

## APPENDIX No. 3

### ROADWAYS

#### RESIDENTIAL STREET HIERARCHY: DEFINITION

GUIDELINE STREET TYPE	FUNCTION	MAXIMUM ADT
1) Principal Arterial	An interregional road in the street hierarchy system: carries vehicle traffic to and from the region as well as any through traffic. This street may be a controlled access street.	3000+
2) Minor Arterial	The Minor arterial street system should interconnect with the principal arterial system. It provides connections between boroughs, larger villages, major resort areas and other traffic generators which develop substantial volumes of traffic.	3000+
3) Collector	This classification includes streets that provide connections with local access roads and arterial. They may serve a traffic corridor connecting villages, small boroughs, shopping points, mining and agricultural areas on an intra-county or municipal basis.	3000
4) Local Access	This classification provides direct access to adjacent land and includes connections to farms, individual residences and commercial properties, and to higher classes of highway systems.	800
5) Special Purpose Streets		
a) Rural Residential Lane*	A Street serving a very low-density area [minimum 2-acre zoning]. The maximum ADT level limits the number of single-family homes on this road to 20. Lanes shall be designed as a two lane street.	200
b) Alley (Service Street)	A service road that provides secondary means of through access to lots. Alleys function as special purpose streets, and are used in cases of narrow lot frontages. No parking shall be permitted within the right-of-way, and alleys should be designed to discourage through traffic. ADT level shall not exceed that of a local access street. Alleys shall be designed as one or two lane streets.	
c) Cul-de-sac*	A street with a single means of ingress and egress and having a turnaround. Design of turnaround may vary. Cul-de-sacs shall be classified and designed according to anticipated ADT level: Residential street will use the design standards of a local access street; non-residential will the design standards for Commercial/Industrial streets.	250 ( <b>Residential</b> ) 500 ( <b>Non Residential</b> )

d) Marginal Access street	A service street that runs parallel to a higher-order street and provides access to abutting properties and separation from through traffic. Shall be designed as local access street or collector according to anticipated daily traffic.	500 ( <b>Local Access Total</b> ) 1,000 ( <b>Collector Total</b> )
e) Divided Street	Municipalities may require streets to be divided in order to provide alternate emergency access, to protect environmental features, or to avoid grade changes. Design standards should be applied to the combined dimensions of the two-street segments as required by the street class.	800 ( <b>Local Access Total</b> ) 3,000 ( <b>Collector Total</b> )
f) Stub Street	A portion of a street which has been approved in its entirety. Permitted as part of phased development; may be required if part of overall adopted master plan of the municipality.	800 ( <b>Local Access Total</b> ) 3,000 ( <b>Collector Total</b> )
g) Driveway*	A private drive providing access between a public or private street or access drive and a parking area for a single unit of occupancy.	10 ( <b>Residential Access</b> )
h) Access* Drive	A private drive providing access between a public or private street to 2 or more dwelling units, up to a maximum of 10 dwelling units. An access drive may not be connected to an alley, cul-de-sac or parking loop.	100 ( <b>Residential Access</b> )

\*Can be privately owned

## CARTWAY/RIGHT-OF-WAY WIDTH

Street Type/ Intensity	Projected ADT	Cartway			Parking / Shoulder			Total Width (ft)	Right-of- Way Width
		# lanes	x width	=(ft)	# lanes	x width	=(ft)		
<b>COMMERCIAL/ INDUSTRIAL</b> <u>Local Access/Collector</u>									
Low	<b>0-799</b>	1	16	16	0 / 2	0 / 6	12	28	40
Medium - High		1	16	16	1 / 1	10 / 6	16	32	40
Low		2	12	24	0 / 2	0 / 6	12	36	60
Medium - High		2	12	24	2 / 0	10 / 0	20	44	60
Medium - High	<b>800-3000</b>	2	12	24	2 / 0	10 / 0	20	44	60
High		2	12	24	0 / 2	0 / 8	16	40	60
Medium - High		3	12	36	0 / 2	0 / 8	16	52	70
<b>RESIDENTIAL STREETS</b>									
<u>Local Access</u>									
Low <sup>1</sup>	<b>0-249</b>	1	10	10	0 / 0	0 / 0	10	0	16
Low		1	16	16	0 / 2	0 / 2	4	20	34
Low		2	8	16	0 / 2	0 / 2	4	20	34
Low	<b>250-399</b>	1	16	16	0 / 2	0 / 2	4	20	40
Medium		1	16	16	1 / 1	8 / 2	10	26	40
Low		2	10	20	0 / 2	0 / 2	4	24	40
Medium		2	10	20	1 / 1	8 / 2	10	30	50
High	<b>400-800</b>	2	10	20	0 / 2	0 / 4	8	28	50

