Appendix D: Transportation Facilities Implementation Tools

The *Highway 12 Corridor Growth Management Plan* includes several recommendations to ensure better future transportation planning, particularly for roadways. This appendix is intended to supplement that information by providing for local and county government consideration and adoption into local ordinances the following models:

A. **Model Official Map Ordinance**……D-3

An Official Map is a tool that may be adopted by cities, villages, and towns with village powers to reserve lands for future public facilities, like new or widened roads. The *Highway 12 Corridor Growth Management Plan* included a Conceptual Official Map for Highway 12 corridor communities—focusing on preserving rights-of-way for future and wider roads and on reserving drainage corridors. To achieve its full effect, that map could be adopted (or adapted then adopted) by local governments.

B. **Model Building Setback Ordinance Related to Officially Mapped Rights-of-way**……...D-7

Participants in the process suggested a desire to achieve more uniform appearing building setbacks from main highways—particularly Highway 12—even though current right-of-way widths can vary significantly on such highways. If properly enforced, this model ordinance, to be incorporated into county and local zoning ordinances, could achieve this objective.

C. **Model Highway Access Control Standards**……..D-9

Public street and driveway access control is an important tool for traffic and pedestrian safety, ease of traffic flow on major routes, and efficiency in serving private developments. The model ordinance included in this appendix can be adopted by county and local governments to control future access on Highway 12 and other major roads in the area. It includes standards for both urban (mainly developed) areas and rural areas.

D. **Model Roadway Geometric Design Standards**……..D-13

There are a number of current and future roadway types in the Study Area. The model geometric design standards in this appendix may be used by county and local governments to properly construct those roads to meet future needs, serve the development pattern, and provide for safety

All of these model ordinances and standards should be reviewed by county or municipal attorneys, engineers, and planners, and proper modifications and conversion into local ordinance amendment formats made, prior to local or county adoption.

A. Model Official Map Adoption Ordinance

ORDINANCE NO. _____

AN ORDINANCE ADOPTING AN OFFICIAL MAP FOR THE <*CITY/VILLAGE/TOWN*> OF <*INSERT COMMUNITY NAME*>, SAUK COUNTY, WISCONSIN

WHEREAS, the <*City/Village/Town*> of <*Insert Community Name*> participated in the preparation of the *Highway 12 Corridor Growth Management Plan*, which was adopted by the Sauk County Board of Supervisors in 2003 and included a Conceptual Official Map depicting recommended locations for new and expanded roads and drainageways to serve future development, and

WHEREAS, the Plan Commission has recommended to the <*Common Council/Village Board/Town Board*> that an Official Map be established for the <*City/Village/Town*> of <*Insert Community Name*> based in part on the recommendations of the *Highway 12 Corridor Growth Management Plan*, and

WHEREAS, a public hearing was held before the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, on the _____ day of _____, 20__, on the question of the adoption of an Official Map, and

WHEREAS, the <*Common Council/Village Board*>of the <*City/Village/Town*>of <*Insert Community Name*> has determined that it is necessary for the proper physical development to establish an Official Map for the <*City/Village/Town*> of <*Insert Community Name*>,

NOW, THEREFORE, the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, Sauk County, Wisconsin, do ordain that an Official Map ordinance is adopted within a new chapter of the Code of Ordinances as follows:

CHAPTER <*Insert Appropriate Chapter within Local Municipal Code*>

OFFICIAL MAP

Section 1: Intent

It is the intent of the <*Common Council/Village Board/Town Board*> to establish and Official Map for the purpose of serving and promoting the public health, safety, convenience, economy, orderliness and general welfare of the community; to further the orderly layout and use of land; to stabilize the location of real property boundary lines; to insure proper legal descriptions and proper monumenting of land; to facilitate adequate provision for transportation, parks, playgrounds, and storm water drainage; and to facilitate the further subdivision of larger tracts into smaller parcels of land.

Section 2: Authority

This Ordinance is enacted under the authority granted by Section 62.23(6) of the Wisconsin Statutes. <*add Section 61.35 for Villages and add Sections 60.62 and 61.35 for Towns*>

Section 3: Official Map

A. There is hereby established, as the Official Map of the <*City/Village/Town*>of <*Insert Community Name*>, the Map, which accompanies and is made a part of this Ordinance bearing the date of _____, 20__. This map is hereby designated as the "Official Map of the <*City/Village/Town*>of <*Insert Community Name*>," and all notations, references and other information shown thereon shall be as much a part of this Ordinance as though the matters and information thereon were fully described herein.

