SECTION V

PAVEMENT

A. GENERAL

All development under the jurisdiction of the Village shall include provisions for the construction of roadways and appurtenances to serve each parcel of property within the development designed in accordance with this Section. Where more than one building, other than an accessory building, is located or planned on one parcel of property, the proposed construction shall also include access roadways as required to serve each such building. Shared driveways or frontage roads shall be encouraged along major roadways.

The design of all roadways and driveways proposed for construction as independent projects under the jurisdiction of the Village shall also meet the technical requirements of this Standard. All traffic signal installations, both new and replacement, shall meet the regulatory Highway Department Standards and be equipped with the signal control preemption system with confirmation beacon as approved by the Village of Northbrook Fire Chief.

The arrangement, character, extent, width, grade and location of all streets to be dedicated to the public, parking lots, driveways and all private streets shall be compatible and complimentary to existing and planned streets, to reasonable circulation of traffic within any development and adjoining lands, to topographical conditions, to runoff of storm water, to public convenience and safety, and in their relation to the proposed uses of the area to be served. All traffic intersections, driveways and confluences must encourage safe and efficient traffic flow.

Contractors engaged in the construction of improvements on dedicated street rights-of-way must be qualified for such work by the Village Engineer.

B. STREET CLASSIFICATION

Geometrics and structural design discussed in this Section are dependent on the functional classification of the street in question. The functional classification shall be as set out in the Village's Subdivision and Development Code and as approved by the Village Engineer.

The following Pavement Design and Right-of-Way Chart is intended to show minimum right-of-way widths and the minimum design standards for a particular street classification. If, in the opinion of the Village Engineer, traffic use or geometric considerations for a road or a part of a road warrant a greater right-of-way width, a wider pavement width or a greater structural number than listed on the Chart, the Village Engineer shall submit their written reasons to the Village Manager. Variation requests must follow the procedure outlined in Section I, Administration.

Pavement Design and Right-of-Way Chart

STREET CLASSIFICATION	MINIMUM RIGHT-OF-WAY WIDTH	MINIMUM PAVEMENT WIDTH (BACK TO BACK)	MINIMUM CROWN	MINIMUM STRUCTURAL NUMBER	MINIMUM CURB AND GUTTER REQUIREMENT
Regional Arterial	100 feet*	60-63 feet	Variable	4.5	B-6.24
Community Arterial	80 feet*	43 feet or 2 @ 24 feet with median	6 inches	4	B-6.24
Community Collector	80 feet*	43 feet*	6 inches	3.5	B-6.12
Neighborhood Collector	66 feet*	43 feet*	6 inches	3.75	B-6.12
Local Street (Dedicated)	60 feet*	27 feet*	4 inches	3.0	B-6.12
Local Street Cul-de-sac	140 feet diameter	107 feet diameter	2 percent	3.0	B-6.12
Local Street Private (PUD)	Not applicable	24 feet	4 inches	3.0	Not applicable
Industrial	66 feet	43 feet without parking	5 inches	3.75	B-6.12
Minor Business	60 feet	32 feet without parking	5 inches	3.5	B-6.12
Frontage Road	Variable	24 feet	3 inches	3.0	B-6.12

*Subdivision and Development Code 4-102.A

C. DESIGN

1. General

Proposed new streets shall be designed and located in relation to existing and planned streets, to topographical conditions, and natural terrain features such as streams and existing tree growth, to public convenience and safety, and in appropriate relation to the proposed uses of land to be served by such streets.
All streets shall be properly integrated with the existing and proposed system of thoroughfares and dedicated rights-of-way as established on the current Village street map and the Northbrook Comprehensive Plan for Future Land Use.

Pavement design shall relate to the street classification. All new streets, either public or private, within the corporate limits of the Village shall be improved with hot-mix asphalt (HMA), portland cement concrete pavement, or interlocking paving blocks bordered by portland cement concrete curbs and gutters. Driveways to individual residential buildings do not require curbs and gutters or barrier curbs. Driveways to all other uses and buildings may require curbs and gutters or barrier curbs where deemed necessary by the Village Engineer.

All thoroughfares shall be properly related to special traffic generators such as industries, business districts, schools, churches, and shopping centers; to population densities; and to the pattern of existing and proposed land uses.

