SMALL WIRELESS FACILITIES DESIGN STANDARDS

OCTOBER 11, 2021

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1. Executive Summary

1.1 Background

The Village of New Lenox, as with communities across the country and around the world, is facing the next wave of communications technology. While the economic benefits are immense, it has the potential to impact the safety, aesthetic values, and enjoyment of our community in a manner and to a degree that is far more extensive than cellular phones and other types of recent technology.

Small wireless communications, also known as 5G technology, utilizes higher frequencies with the capability to accommodate significantly higher data needs than current 4G/LTE technologies. The physical limits of the higher frequencies require that the transmitters be installed at the spacing of streetlights or fire hydrants rather than 2+/- miles or greater distances that 4G/LTE technologies accommodate. The result of this physical need is that the public rights-of-way are the optimal location to install the required equipment.

In September of 2018, the Federal Communications Commission (FCC) adopted the Declaratory Ruling and Third Report and Order, known as FCC 18-133 (the Order). The Order outlines the extent to which local agencies may or may not regulate the installation of small wireless facilities within the public rights-of-way and the use of existing public infrastructure.

A few months prior to the adoption of the FCC Order, in June of 2018, Public Act 100-0585, the State of Illinois, Small Wireless Facilities Deployment Act (the Act), previously known as Senate Bill 1451, became effective. In general, the Act specifies how local authorities throughout Illinois, may regulate the attachment of small wireless facilities.

Similar to the advent of the telephone which required extensive wires, switch boxes, poles and other structures to provide these services, small wireless communications technology will require a structure on which to mount a transmitter approximately every 300 to 500 feet with fiber and power connections to each one.

Absent the adoption of standards to assure that installations are context sensitive, service providers would be free to install equipment with no concern for the visual impact that they create. This document seeks to accommodate the implementation of the new technology while assuring that the new infrastructure is installed using context sensitive solutions.

In addition, the equipment needs to be located where it will not interfere with visibility for drivers or use of sidewalks, or other common amenities found in public rights-of-way.

Other issues such as safety, noise and accommodating multiple providers at each location are also addressed within these Standards.

1.2 Regulatory Matters

On September 27, 2018, the Federal Communications Commission (FCC) adopted the *Order*. Among other things, the *Order* limits the amount and types of fees that local governments can charge for the use of the right-of-way (ROW); constrains their ability to impose aesthetic, undergrounding, minimum-spacing, and other requirements; imposes timelines – “shot clocks” – for reviewing applications for siting wireless facilities; and regulates various other matters related to the control and management of the public ROW and publicly-owned facilities.

Under the *Order*, local government aesthetic requirements (a.k.a. design standards) for small wireless facilities are subject to preemption unless they are (1) reasonable; (2) no more burdensome than those applied to other types of infrastructure deployments; (3) objective; and (4) published in advance.

The *Act*, 50 ILCS 840, became effective June 1, 2018. In a similar manner to the FCC *Order*, the *Act* establishes fees, “shot clocks,” and provides limits on local governments’ control of small wireless

infrastructure. Also, similar to the *Order*, under the *Act*, local government aesthetic requirements (a.k.a. design standards) must be: (1) written; (2) generally applicable for decorative utility poles, or reasonable stealth, concealment, and aesthetic requirements; and (3) applicable to other occupiers of the rights-of-way.

Various provisions of the Illinois and FCC actions provide similar but sometimes conflicting direction on issues such as fees, shot clocks, aesthetics and other considerations. One foundational principle that is similar under both the *Order* and the *Act*, is that aesthetic design requirements must be reasonable and non-discriminatory vis-à-vis other users of the ROW (not just other wireless providers). The Village has demonstrated its sensitivity to this principle throughout this document.

The Village has established the governing structures in Chapter 94, Article VII of its Village Code, and all references to these items are governed by (a) Chapter 94, Article VII of Village Code and (b) by definition in this Design Standards manual.