B. The Official Map shall show the location and extent of all platted and existing streets, highways, parkways, parks and playgrounds within the corporate limits of the <*City/Village/Town*> of <*Insert Community Name*>.

C. The Official Map shall apply to all lands within the corporate limits of the <*City/Village/Town*> of <*Insert Community Name*> and to its extraterritorial plat approval jurisdiction; such extraterritorial jurisdiction being the unincorporated area within <*1 ½ or 3*> miles of the corporate limits of the <*City/Village*>. <*Towns may not exercise extraterritorial jurisdiction under Wisconsin law.*>

D. Such Official Map shall be deemed to be final and conclusive with respect to the location and width of streets, highways, and parkways and the location and extent of parks and playgrounds shown thereon. However, property designated on the Official Map as reserved for planned new parks or playgrounds shall be acquired by the proper public agency, or the process of acquisition shall be initiated within 18 months of notification, in writing, by the owner of the property that he intends to develop the property. Such letter of intent shall be accompanied by a sketch plan of the proposed development and a tentative schedule of construction. Failure on the part of the public agency to institute acquisition within the prescribed 18 months shall result in the removal of the "reserved" designation from the property involved and the freeing of the property for development.

E. The placing of any street, highway, parkway, drainageway, park, or playground line or lines upon the Official Map shall not in and of itself constitute or be deemed to constitute the opening or establishment of any street, highway, parkway, park, or playground or the taking or acceptance of any land for such purposes.

Section 4: Amendments

A. The <*Common Council/Village Board/Town Board*> may change or add to the Official Map so as to establish the exterior lines of; widen; narrow; extend; or close any platted, existing, proposed or planned streets, highways, parkways, parks or playgrounds.

B. The<*Common Council/Village Board/Town Board*> shall refer any change or addition to the Official Map to the Plan Commission for review and report thereon prior to adoption. The Plan Commission shall report their recommendation to the <*Common Council/Village Board/Town Board*> within 60 days.

C. A Public Hearing of parties in interest and citizens before the <*Common Council/Village Board/Town Board*> shall be required before any changes or additions to the Official Map are effective. At least 20 days' notice of said hearing shall be required by publication. However, changes or additions resulting from the approval by the City of a subdivision plat or certified survey map shall not require the public hearing if the changes or additions do not affect any land outside of the platted area.

D. Changes and additions made by duly approved subdivision plats shall not require the public hearing if the changes or additions do not affect any land outside the area being platted.

E. The <*City/Village/Town*> Engineer shall supply the Building Inspector, Plan Commission, and <*City Council/Village Board*> with current copies of the Official Map.

F. The locating, widening, or closing, or the approval of the locating, widening, or closing of streets, highways, parks, or playgrounds by the <*City/Village/Town*> under provisions of law other than this Chapter shall be deemed to be a change or addition to the Official Map, and shall be subject to the provisions of this Chapter.

Section 5: Building Permits

A. For the purpose of preserving the integrity of the Official Map, a building permit shall be required for any structure or part thereof that shall hereafter be located, erected, moved, reconstructed, extended, enlarged, converted or structurally altered. No permit shall hereafter be issued for any building in the bed of any existing or proposed street, highway, drainageway, or parkway shown on the Official Map. No permit for the erection of any building shall be issued unless a street, highway, drainageway, or parkway giving access to such proposed structure has been duly placed on this Map. Unless such application is made and the approval granted or action not taken within 30 days of the receipt thereof, such person shall not be entitled to compensation for damage to such building or structure in the course of construction of the street, highway, or parkway.

B. The Building Inspector may require each applicant for a building permit to submit a plan, prepared and certified by a registered land surveyor, showing accurately the location of any proposed building with reference to any street, highway, or parkway shown on the Official Map.

Section 6: Maps and Plats to Conform

No certified survey map or plat or any subdivision presented to the Plan Commission or <*City Council/Village Board/Town Board*> for review or approval, affecting land within the corporate limits of the <*City/Village/Town*> or in the contiguous unincorporated area within<*1 ½ or 3* > miles of the corporate limits of the <*City/Village*>, shall be entitled to record or shall be valid unless the subdivision or land division shown thereon shall provide for streets, highways, parkways, parks, and playgrounds in conformity with the Official Map. The Plan Commission shall notify the <*City/Village/Town*> Engineer of any map or plat which does not conform to the Official Map.