Local and collector streets shall be laid out to conform as much as possible to the topography, to discourage use by through traffic, to permit efficient drainage and utility systems, and to require the minimum number of streets necessary to provide convenient and safe access to property.

The rigid rectangular gridiron street pattern need not necessarily be adhered to for collector streets, and the use of curvilinear streets may be acceptable. Cul-de-sacs, U-shaped streets, and dead ends shall be discouraged.

In business and industrial developments, the streets and other accessways shall be planned in connection with the grouping of buildings, location of rail facilities, truck loading and maneuvering areas, walks, and parking areas to minimize conflict of movement between the various types of traffic, including pedestrian.

Where adequate right-of-way is available, or can be made available, turning bays, protected with barrier median or rumble strips, shall be provided on all community arterial streets at all major intersections and on community collector streets at their intersection with all regional and community arterial streets as deemed necessary by the Village Engineer.

2. Pavement Cross-Section

The pavement cross section shall be determined using the Pavement Design or Pavement Rehabilitation process prescribed in the IDOT Bureau of Local Roads and Streets (BLRS) Manual and as approved by the Village Engineer. New HMA pavement may use the following coefficients when calculating the pavement Structural Number:

Structural Layer	Coefficient
New HMA surface or binder course	0.44
Type A crushed granular base	0.14

When rehabilitating existing HMA pavement, the developer shall obtain existing condition pavement cores and use the BLRS Manual to evaluate the existing pavement structure and necessary improvements to achieve the desired pavement Structural Number.

The following table of minimum pavement course thickness shall be utilized for all new pavement designs:

Structural Layer	Minimum Thickness
HMA surface course	2.0 inches
HMA binder course	4.0 inches
Portland cement concrete	6.0 inches
Type A crushed granular base*	6.0 inches

*Granular base to be used for HMA and PCC Pavement

(a) Flexible Pavement and Medians

Flexible pavement designs shall be based on IDOT's BLRs Manual using a 20-year design life and traffic factors as approved by the Village Engineer. All pavement sections shall consist of a HMA Surface course, HMA Binder course, and crushed Aggregate Base Course, Type A.

HMA binder course shall set for a minimum of nine months, including a winter and a spring, unless otherwise waived by the Village Engineer. After this setting period has passed, one pavement core per 900 lineal feet of measured pavement shall be taken. A report shall be submitted to the Village Engineer listing thickness of aggregate base and binder courses and the type and condition of subgrade

material as determined from the cores. The developer shall remediate all pavement deficiencies to the satisfaction of the Village Engineer.

(b) Rigid Pavements and Medians

The design of rigid pavements shall be based on IDOT's BLRS Manual using reliability and traffic factors as approved by the Village Engineer. Concrete pavement shall be reinforced with rigid wire mesh (6" x 6", #6). The pavement shall have a longitudinal center line joint and transverse joint design approved by the Village Engineer.

(c) Base Course

Type A crushed aggregate base courses are required under all pavement sections and shall extend 12 inches past the back of curb.

(d) Testing and Acceptance

Upon completion of all construction within any development pavement tests shall be performed at the developer's expense as directed by the Village Engineer. Testing may include density verification, material properties, section cores, Dynaflect, and smoothness testing. All deficiencies shall be repaired as approved by the Village Engineer.

3. Street Intersections

Streets shall be laid out to intersect as nearly as possible at right angles. A proposed intersection of two new streets at an angle of less than 75 degrees shall not be acceptable. Not more than two streets shall intersect at any one point unless approved by the Village Board of Trustees.
Proposed new intersections along one side of an existing street shall, wherever practicable, align with any existing intersections on the opposite side of such street. Street jogs with centerline offsets of less than 150 feet shall not be permitted, except where the intersected street has separated dual drives without median breaks at either intersection. Where streets intersect major streets, their alignment shall be continuous.

Minimum curb radius at the intersection of two local streets shall be at least 25 feet and minimum curb radius at an intersection involving a collector street shall be at least 30 feet. Alley intersections and abrupt changes in alignment within a block shall have the corners cut off in accordance with standard engineering practice to permit safe vehicular movement.

Intersections shall be designed with a minimum grade wherever practical. In hilly or rolling areas, at the approach to an intersection, a leveling area for vehicular storage shall be provided, having no greater than a 2 percent grade over a distance of 60 feet, measured from the nearest right-of-way line of the intersecting street.