High		2	10	20	1 / 1	8 / 4	12	32	50
<u>Collector</u>									
Low - Medium	<b>0-399</b>	1	16	16	0 / 2	0 / 2	4	20	40
Low - Medium		2	11	22	0 / 2	0 / 2	4	26	40
Low - High	<b>400-799</b>	1	16	16	1 / 1	8 / 2	10	26	40
Low		2	11	22	0 / 2	0 / 4	8	30	50
Medium		2	11	22	1 / 1	8 / 4	12	34	50
High		2	11	22	2 / 0	8 / 0	16	38	50
High		3	11	33	0 / 2	0 / 4	8	41	60
Medium - High	<b>800-1499</b>	1	16	16	1 / 1	8 / 4	12	28	40
Medium		2	11	22	1 / 1	8 / 6	14	36	60
High		2	11	22	0 / 2	0 / 6	12	34	60
High		2	11	22	2 / 0	8 / 0	16	38	60
High		3	11	33	0 / 2	0 / 6	12	45	60
Medium	<b>1500-3000</b>	2	12	24	1 / 1	9 / 6	15	39	60
High		2	12	24	0 / 2	0 / 6	12	36	60
High		2	12	24	2 / 0	9 / 0	18	42	60
High		3	12	36	0 / 2	0 / 6	12	52	70

## **SPECIAL PURPOSE STREETS**

All special purpose streets (**lanes, alleys, cul-de-sacs, marginal access, divided streets, and stub streets**) shall conform to either local access or collector streets as dictated by ADT and intensity.

**NOTE 1:** Only for use with one-way alleys to provide public access by right-of-way. Ownership and maintenance shall be the responsibility of the abutting lot owners.

## CURB AND SIDEWALK REQUIREMENTS

The following standards shall be used in determining curb and sidewalk requirements. The graded area is an area graded the same as a sidewalk but left in grass. This area can be used later for sidewalks if the intensity of development increases.

Street Type	Curb	Sidewalk or Graded Area
<b>INDUSTRIAL/COMMERCIAL</b>		
Local Access		
Low Intensity	Not Required	Sidewalk (1 side) /Graded Area (1 side)
Medium-High Intensity	Curb	Sidewalk (1 each side)
Collector		
Low Intensity	Not Required	Sidewalk (1 side) / Graded Area (1 side)
Medium-High Intensity		
On-street Parking	Curb	Sidewalk (1 each side)
Off-street Parking	Not Required	Sidewalk (1 each side)
<b>RESIDENTIAL</b>		
Local Access		
Low Intensity	Not Required	Graded Area (1 each side)
Medium Intensity	Curb	Sidewalk (1 side) / Graded Area (1 side)
High Intensity		
On-street Parking	Curb	Sidewalk (1 each side)
Off-street Parking	Not Required	Sidewalk (1 each side)
Collector		
Low Intensity	Not Required <sup>1</sup>	Graded Area (1 each side)
Medium Intensity		
On-street Parking	Curb	Sidewalk (1 side) / Graded Area (1 side)
Off-street Parking	Not required	Sidewalk (1 side) / Graded Area (1 side)
High Intensity		
On-street Parking	Curb	Sidewalk (1 each side)
Off-street Parking	Not Required	Sidewalk (1 each side)