Section 7: Municipal Improvements

No public sewer or other municipal street utility or improvement shall be constructed in any street, highway or parkway within the corporate limits of the <*City/Village/Town*> of <*Insert Community Name*> until such street, highway, or parkway is duly placed on the Official Map.

Section 8: Certified Copy of Map

There shall be a certified copy of the Official Map described in Section 4. The certified copy shall be kept in the Office of the <*City/Village/Town*> Clerk, and shall be available for inspection by any interested person during regular office hours. The certified copy shall bear on its face a certification that it is a true copy of the Official Map described in and accompanying this Ordinance and shall show the date of adoption of this Ordinance and shall be signed by the <*Mayor/Village President/Town Chair*> and countersigned by the <*City/Village/Town*> Clerk. Thereafter no change or addition to such Official Map shall become effective until it shall have been indicated by the appropriate convention on the aforesaid certified copy of the Official Map and a certificate placed thereon or attached thereto bearing the number and date of adoption of the amending ordinance. The certificate shall be signed by the <*Mayor/Village President/Town Chair*> and countersigned by the <*City/Village/Town*> Clerk.

Section 9: Map To Be Filed With Register of Deeds

The <*City/Village/Town*> Clerk shall be responsible immediately upon adoption of the Official Map or any amendment thereto for recording a true copy of the amended Official Map with the Register of Deeds of Sauk County, Wisconsin.

Section 10: Enforcement and Appeals

A. It shall be the duty of the <*City/Village/Town*> Building Inspector to enforce the provisions of this Ordinance.

B. The Board of Zoning Appeals shall have the power to review any administrative decision of the Building Inspector to deny a permit for the erection of a structure under this Ordinance and to grant relief from the requirements of this Ordinance under the provisions of Sections 62.23(6)(d), (f), and (g) of the Wisconsin Statutes. <*Provision would apply to towns only if they had their own zoning ordinance.*>

C. The Board of Appeals shall hear and decide appeals from the decisions of the Building Inspector in the following instances only:

1) If the land within the exterior of a mapped, but not existing, street, highway, parkway, drainageway, park or playground cannot yield a fair return, the Board of Appeals may, by vote of a majority of its members, grant a permit for a building or structure within the exterior lines of such street, highway, parkway, park or playground. However, the Board may impose reasonable requirements as a condition for granting of such permit. Such requirements shall be designed to promote the health, convenience, safety or general welfare of the community and to ensure a minimum cost of future opening of such street, highway, parkway, park or playground. The Board of Appeals shall

refuse a permit where the applicant will not be substantially damaged by placing his building or structure outside the mapped street, highway, parkway, park or playground.

2) Where the enforcement of the provisions of this Chapter would entail practical difficulties or unnecessary hardship and where the circumstances of the case do not require the structure to be related to existing or proposed streets, highways or parkways, the applicant for such permit may appeal from the decision of the Building Inspector to the Board of Appeals. The Board, in passing on such appeal, may make any reasonable exception and issue the permit subject to conditions that will protect any future street, highway or parkway layout.

D. Appeals shall be taken by filing with the Building Inspector a notice of appeal specifying the grounds thereof. The Building Inspector shall forthwith transmit to the Board of Appeals all of the papers constituting the record upon which the action appealed from was taken.

E. Before taking any action authorized in this section, the Board of Appeals shall hold a public hearing at which interested parties and others shall have an opportunity to be heard. A Class 1 newspaper notice shall be published in the <*City's/Village's/Town's*> official newspaper at least 15, but not more than 30 days prior to the date of the public hearing. Any decision shall be subject to review by certiorari issued by a court of record.

Section 11: Penalties

A. Any person, firm or corporation who fails to comply with the provisions of this Ordinance shall, upon conviction thereof, forfeit not more than $200.00 and not less than $50.00 and cost of prosecution for each violation, and in default of payment of such forfeiture and costs shall be imprisoned in the county jail until payment thereof but not exceeding 30 days.

B. No Damages shall be allowed for the taking by any governmental agency, for street, highway and parkway purposes, any building erected in violation of this Ordinance.