Where any street intersection will involve grades or existing vegetation inside any lot corner that would create a traffic hazard by limiting visibility, the developer shall cut the grade or vegetation (including trees) in connection with the grading of the public right-of-way to the extent deemed necessary to provide an adequate sight distance.

The cross-slopes adjoining all streets, including intersections, shall be 2 percent minimum.

4. Alleys

New alleys are not preferred and if warranted are to be maintained privately. Existing alleys shall be maintained to a minimum pavement Structural Number of 3.0 or higher as required by the actual traffic factor as approved by the Village Engineer.

5. Grades

The vertical grades shall not be in excess 5 percent on arterial and collector streets nor in excess of 6 percent on other streets, unless approved by the Village Engineer. Streets shall not have a grade of less than 0.5 percent.

6. Vertical Curves

All changes in street grades shall be connected by vertical curves of a minimum length in feet as prescribed below:

Classification	Minimum Vertical Curve Length
Regional or Community Arterial	300 feet
Community or Neighborhood Collector	150 feet
Local	100 feet
Industrial Minor Business	As approved by the Village Engineer

If the difference in street grade does not exceed 1.0 percent, no vertical curve is necessary, and the pavement must be designed to provide positive drainage. If the average running speed is projected to exceed 40 miles per hour, or if the algebraic difference in tangent grades so warrant, vertical curves in excess of those specified above may be required by the Village Engineer.

7. Sight Distances

At the points of intersections of proposed roads with existing roads, the minimum stopping sight distance indicated below for the legal speed limits shall be provided on existing roads.

Legal Speed Limit (MPH) *	Minimum Stopping Sight Distance
25 - 30	200 feet
35 - 40	275 feet
45 - 50	350 feet
55	475 feet

*If in the opinion of the Village Engineer, the projected future legal speed limit may be higher than the existing legal speed limit, the higher speed shall be used to determine the minimum stopping sight distance.

8. Subgrade Preparation

The subgrade of all public and private roadways shall be graded and proof rolled. The removal and replacement of soft and unstable material with appropriate backfill must be approved by the Village Engineer in the field prior to placement of the aggregate base course. Density testing or evaluation by a geotechnical engineer may be required at the developer's expense as required by the Village Engineer.
Subgrade depth and crown shall be checked with stringline and witnessed by the Village Engineer prior to placement of any aggregate base course.

All subgrade material shall have a minimum Immediate Bearing Value (IBV) of 6.0. Subgrade material having an IBV less than 6.0 shall be removed and replaced with a suitable fill material or the pavement must be designed to compensate for the soil conditions. The soil support IBV values selected for use by the designer shall represent a minimum value for the soil to be used.

At the request of the Village Engineer, a copy of all pavement design and computations for the proposed pavement data shall be submitted.

Subgrade excavation shall be a minimum of 1 foot wider than the proposed back of curb. The entire subgrade shall be thoroughly compacted.

D. CONSTRUCTION MATERIALS

Pavement materials approved for street construction shall comply with the minimum requirements of the Illinois Department of Transportation.

E. SPECIAL REQUIREMENTS FOR HOT MIX ASPHALT PAVEMENT

The following qualifications and requirements shall apply to HMA pavements regardless of design method used:

1. No construction required by this Section shall be done after November 1st or before May 1st without approval of the Village Engineer.

2. Longitudinal joint sealer shall be applied to all longitudinal cold joints prior to placing the surface course in accordance with IDOT standards.

3. In new construction, surface course shall be placed no earlier than the construction season following the season in which the binder course was placed.

4. Prior to final HMA surface being installed a non-tracking tack coat shall be applied in accordance with IDOT standards.

F. SPECIAL REQUIREMENTS FOR CONCRETE

The following qualifications and requirements shall apply to portland cement concrete pavements.

1. No concrete pavement shall be constructed in any year after November 1st without the approval of the Village Engineer.

2. Concrete pavement shall not be constructed when frost is present in the subgrade.

3. All exposed surfaces of newly poured concrete shall be protected against rain.

4. The concrete shall be cured with the application of a membrane curing compound conforming to IDOT standards.

5. When the temperature of the air is expected to drop below 45 degrees Fahrenheit within 72 hours after placing, the concrete shall be protected in accordance with IDOT standards.