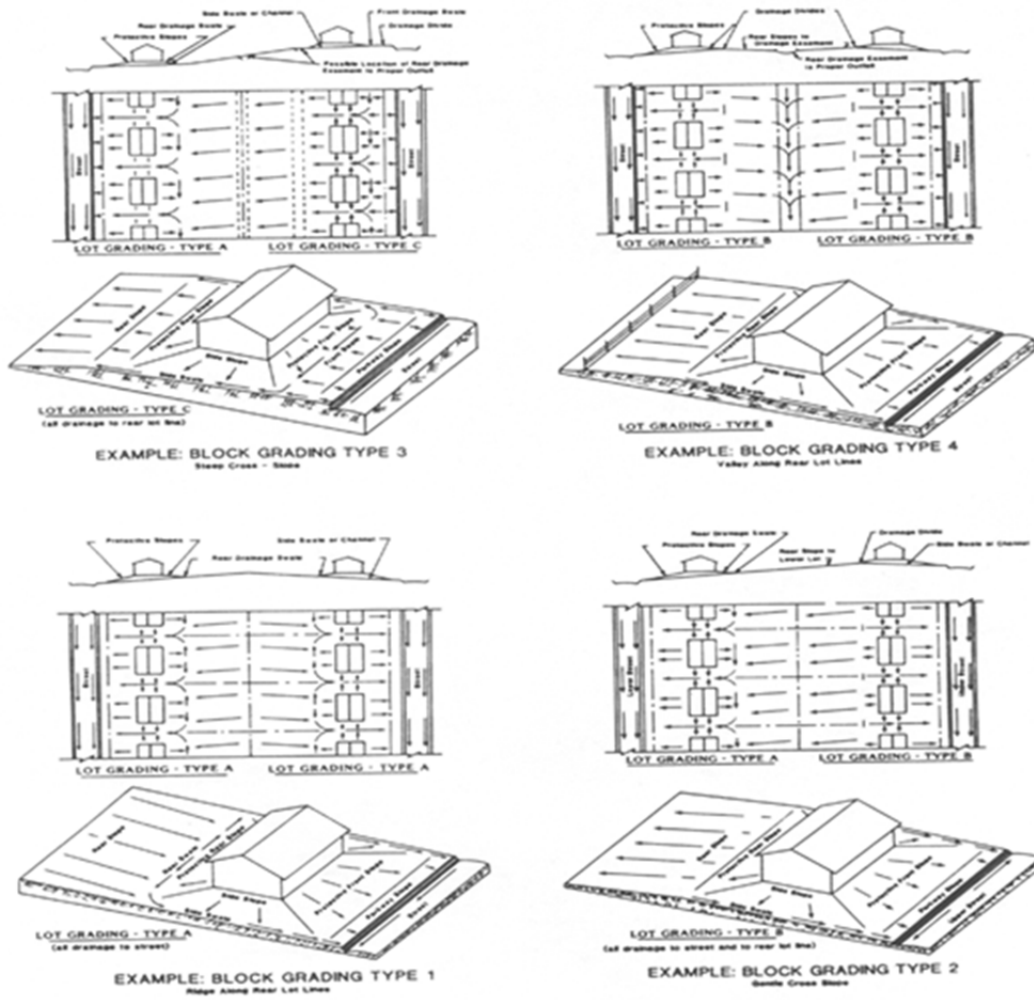
### SPECIAL PURPOSE STREETS

All special purpose streets (**lanes, alleys, cul-de-sacs, marginal access, divided streets, and stub streets**) shall conform to either local access or collector streets as dictated by ADT and Intensity of Development.

**Notes:**

1. Curbing is not required except on single lane roads with on street parking.

## LOT GRADING PLAN EXAMPLES



Source: Iowa Department of Soil Conservation, Soil and Water Conservation in Urban Areas.