Section 12: Severability and Conflict

If any section or part of this Ordinance is adjudged unconstitutional or invalid by any court of competent jurisdiction, the remainder of this Ordinance shall not be affected thereby. All other ordinances or parts of ordinances of the <*City/Village/Town*> inconsistent with this Ordinance to the extent of the inconsistency only are hereby repealed.

Section 13: Effective Date

This Ordinance shall be effective after adoption by the <*Common Council/Village Board/Town Board*> and publication or posting as provided by law. Ordinance introduced by <*Council/Board*> member _____, who moved its adoption. Seconded by <*Council/Board*> member _____.

NOTE: Communities are also encouraged to include a reference in their existing zoning and subdivision regulations requiring compliance with the Official Map ordinance.

B. Model Building Setback Ordinance Related to Officially Mapped Rights-of-Way

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING ORDINANCE OF THE <*CITY/VILLAGE/TOWN*> OF <*INSERT COMMUNITY NAME*>, SAUK COUNTY, WISCONSIN TO DETERMINE SETBACKS FROM OFFICIALY MAPPED ROAD RIGHTS-OF-WAY

WHEREAS, the <*City/Village/Town*> of <*Insert Community Name*> participated in the preparation of the *Highway 12 Corridor Growth Management Plan*, which was adopted by the Sauk County Board of Supervisors in 2003 and included a Conceptual Official Map depicting recommended locations for new and expanded roads and drainageways to serve future development, and

WHEREAS, the Plan Commission has recommended to the <*Common Council/Village Board/Town Board*> that building setbacks be measured from recommended road right-of-way widths on that Conceptual Official map, where different from existing right-of-way or easement widths, based in part on the recommendations of the *Highway 12 Corridor Growth Management Plan*, and

WHEREAS, a public hearing was held before the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, on the _____ day of _____, 20__, on the question of the amending the zoning ordinance for that purpose, and

WHEREAS, the <*Common Council/Village Board*>of the <*City/Village/Town*>of <*Insert Community Name*> has determined that it is necessary for the proper physical development of the community to amend the zoning ordinance for the <*City/Village/Town*> of <*Insert Community Name*>,

NOW, THEREFORE, the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, Sauk County, Wisconsin, do ordain that Section AA.BB of the zoning ordinance is hereby adopted to read as follows:

Section AA.BB: Setbacks from Ultimate Street or Highway Right-of-Way Line

On all streets or highways for which an ultimate right-of-way width has been recommended by the <*City, Village, Town*> of <*Insert Community Name*> Comprehensive Plan (or component thereof), the <*City, Village, Town*> of <*Insert Community Name*> Official Map, and/or subsequent amendments to those documents, the minimum building setback line (or minimum required front yard) shall be measured from the nearest recommended ultimate road right-of-way line where wider than the existing right-of-way or road easement line. Where the recommended road right-of-way width in either of those documents is greater than the existing right-of-way width, it shall be assumed that one-half of the difference will subsequently be acquired from lands on either side of the street, unless there are physical or other limitations that suggest an alternative approach. <*The County may adopt a similar ordinance specifically referencing the right-of-way recommendations in the Highway 12 Corridor Growth Management Plan.*>

C. Model Highway Access Control Ordinance

(1) Ordinance For Urban Areas

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING ORDINANCE OF THE <*CITY/VILLAGE/TOWN*> OF <*INSERT COMMUNITY NAME*>, SAUK COUNTY, WISCONSIN TO ESTABLISH ROAD ACCESS CONTROL STANDARDS IN URBAN AREAS

WHEREAS, the <*City/Village/Town*> of <*Insert Community Name*> participated in the preparation of the *Highway 12 Corridor Growth Management Plan*, which was adopted by the Sauk County Board of Supervisors in 2003 and included recommendations for access control onto Highway 12 and arterial and collector roadways, and

WHEREAS, the Plan Commission has recommended to the <*Common Council/Village Board/Town Board*> that the <*City/Village/Town*> should endeavor to control access on major roads in the community for the purposes of traffic and pedestrian safety, ease of traffic flow on major routes, and efficiency in serving private developments, based in part on the recommendations of the *Highway 12 Corridor Growth Management Plan*, and

WHEREAS, a public hearing was held before the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, on the _____ day of _____, 20__, on the question of the amending the zoning ordinance for that purpose, and