6. All concrete placed later than October 1st of the year shall have protective coat applied.

7. Use of ready-mixed concrete from an IDOT approved supplier is required. Delivery tickets shall note the mix designation, time dispatched, date, project name, contractor, and shall be available for review by the Village Engineer.

G. CURBS AND GUTTERS

Combination curbs and gutters shall be constructed on both sides of all street pavements.

Two No. 4 reinforcing bars shall be placed continuously between expansion joints. Expansion joints shall be doweled and spaced no more than 60 feet on center and at tangent points of all radii. Dowels shall be 1 inch x 18 inch and epoxy coated. Control joints shall be provided at 15-foot intervals on center and shall consist of a saw cut at least 1.5 inches deep.

Unless otherwise approved by the Village Engineer, a 6-inch barrier curb shall be provided on all streets. Depressed curb sections shall be provided at all driveways whose locations are known at the time of curb installation. Depressed curbs shall also be provided at all sidewalk crossings.

H. SIDEWALKS

Concrete sidewalks shall be constructed along both sides of all public and private streets. Such sidewalks shall have a minimum width of 5 feet and a minimum thickness of 5 inches, with a 3-inch crushed aggregate base course with a CA-6 gradation. Sidewalk thickness shall be 6 inches thick where passing across an existing or proposed residential driveway and 8 inches thick at commercial or industrial driveways.
At locations where sidewalk crosses utility trenches of any kind the sidewalk shall be reinforced with two, 20 foot long, No. 4 reinforcing bars centered on the utility trench.

1. Material
   All materials shall conform to IDOT standards.

2. Excavation
   If organic material is present at the proposed subgrade, same shall be removed and replaced with compacted crushed aggregate.

   Excavation shall include trimming or removal of all trees, roots, and brush that interfere with the installation of the sidewalk.

3. Embankment

When necessary to construct sidewalk on fill, the fill shall be placed in 6-inch lifts and mechanically compacted. A level shoulder shall extend 1 foot beyond each edge of the walk. Side slopes shall not be steeper than 4:1 except as approved by the Village Engineer.

4. Subgrade and Base Preparation

If material has been excavated below the subgrade it shall be replaced with crushed gravel or crushed stone. The subgrade shall be mechanically compacted prior to placing the aggregate base course.

When the base has been prepared, and no sooner than 24 hours prior to placing concrete, the developer shall notify the Village Engineer that the base is ready for inspection. No concrete shall be placed until the base has been inspected and approved by the Village Engineer.

5. Grades

Public sidewalks or pedestrian pathways shall not exceed 8 percent grade nor 1.5 percent cross slope.

6. Forms and Backfill

Side forms shall be of lumber with a nominal thickness of 2 inches and a minimum height of 6 inches or of steel of equal rigidity. Forms shall be held securely in place by stakes or braces with the top edges true to grade. The forms shall be lightly coated with oil prior to placing concrete.

The forms shall remain undisturbed for at least 24 hours after the concrete has been placed. Upon removal of the forms, the developer shall backfill to the required elevation between the side of the sidewalk and the ground using topsoil as approved by the Village Engineer. The material shall then be compacted until firm and the surface evenly graded. Side slopes outside the level 1 foot shoulder limits shall be graded so that a cut slope does not exceed 2:1 and a fill slope does not exceed 4:1.

7. Placing and Finishing

The aggregate base course shall be adequately moistened and compacted before concrete is placed. Concrete shall be placed, consolidated, and finished in accordance with the Standard Specifications for Road and Bridge Construction. Contraction joints shall be tooled at 5 foot intervals.

8. Expansion Joints

Expansion joints shall consist of preformed joint filler. The top of the joint shall be placed ¼ inch below the surface of the sidewalk.

Expansion joints ½ inch thick shall be placed between the sidewalk and all structures such as light standards, traffic light standards, and traffic poles which extend into the sidewalk.

Expansion joints shall be placed at intervals of not more than 50 feet in the sidewalk. Where the sidewalk is constructed adjacent to pavement or curbs having expansion joints, the expansion joints in the sidewalk shall be placed opposite the existing expansion joints as nearly as practicable. Expansion joints shall also be placed where the sidewalk abuts existing sidewalks, between driveway pavement and sidewalk, and between sidewalk and curbs where the sidewalk abuts a curb.