# STREET GRADE AND INTERSECTION STANDARDS

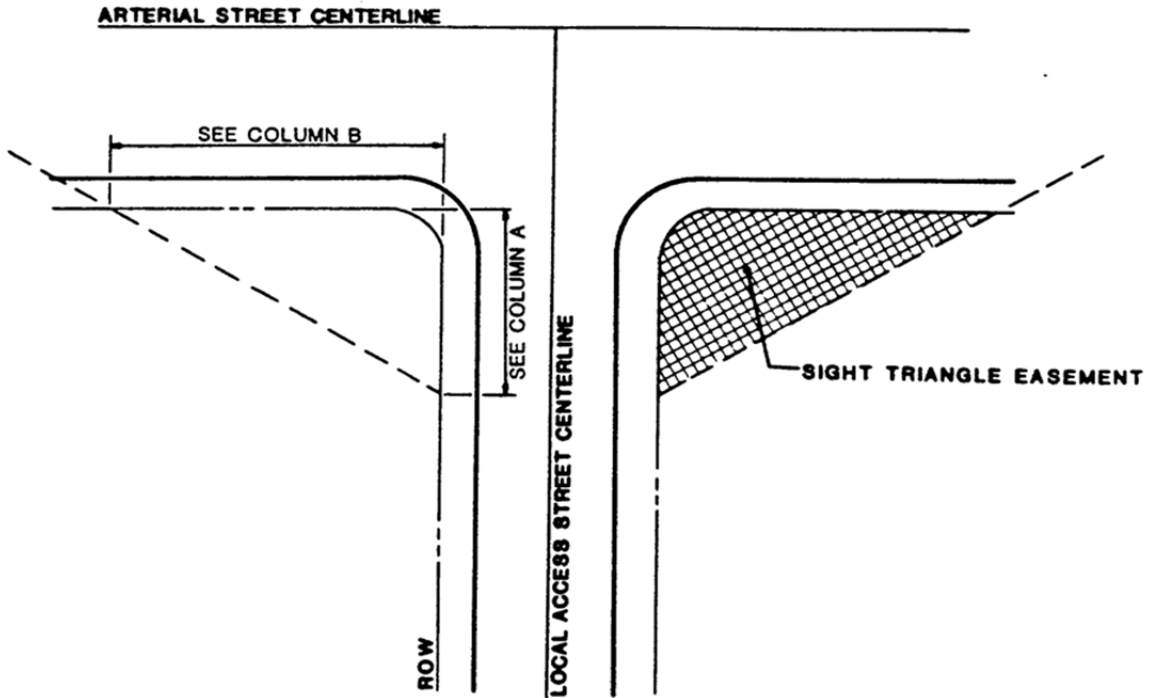
## STREET HIERARCHY

	<u>Special Purpose</u>			
	Alley Lane	Cul-de-sac Access Drive	Local Access Street	Collector
<b>INTERSECTION STANDARDS</b>				
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Maximum Grade	15%	12%	12%	8%
Maximum Grade Within 75' of Intersection of Centerlines	4%	4%	5%	5%
Minimum Centerline Radius	50'	50'	100'	300'
Minimum Tangent Length Between Reverse Curves	0'	50'	50'	150'
Cartway Radii	10'	15'	20'	35'



SIGHT TRIANGLES

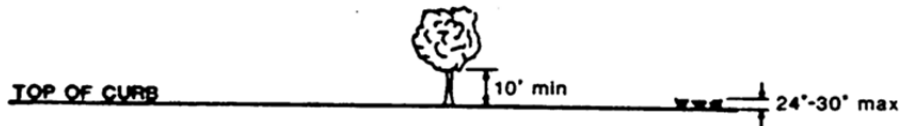
TYPICAL INTERSECTION SIGHT TRIANGLE



TYPICAL DISTANCE REQUIREMENTS ALONG ROW LINE

COLUMN A		COLUMN B
LOCAL ACCESS	30'	30', 100', 120', 130-150'
RESIDENTIAL COLLECTOR	120'	120', 130-150'
ARTERIAL	130-150'	130-150'

PLANTINGS WITHIN EASEMENTS



## SIGHT DISTANCE

Access drive sight distance based on ten (10) feet off of edge of cartway, at an eye height of four (4) feet to an object at four (4) foot height.

Street sight distance based on fifteen (15) feet off of edge of Cartway, at an eye height of four (4) feet to an object at four (4) foot height.