WHEREAS, the <*Common Council/Village Board*>of the <*City/Village/Town*>of <*Insert Community Name*> has determined that it is necessary for the proper physical development of the community to amend the zoning ordinance for the <*City/Village/Town*> of <*Insert Community Name*>,

NOW, THEREFORE, the <*Common Council/Village Board/Town Board*> of the <*City/Village/Town*> of <*Insert Community Name*>, Sauk County, Wisconsin, do ordain that Section CC.DD of the zoning ordinance is hereby adopted to read as follows:

Section CC.DD: Access to Public Streets

<Many of the following dimensional standards are more appropriate for urban (mostly developed) areas—see also rural area standards table below>

This section sets forth vehicular access requirements for proposed site plans for developments which abut arterial, collector, and minor streets. This section recognizes that public streets are a public investment that requires control mechanisms to assure both public safety and functional capacity.

A. Controlled Access to Public Streets

Lot vehicular access points shall be permitted only at locations according to this section and other <*City/Village/Town*> of <*Insert Community Name*> adopted plans and ordinances. No new direct vehicular access shall be allowed to interstate, United States, and state or county trunk highway public rights-of-way unless also approved by the authority having jurisdiction.

B. Distance Between Vehicular Access Points

The minimum spacing between vehicular access points along arterial streets or highways, including Highway 12, to the extent deemed practicable by the Plan Commission and the state or county authority with jurisdiction, shall be determined according to Table 1. These spacings are based upon average vehicle acceleration and deceleration rates and are considered necessary to maintain safe traffic operation.

Table 1: Minimum Spacing Between Direct Vehicular Access Points To Arterial Streets And Highways

Arterial Street/Highway Speed Limit (miles per hour)	Minimum Driveway Spacing Measured at the Street Right-of-Way Line (feet)
25	105
30	125
35	150
40	185
45	230
50	275

Source: Institute of Transportation Engineers. Traffic Engineering Handbook (4th Edition), Englewood Cliff, N.J.: Prentice Hall, 1992, p. 379 and the American Planning Association. Planning Advisory Service (PAS) Memo, July 1983.

C. Maximum Number of Vehicular Access Points Per Lot

Along arterial streets and highways, where the abutting street frontage is less than 350 feet, a maximum of one vehicular access point shall be permitted to a particular lot from each of any one or two abutting arterial streets and highways. One additional driveway entrance along a single continuous lot with frontage greater than 350 feet may be permitted by the Plan Commission. The Plan Commission may consider amendments to these requirements where one or more of the access points are shared between two or more developments on different lots.

D. Provision of Shared Vehicular Access Points Between Lots

Vehicular access points planned to be located along property lines, or closer than six feet from a property line, shall be shared vehicular access points with the abutting lot or parcel. The vehicular access point centerline may be the property line between two lots or parcels of land or may be a mutually agreed upon land access easement.

E. Arterial Street and Highway Access and Street Intersections

No new direct public or private access shall be permitted to an arterial street or highway within 250 feet of the intersection of the right-of-way lines of another arterial street or highway unless shown on the <*City/Village/Town*> adopted Comprehensive Plan or Official Map.

F. Minor Streets and Vehicular Access Point Alignments

Minor streets and private driveways along both sides of a collector and/or arterial street shall be aligned to assist in reducing the number of driveways needed and to improve safety conditions related to access to the street system.

G. Sight Distance and Driveway Placement

Direct vehicular access placement on abutting collector and arterial streets and highways shall be such that an exiting vehicle has a minimum unobstructed sight distance according to Table 2, based upon the operating design speed of the abutting collector or arterial street or highway.

Table 2: Highway Design Speed And Minimum Required Sight Distance For Direct Vehicular Access Point Placement

Highway Design Speed (miles per hour)	Minimum Sight Distance (feet)
30	200
35	225
40	275
45	325
50	350

Source: American Planning Association. Planning Advisory Service (PAS) Memo, July 1983.

H. Vehicular Non-access Reservations Required

The Plan Commission may require deed restrictions to be placed on a lot upon which building development is proposed to limit vehicular access to abutting arterial, collector, or minor streets and highways. Such vehicular nonaccess reservations shall be graphically so noted on site plans, as a formal deed restriction, subdivision plat, or by certified survey map formally filed with the Sauk County Register of Deeds before their approval by the <*City/Village/Town*>.