9. Accessible Ramps

All sidewalks at street intersections shall conform to IDOT standard for curb ramps for sidewalks.

10. Disposal of Surplus Material

Surplus or waste material resulting from the sidewalk installation shall be legally disposed of by the developer.

11. Control of Materials

The developer shall, at their expense, have a soil and material consultant or commercial testing laboratory prepare and test samples of delivered concrete. One set of test cylinders shall be taken for the first 25 cubic yards, or fraction thereof, and one set of tests shall be taken for each additional 50 cubic yards. A set of tests shall consist of: 4 standard cylinders of which two shall be broken at 7 days and two shall be broken at 14 days, 1 slump test and 1 air content test. The laboratory shall perform tests in accordance with recognized ASTM standards and shall submit written reports of such tests to the Village Engineer.

I. DRIVEWAYS & DRIVEWAY APRONS

1. Driveways

In developments, driveways meeting these requirements shall be provided at all locations approved by the Village Engineer where vehicular traffic is intended to leave the roadway and move onto private property.

(a) Residential:

Driveways for residential development shall conform to the Village's Standard Detail. The grade or pitch of driveways shall provide for positive drainage away from the residence. HMA driveways shall consist of a minimum of 2 inches HMA surface course over 6 inches of aggregate base course. Concrete driveways shall consist of 6 inches portland cement concrete over 6 inches of aggregate base course. Concrete on private property shall be reinforced with 6 x 6, #6 wire reinforcing mesh. Wire mesh shall not be installed in the Village right-of-way.

Brick pavers or decorative concrete in the right-of-way are only allowed with a recorded covenant that states the property owner is responsible for added cost above normal concrete should the Village need to remove any of it for utility or street repairs.

(b) Commercial/Industrial/Institutional Driveways:

Driveways for commercial or industrial buildings shall conform to the Village's Standard Detail and shall be constructed of 8 inches of portland cement concrete over 6 inches of aggregate base course. Concrete on private property shall be reinforced with 6 x 6, #6 wire reinforcing mesh. Wire mesh shall not be installed in the Village right-of-way.

The Village Engineer shall approve all driveway locations and may seek to consolidate or otherwise encourage shared driveways with adjoining properties. Standard "Shared Driveway Easement Agreement" forms are on file in the Village Engineering Department.

Where property has frontage on a County, State or Federal highway, the spacing and design of the points of ingress and egress to the major street shall be subject to the authority having jurisdiction. This approval must be obtained prior to the signature of the Village Engineer on the final plat.

Driveways serving commercial, industrial, and high-density residential developments represent an important element in the efficiency and safety of the street onto which the traffic enters and exists. To properly handle traffic from such entrances, the anticipated traffic volumes must be accurately estimated and the size and location of driveways be established in accordance with the Guidelines for Driveway Design and Location as published by the Institute of Traffic Engineers. This information may be requested by the Village Engineer for review as well as other critical factors as follows:

- Peak hour flow
- Number of entrances
- Internal circulation pattern
- Parking area size
- Storage lane length
- Traffic signal timing
- Pedestrian counts

(c) Driveway aprons on county or state routes shall meet the minimum required pavement cross-section established by the respective agency.

(d) Permeable paver pavements used for stormwater purposes shall be constructed in accordance with Section IV.

2. Materials

All materials shall conform to IDOT standards.

3. Placing and Finishing Concrete

A request for inspection shall be made 24 hours prior to the scheduled placing of concrete. No concrete shall be placed until the base has been inspected and approved by the Village Engineer.

The aggregate base course shall be adequately moistened and compacted before concrete is placed. Concrete shall be placed, consolidated, and finished in accordance with IDOT standards.

Control joints shall be tooled or saw cut to divide the driveway apron into sections, which are approximately square, and having no side longer than 15 feet.

J. PARKING LOT

1. General

All parking lots shall conform to both the “Zoning Code” and these Standards.

2. Design

The design, material, and layout of all parking lots shall be subject to the approval of the Village Engineer and the Director of Development.

Parking lots with detention shall be designed to allow for a 2-inch overlay without reducing detention volume or increasing depth of ponding above 1 foot maximum.