SPEED (MPH)	HIGHWAY GRADE IN %																											
	0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+13	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13
15	75'	75'	74'	75'	73'	76'	73'	77'	73'	77'	73'	78'	72'	79'	72'	79'	71'	80'	71'	81'	71'	82'	70'	83'	70'	84'	70'	85'
20	109'	109'	108'	110'	107'	111'	106'	112'	105'	113'	105'	114'	104'	115'	103'	117'	102'	118'	102'	119'	101'	121'	101'	123'	100'	125'	100'	127'
25	147'	147'	145'	148'	144'	150'	143'	151'	142'	153'	140'	155'	139'	157'	138'	159'	137'	161'	136'	164'	135'	166'	134'	169'	134'	172'	133'	175'
30	196'	196'	194'	198'	191'	201'	189'	204'	187'	207'	185'	210'	183'	214'	182'	217'	180'	221'	178'	226'	177'	230'	175'	235'	174'	241'	173'	247'
35	249'	249'	245'	252'	242'	256'	238'	260'	236'	265'	233'	269'	231'	274'	228'	280'	226'	286'	224'	292'	221'	294'	219'	306'	217'	314'	215'	323'
40	314'	314'	309'	319'	304'	325'	299'	331'	295'	337'	291'	345'	287'	352'	284'	360'	280'	369'	277'	379'	274'	389'	271'	401'	268'	414'	266'	428'
45	383'	383'	376'	390'	370'	398'	364'	406'	358'	415'	353'	425'	348'	435'	343'	447'	338'	459'	334'	472'	330'	487'	325'	503'	322'	521'	319'	560'
50	462'	462'	453'	471'	444'	481'	436'	492'	429'	504'	421'	517'	415'	531'	409'	547'	403'	563'	397'	581'	392'	600'	388'	622'	382'	647'	378'	676'
55	538'	538'	527'	550'	517'	562'	508'	576'	491'	590'	490'	605'	482'	622'	475'	641'	467'	660'	461'	682'	454'	706'	443'	733'	442'	762'	437'	795'

Proper sight distance shall be provided for horse and buggies when non-motorized vehicle use is prevalent. Access drive, driveway, and street sight distance shall be based on fifteen (15) feet (distance between the buggy driver and the horses head at the edge of cartway) off the edge of cartway, an eye height of five and one half (5.5) feet (height of a non-motorized driver) to an object at 4 foot height.

## NON-MOTORIZED VEHICLE LANES

Non-motorized vehicle lanes shall be constructed to one of the following specifications:

1. Bicycle Paths - A two-way off-street bike path should have a minimum paved width of eight (8) feet and a maximum width of twelve (12) feet.
  - a. Choice of surface materials, including bituminous mixes, concrete, gravel, soil cement, stabilized earth, and wood planking, shall depend on the intensity of the development and shall be determined by the developer and approved by the Township.
  - b. Gradients of bicycle paths should generally not exceed a grade of five (5%) percent, except for short distances where the grade shall not exceed fifteen (15%) percent.
  - c. The radius of curvature shall be based on the grade of the path entering the curve. The following table shall be used to determine the radius:

<b>Table 1</b>	
<b>Percent Grade</b>	<b>Minimum Radius</b>
0 - 5%	70 ft
5% - 15%	125 ft

- d. Design consideration shall consider the intersection of a bicycle path and a street to provide maximum safety.
2. Bicycle Lanes - Bicycle lanes shall be designed to one of the following standards:
  - a. A one-way bicycle lane on a curbed street shall have a minimum width of four (4) feet measured from the face of the curb. The paving material and construction shall be the same as the adjacent street.
  - b. A one-way bicycle lane next to a parking lane shall be located between the parking lane and the travel lane and have a minimum width of five (5) feet. The paving material and construction shall be the same as the adjacent parking lane.
  - c. A one-way bicycle lane on a street without a curb or gutter shall be a minimum of four (4) feet. The shoulder can and should be used when possible. The shoulder shall be kept clear of any obstructions and clean to remove any excess gravel or other debris. The paving material and construction shall be the same as the shoulder. If the lane is being constructed on an existing road that has no shoulder or if the shoulder is in poor condition the lane shall be constructed to the standards set forth in Section 602.D.

3. Carriage Lanes - Carriage lanes shall be constructed to the following standards:
- a. Carriage lanes shall be a minimum width of six (6) feet and shall not exceed a width of eight (8) feet.
  - b. Carriage lanes shall be constructed with a four (4) inches bituminous stabilized course or a three (3) inches base course and a one (1) inch binder course of materials specified in the latest edition of PennDOT Publication 408. An additional eight (8) inches gravel course is recommended if the subbase is in poor condition. The finished lane shall maintain a one-fourth (1/4) inch per foot slope draining toward the outside edge of the lane.
  - c. All carriage lanes shall be subject to the approval of the roadmaster and/or a certified engineer before occupancy is permitted.