I. Area Circulation Plan May Be Required

The Plan Commission may require the preparation of an area circulation plan for the proposed development covering several properties. The Plan Commission may require that such an area circulation plan be prepared based upon a traffic impact analysis conducted by a licensed professional engineer with expertise in traffic engineering. The delineation of the area for the preparation of an area circulation plan shall be determined by the Plan Commission upon recommendation of the municipal engineer or planner. Such a plan may require the sharing of access locations. All landowners, except those with a previously approved site plan, shall be required to conform to such an area circulation plan once it is adopted by the Plan Commission.

(2) Adjustments to Ordinance For Rural Areas

Within rural (mostly undeveloped) areas, including most land in the towns with the possible exception of the Tourist Entertainment Corridor, the amount of existing access is generally less. Given higher travel speeds in these areas, there should be a greater effort to space access roads and driveways further apart from one another. While the format of the ordinance may be similar to that presented for urban areas above, the County or rural towns should consider basing access spacing standards on the table on the following page.

RECOMMENDED ACCESS SPACING ALONG RURAL HIGHWAYS

TYPE OF HIGHWAY UNDER STUDY	Design Year ADT	TYPE OF INTERSECTING ROAD OR DRIVEWAY									
		Expressway	Principal Arterial		Minor Arterial			Major Collector	Minor Collector/ Local Road	Private Drive	
		All	>3000	<3000	>5000	3000-5000	<3000	All	All	>100	<100
State Connector (USH 12)	All	2 miles	2 miles	2 miles	2 miles	2 miles	1 mile	1 mile	2000 ft	2000 ft	1000 ft
Arterial Highways (such as STH 33 and CTH A)	All	2 miles	2 miles	1 mile	2 miles	1 mile	1 mile	1 mile	2000 ft	1000 ft	1000 ft
Collector Highways (such as CTH W and Old Bluff Trail)	>5000	2 miles	2 miles	1 mile	2 miles	1 mile	2000 ft	2000 ft	2000 ft	1000 ft	1000 ft
	<5000	1 mile	1 mile	2000 ft	1 mile	1 mile	2000 ft	2000 ft	2000 ft	1000 ft	500 ft

Source: WisDOT FDM 11-5-5, fig 2 and 3

ADT = Average Daily Trips

D. Model Roadway Geometric Design Standards

In the geometric design of new roads, the county and local communities are advised to use standards which allow the road to serve its desired function—without overbuilding or underbuilding them. The transportation consultants for the *Highway 12 Corridor Growth Management Plan* proposed a set of geometric design standards for six types of roads that are common in or proposed for the Study Area: 2-lane urban arterials, 4-lane urban arterials, 4-lane rural highways, 2-lane rural highway (design speed 60 mph), 2-lane rural highway and collector (design speed 50 mph), and 2-lane rural local roads. Recommended geometric design standards for each of these road types are included on the following pages. They may be adopted by the county and local municipalities in subdivision ordinances and in engineering plan and specification criteria for roadway construction projects.

The criteria purposely reflect a high-type design quality. "Desirable" or upper-end values from the WisDOT Facilities Development Manual (FDM) and the AASHTO's 2001 "A Policy on Geometric Design of Highways and Streets" are referenced. Detailed design problems inevitably will be encountered. Typically, geometric compromises to solve such problems are necessary. Use of an originally high level of design criteria provides a cushion of safety and flexibility toward final plan execution. Compromises that will be required should not "fatally flaw" the final solution.

The standards and criteria in the following tables are presented in a form that identifies ranges of design values. The terms "full standard" and "basic standard" are used. The following definitions apply:

- Full Standard. Representative of an appropriate value or dimension for the condition and type of highway, commensurate with a relatively high degree of safety and operational efficiency.
- Basic Standard. Representative of a value or dimension designated to adequately provide for safety and operational efficiency on a given type or class of highway. Criteria not meeting this standard should require a design exception .