The minimum pavement cross-section for parking areas shall be designed for a minimum structural number of 2.8 and consist of a minimum of 2 inches of hot-mix asphalt surface, 3 inches hot-mix asphalt binder, and 6 inches of aggregate base course.

All main or aisle circulation areas shall be designed for a minimum structural number of 3.2 and consist of a minimum 2 inches of hot-mix asphalt surface, 4 inches hot-mix asphalt binder, and 6 inches of aggregate base course.

Loading areas, truck docks, and fire lane pavement areas shall be 8-inch thick portland cement concrete reinforce with 6 x 6, #6 wire reinforcing mesh over a 4-inch thick aggregate base course or 2 inches hot-mix asphalt surface course over 5 inches hot-mix asphalt binder course over 8 inches of aggregate base course.

Permeable pavers used for stormwater purposes shall be constructed in accordance with Section IV. Standard and decorative paving blocks (interlock concrete, granite, cobblestone, etc.) may be used with an engineered cross-sectional design if approved by the Village Engineer.

3. Striping and Signs

Signs and striping of the pavement surface to define each parking space, aisle, direction of traffic flow, and cross walks are required and shall be a minimum of 4 inches in width for the length of each space and directional arrow.

4. Curbs and Gutters

Concrete curbs are required around the perimeter of all parking lots and around all landscaped islands. Fire hydrants shall be protected by a minimum 4-foot setback from the back of curb. If Islands or parking lots are depressed, provisions for drainage shall be provided.

5. Slope

No area of any parking lot or garage, excluding access ramps, shall have a slope exceeding 5 percent. No ramp shall have a slope exceeding 8 percent.

6. Lighting

Fixed lighting shall be provided for all parking lots and garages accommodating more than 10 vehicles. Such lighting shall be engineered to prevent direct glare onto or visible from any public or private property or streets. All lighting shall be reduced to security levels at all times of non-use.

7. Island and Tree Pits

Landscape islands shall be bordered by a 6 inch high concrete curb designed to protect the landscape feature and backfilled with clean clay or trench backfill for a width of 2 feet adjoining the curb. Islands shall be located and constructed in accordance with accepted engineering standards. Trees located in paved areas shall be provided with adequate tree pits and drain tile bedded in washed stone to permit proper watering, drainage, and growth.

The central portion of the island where trees and shrubs are to be planted shall be filled with a mixture of 1/3 sand, 1/3 compost and 1/3 topsoil to a minimum depth of 3 feet.

8. Car Stops

Every parking lot and garage, except parking lots and garages accessory to a single-family dwelling, shall be bordered by curbs, car wheel stops, guard rails, barrier fences, or other suitable devices designed and located to protect required screening devices, landscaping, structure, and other vehicles from damage by vehicles using such lot or garage. This provision shall not be construed to require car wheel stops for every parking space, but only in those cases where the Village Engineer determines that such stops are necessary or desirable.

9. Circulation Aisles

All parking lots shall be designed in accordance with the Village's Zoning Ordinance.

Parking Angle	**One-Way Aisle Width**	**Two-Way Aisle Width**
Parallel	14	24
45 degrees	14	24
60 degrees	16	24
75 degrees	20	24
90 degrees	24	24

K. BICYCLE FACILITIES

Bicycle facilities shall be constructed in locations designated by the Village of Northbrook Master Bicycle and Pedestrian Plan.
Bicycle path signs, street name signs, and other signs shall be provided where required or warranted pursuant to the Manual on Uniform Traffic Control Devices. These signs and their installation shall be provided through purchase from the Village as necessary.

1. Bicycle Facility Design and Construction Standards

Three classifications of bicycle facilities are permitted. These classifications are defined in the Master Bicycle and Pedestrian Plan. Design dimensions for each classification are as follows:

Class	Width of Pavement	Width of Right-of-Way or Public Easement
Sidepath, off street, 2-way	8 feet	10 feet
Sidepath, off-street, 1-way	4 feet	6 feet
Separated Bicycle Lane , on street, 2-way	8 feet	8.5 feet
Separated Bicycle Lane , on street, 1-way	4 feet	4.5 feet
Signed and Marked Roadway, on street unprotected; 1-way or 2-way	Bike lane shared with street	Bike lane shared with street

2. Minimum Bikeway Pavement Requirements

Developers may choose between two pavement types:

Type A

3-inch HMA surface with 6-inch aggregate base course.

