS WILL FLARE AT PRIMARY ROAD JUNCTIONS TO MEET PRESENT OTTAWA COUNTY ROAD COMMISSION SIGHT VISIBILITY STANDARDS AT INTERSECTIONS.
4. CURBS ARE BITUMINOUS ROLE CURBS ONLY, NOT POURED CONCRETE WITH DRAINAGE.



OTTAWA COUNTY PLANNING COMMISSION
 RIGHT-OF-WAY TASK FORCE
 RESIDENTIAL R.O.W. RECOMMENDATIONS
 RESIDENTIAL STREET

OCP/C/S1-NOSM-12
 VR01/1989

JANUARY 1989



**PROPOSED R.O.W. CONDITIONS -
WITHOUT SIDEWALKS**

**OTTAWA COUNTY PLANNING COMMISSION
RIGHT-OF-WAY TASK FORCE
RESIDENTIAL R.O.W. RECOMMENDATIONS
RESIDENTIAL STREET**

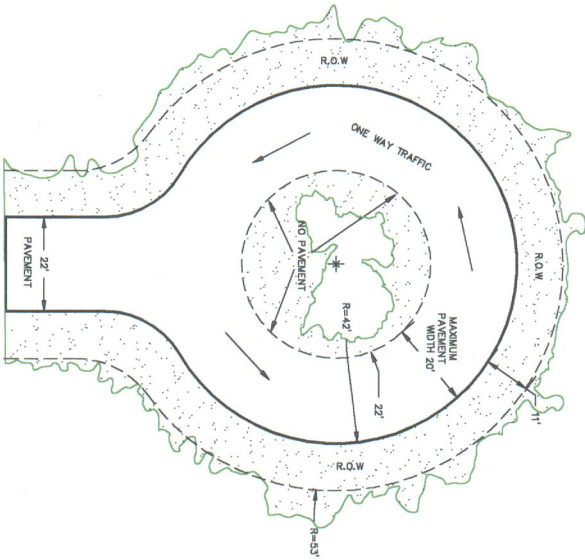
1. ALL UTILITIES WILL BE PLACED UNDERGROUND.
2. THE SPEED LIMIT WILL BE SET AT 25 MPH.
3. ROWS WILL FLARE AT PRIMARY ROAD JUNCTIONS TO MEET PRESENT OTTAWA COUNTY ROAD COMMISSION SIGHT VISIBILITY STANDARDS AT INTERSECTIONS.
4. CURBS ARE BITUMINOUS ROLE CURBS ONLY, NOT POURED CONCRETE WITH DRAINAGE.



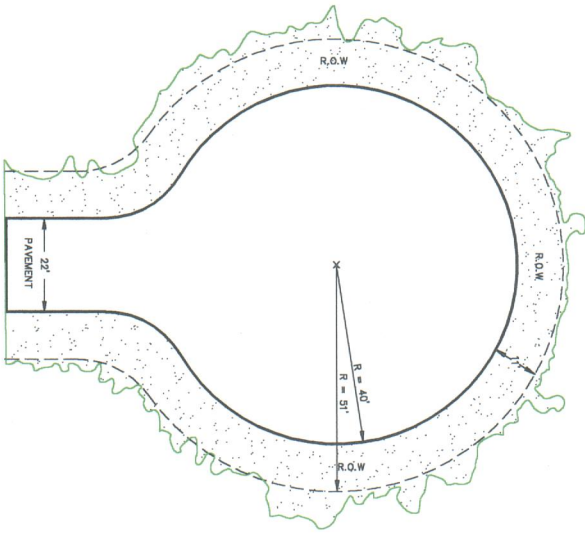
SCALE: 1" = 10'

OCPC\ST-NOSW-F
VR011999

JANUARY 1999



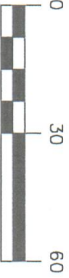
CUL-DE-SAC OPTION W/ ISLAND



CUL-DE-SAC OPTION W/OUT ISLAND

THE FOLLOWING ASSUMPTIONS ARE TIED TO THE NEW RESIDENTIAL STREET STANDARDS THAT ARE BEING RECOMMENDED:

1. ALL UTILITIES WILL BE PLACED UNDERGROUND.
2. THE SPEED LIMIT WILL BE SET AT 25 MPH.
3. ROWS WILL FLARE AT PRIMARY ROAD JUNCTIONS TO MEET PRESENT OTTAWA COUNTY ROAD COMMISSION SIGHT VISIBILITY STANDARDS AT INTERSECTIONS.
4. CURBS ARE BITUMINOUS POLE CURBS ONLY, NOT POURED CONCRETE WITH DRAINAGE.



SCALE: 1" = 30'

OTTAWA COUNTY PLANNING COMMISSION
 RIGHT-OF-WAY TASK FORCE
 RESIDENTIAL R.O.W. RECOMMENDATIONS
 CUL-DE-SAC (ONE WAY)

CULDESAC-D
 V8011999

JANUARY 1999

Attachments VII