Table 1: Recommended Design Geometrics – 2-Lane Urban Arterial

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Collector/Arterials		
FDM DESIGN CLASS	2		
DESIGN SPEED	35 mph	30 mph	FDM, 11-20-1, Fig. 1
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	250 ft	200 ft	AASHTO,p.112, Exhibit 3-1*
Decision	720 ft	620 ft	AASHTO, p.116, Exhibit 3-3, Maneuver E
HORIZONTAL ALIGNMENT			
Minimum Radius	420 ft	300 ft	AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	4.0%		FDM, 11-10-5, p.4
VERTICAL ALIGNMENT			
Maximum Grade	7.0%		AASHTO, p386, Exhibit 5-4, Level Terrain
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =40/50	K=30	*
Sag	K =49	K = 37	AASHTO, p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Lane Width	12 ft	11 ft	FDM, 11-20-1, Fig. 1
Median Width	None		FDM, 11-20-1, Fig. 1
Curb to Curb Width			
With Parking	48 ft	40 ft	FDM, 11-20-1, Fig. 1
Without Parking	36 ft	26 ft	FDM, 11-20-1, Fig. 1
Normal Cross Slope			
Lanes	2.0%	3:0%	FDM, 11-20-1, p.1
Shoulder	4.0%	2.0%	FDM, 11-20-1, p.1
Foreslope	Varies		FDM, 11-20-1, Fig. 2
Backslope	Varies		FDM, 11-20-1, Fig. 2
ROW REQUIREMENTS	80 ft		FDM, 11-20-1, Fig. 2

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).

Table 2: Recommended Design Geometrics – 4-Lane Urban Arterial

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Collector/Arterials		
FDM DESIGN CLASS	3		
DESIGN SPEED	40 mph	35 mph	FDM, 11-20-1, Fig. 1
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	305 ft	250 ft	*
Decision	825 ft	720 ft	AASHTO, p.116, Exhibit 3-3, Maneuver C
HORIZONTAL ALIGNMENT			
Minimum Radius	565 ft	420 ft	AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	4.0%		FDM, 11-10-5, p.4
VERTICAL ALIGNMENT			
Maximum Grade	7.0%		AASHTO, p386, Exhibit 5-4, Level Terrain
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =60/80	K=40/50	*
Sag	K =64	K = 49	AASHTO,p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Lane Width	12 ft	11 ft	FDM, 11-20-1, Fig. 1
Median Width	None		FDM, 11-20-1, Fig. 1
Curb to Curb Width			
With Parking	76 ft	60 ft	FDM, 11-20-1, Fig. 1
Without Parking	56 ft	48ft	FDM, 11-20-1, Fig. 1
Normal Cross Slope			
Lanes	2.0%	3:0%	FDM, 11-20-1, p.1
Shoulder	4.0%	2.0%	FDM, 11-20-1, p.1
Foreslope	Varies		FDM, 11-20-1, Fig. 2
Backslope	Varies		FDM, 11-20-1, Fig. 2
ROW REQUIREMENTS	100 ft		FDM, 11-20-1, Fig. 2

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).

Table 3: Recommended Design Geometrics – 4-Lane Rural Highway

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Arterials		
FDM DESIGN CLASS	A3		
DESIGN SPEED	70 mph		FDM, 11-15-1, Fig. 1
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	730 ft		*
Decision	1105 ft		AASHTO, p.116, Exhibit 3-3, Maneuver C
HORIZONTAL ALIGNMENT			
Minimum Radius	2050 ft		AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	6.0%		FDM, 11-10-5, Table 1
VERTICAL ALIGNMENT			
Maximum Grade	3.0%		AASHTO, p510, Exhibit 8-1, Level Terrain and FDM 11-10-5, Figure 2
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =540	K=290	*
Sag	K =181		AASHTO,p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Lane Width	12 ft		FDM, 11-15-1, Fig. 1
Median Width	50 ft		FDM, 11-15-1, Fig. 7
Shoulder Width			
Right	10 ft		FDM, 11-15-1, Fig. 1
Left	6 ft		
Normal Cross Slope			
Lanes	2.0%		FDM, 11-15-1, p.1
Shoulder	4.0%		FDM, 11-15-1, p.1
Foreslope	Varies		FDM, 11-15-1, p. 4
Backslope	Varies		FDM, 11-15-1, p. 4
ROW REQUIREMENTS	160 ft		FDM, 11-15-1, Fig. 10

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).