Type B

4-inch thick portland cement concrete with 6-inch aggregate base course.

3. Bikeway Signs

Appropriate bikeway signs must be installed with all bikeways by the developer of the bikeway at locations approved by the Village Engineer.

L. MAINTENANCE AND RESPONSIBILITY

The maintenance and responsibility for private roadways shall be the responsibility of the developer until the time of final Maintenance Bond release, when the property owner association shall accept the responsibility for maintenance.

M. CONSTRUCTION TRAFFIC CONTROL

All sidewalk closures, lane closures, and construction work within public rights-of-way shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD) and an approved traffic control plan approved by the Village Engineer. The provisions of the MUTCD will be enforced when:

- An opening is made into the existing pavement.
- Construction takes place adjacent to the edge of the existing pavement.
- A utility crossing is made beneath the existing pavement.
- It is necessary to close a lane of traffic due to construction operations.

A full lane closure on Village roads will be required whenever construction impacts a lane normally used for through traffic. Permission for such a lane closure must be obtained from the Village Engineer prior to commencing construction. No construction operation is to commence until such time that the traffic control plan has been installed and approved by the Village Engineer.

All openings in any pavement or traveled way shall be backfilled prior to the end of the working day. All roadway-crossing excavations shall be temporarily backfilled with crushed stone and a temporary asphalt patch of at least 2 inches in thickness. In lieu of a pavement patch, a bolted down steel plate with a minimum thickness of 1 inch, may be installed over the excavation. Permanent pavement restoration shall be accomplished with flowable fill backfill to the bottom of the pavement section.

N. STREET SIGNS

Upon completion of the public improvement, the Village Engineer shall request the Department of Public Works to install regulatory, warning, and guide signs in accordance with the MUTCD. This cost shall be borne by the developer.

O. MATERIAL TESTING AND EVALUATIONS

Concurrent with the construction of any public improvement, the developer shall furnish the Village Engineer with material testing results from qualified professionals as requested. Costs associated with third party testing shall be borne by the developer.

Test Item	Test
Subgrade	Soil borings
	Proof roll
	Density
	Bearing capacity
Base Course	Proof roll
	Density
Concrete	Placement temperature
	Air content
	Slump
	Compressive strength
Hot-mix asphalt	Plant inspection
	Placement temperature
	Density

P. PAVEMENT MARKING

Arterial and collector streets street channelization and intersection retroreflective markings shall be installed at the locations required by the Village Engineer. All pavement markings shall be in accordance with the standards in the MUTCD.
New hot mix asphalt, or asphalt placed within the last 180 days, shall be marked with thermoplastic, inlaid preformed plastic, or modified urethane in accordance with IDOT standards.

New concrete pavement shall be marked with modified urethane in accordance with IDOT standards.

Existing hot mix asphalt or concrete pavement shall have all existing pavement markings removed and replaced with modified urethane in accordance with IDOT standards.

Q. SUB-STANDARD STREETS

1. Definition

A sub-standard street is defined as a Village maintained roadway which currently has one or more of the following deficiencies:

1) a surface and base width of less than 20 feet

2) lack of curb/gutter

3) an exaggerated crown

4) poor roadway drainage

5) poor or weak base strength

6) poor cross section and surface conditions

2. Design Considerations

The following improvements shall be considered where complete replacement of a sub-standard street is determined by the Village Engineer to be impractical.

1) base correction of obvious failures

2) widening of the roadway to a minimal width of 20 feet

3) provision of a crown sufficient for positive drainage

4) correction of cross section deficiencies

5) strengthening of roadway edges or shoulder work

6) application of HMA surface at least 2 inches in thickness

7) driveway culvert replacement and ditch enclosure

8) detention provisions

9) sump pump connections

10) structure adjustment

11) parkway restoration

12) property owner providing a restrictive covenant committing to a future Special Assessment or Special Service Area for a full standard street improvement

3. Financial Participation

The developer or homeowners, upon the recommendation of the Village Engineer, shall be requested to contribute toward the upgrading and improvement of the existing pavement or drainage system. The developer shall participate in a percentage to be negotiated with and approved by the Village Board of Trustees.

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