Table 4: Recommended Design Geometrics – 2-Lane Rural Highway (60 Mph)

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Arterials		
FDM DESIGN CLASS	A2		
DESIGN SPEED	60 mph		FDM, 11-15-1, Fig. 1
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	570 ft		*
Decision	990 ft		AASHTO, p.116, Exhibit 3-3, Maneuver C
HORIZONTAL ALIGNMENT			
Minimum Radius	1340 ft		AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	6.0%		FDM, 11-10-5, Table 1
VERTICAL ALIGNMENT			
Maximum Grade	3.0%		AASHTO, p510, Exhibit 8-1, Level Terrain and FDM 11-10-5, Figure 2
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =310	K=190	*
Sag	K =136		AASHTO,p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Travel Way	24 ft		
Lane Width	12 ft		FDM, 11-15-1, Fig. 1
Median Width	None		FDM, 11-15-1, Fig. 6
Shoulder Width	10 ft		FDM, 11-15-1, Fig. 1
Normal Cross Slope			
Lanes	2.0%		FDM, 11-15-1, p.1
Shoulder	4.0%		FDM, 11-15-1, p.1
Foreslope	Varies		FDM, 11-15-1, p. 4
Backslope	Varies		FDM, 11-15-1, p. 4
ROW REQUIREMENTS	100 ft		FDM, 11-15-1, Fig. 10

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).

Table 5: Recommended Design – 2-Lane Rural Highway & Collector (50 Mph)

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Collectors		
FDM DESIGN CLASS	C2		4 Lane
DESIGN SPEED	50 mph		FDM, 11-15-1, Fig. 2
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	425 ft		*
Decision	750 ft		AASHTO, p.116, Exhibit 3-3, Maneuver C
HORIZONTAL ALIGNMENT			
Minimum Radius	835 ft		AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	6.0%		FDM, 11-10-5, Table 1
VERTICAL ALIGNMENT			
Maximum Grade	6.0%		AASHTO, p386, Exhibit 5-4, Level Terrain
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =160	K=110	*
Sag	K =96		AASHTO,p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Travel Way	24 ft		FDM, 11-15-1, Fig. 2
Shoulder Width			
Right	6 ft		FDM, 11-15-1, Fig. 2
Left	6 ft		FDM, 11-15-1, Fig. 2
Normal Cross Slope			
Lanes	2.0%		FDM, 11-15-1, p.1
Shoulder	4.0%		FDM, 11-15-1, p.1
Foreslope	Varies		FDM, 11-15-1, Fig. 6
Backslope	Varies		FDM, 11-15-1, Fig. 6
ROW REQUIREMENTS	80 ft		FDM, 11-15-1, Fig. 10

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).

Table 6: Recommended Design Geometrics – 2 Lane Rural Local Road

Design Criteria	Full Standard	Basic Standard	Comment
FUNCTIONAL CLASSIFICATION	Local Road		
FDM DESIGN CLASS	L3		
DESIGN SPEED	50 mph		FDM, 11-15-1, Fig. 2
DESIGN VEHICLE	WB-62		AASHTO, p.20, Exhibit 2-2
SIGHT DISTANCE			
Stopping	425 ft		*
Decision	750 ft		AASHTO, p.116, Exhibit 3-3, Maneuver C
HORIZONTAL ALIGNMENT			
Minimum Radius	835 ft		AASHTO, p. 145, Exhibit 3-14
Maximum Superelevation	6.0%		FDM, 11-10-5, Table 1
VERTICAL ALIGNMENT			
Maximum Grade	6.0%		AASHTO, p386, Exhibit 5-4, Level Terrain
Minimum Grade	0.50%	0.30%	FDM, 11-10-5, p.8
Vertical Curve Length			
Crest	K =160	K=110	*
Sag	K =96		AASHTO,p.280, Exhibit 3-79
Minimum Clearances			
Above Roadway (At IC's)	16 ft 9 in	16 ft 3 in	FDM, 11-35-1, Fig. 8
Roadway Over Railroad	23 ft		FDM, 11-35-1, Fig. 8
CROSS SECTION			
Travel Way	22 ft	24 ft	FDM, 11-15-1, Fig. 3
Shoulder Width			
Right	6 ft		FDM, 11-15-1, Fig. 3
Left	6 ft		FDM, 11-15-1, Fig. 3
Normal Cross Slope			
Lanes	2.0%		FDM, 11-15-1, p.1
Shoulder	4.0%		FDM, 11-15-1, p.1
Foreslope	Varies		FDM, 11-15-1, Fig. 6
Backslope	Varies		FDM, 11-15-1, Fig. 6
ROW REQUIREMENTS	66 ft		FDM, 11-15-1, Fig. 10

*WisDOT 2001 Interpretation of Design Policy for Stopping Sight Distance and Vertical Curves (TYP).