1.3 Goal Statement

The Village of New Lenox Small Wireless Facilities Design Standards are hereby established with the goal of accommodating the installation of small wireless (4G, LTE, 5G, and other systems currently under development) technology within the Village of New Lenox public rights-of-way or on private property provided that the installations are completed in the most context sensitive manner through the establishment of minimum standards for:

- Aesthetics
- Location
- Accommodation of two providers at each location
- Safety
- Noise

2. General Information

2.1 Introduction and Purpose

These Small Wireless Facilities Design Standards provide objective, technically feasible criteria applied in a non-discriminatory manner that reasonably match the aesthetics and character of the immediate area regarding all of the following, which the Village shall consider in reviewing an application.

(a) The location of any small wireless facilities including their relationship to other existing or planned small wireless sites.

(b) The location of a small wireless facility on a wireless support structure.

(c) The appearance and concealment of small wireless facilities, including those relating to materials used for arranging, screening, and landscaping.

(d) The design and appearance of a wireless support structure including any height requirements adopted in accordance with these Standards.

It is the goal of the Village to allow the installation of small wireless infrastructure with a minimum footprint. The Village's strong preference is that this be accomplished by small wireless siting and the use of multi-cell poles that can accommodate multiple applicants, where technically feasible and financially reasonable.

It is also a goal of the Village to demonstrate its sensitivity to the principle that the aesthetic design standards throughout this document are reasonable and non-discriminatory vis-à-vis other users of its right-of-way (not just other wireless providers).

The provisions of these Standards shall not limit or prohibit the Village's discretion to promulgate and make publicly available other information, materials, or requirements in addition to, and separate from these Small Wireless Facilities Design Standards that do not conflict with state or federal law.

2.2 Definitions

Any term used in these Standards that is defined in Chapter 94, Article VII of the Village Code (as now or hereafter amended) shall have the meaning provided therein unless defined differently here. If a word is not defined here or in Village Code, it shall have the usual and customary meaning as defined in a standard dictionary. The following words, terms, and phrases, when used in this document, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

AASHTO means the American Association of State Highway and Transportation Officials, which is a standards setting body that publishes specifications, test protocols, and guidelines that are used in highway design and construction throughout the United States***.***

Clear Zone (as defined in AASHTO's Roadside Design Guide) means the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clear run-out area.

Code or ***Village Code*** means the Village of New Lenox Municipal Code.

Contractor means a person, partnership, corporation, or other legal entity who undertakes to construct, install, alter, move, remove, trim, demolish, repair, replace, excavate, or add to any improvements or public improvements covered by this document. Contractor, as the term is defined herein, should include any and all types of general contractor and subcontractor and successors or assigns of said contractor.

Effectively screen means aesthetically pleasing construction meant to conceal small wireless facility equipment. Shall be required where needed to preserve the aesthetics of the local environment.

Equipment concealed means whenever technically feasible, antennas, cabling, and equipment shall be fully concealed within a pole, or otherwise camouflaged to appear to be an integrated part of a pole.

Excavation or Excavate means any opening and/or tunneling in or under the surface of any public place or public rights-of-way in the Village. The exception is an opening into a lawful structure below the surface of a public place or public right-of-way (e.g., a manhole), the top of which is flush with the adjoining surface and so constructed as to allow frequent openings without injury or damage to the public place or public rights-of-way.

Facility(ies) means a pipe, sewer, pipeline, tube, main, service, trap, vent, vault, manhole, meter, gauge, regulator, valve, conduit, wire, tower, pole, pole line, anchor, cable, fiber optic, public irrigation system, junction box, transformer or any other material, structure, sign, traffic control device, or object of any kind or character, whether enumerated herein or not, which is or may be lawfully constructed, left, placed or maintained in, upon, along, across, under or over any public place or public right-of-way or on private property. Facilities shall include, as the context dictates, Small Wireless Facilities.

Height means the vertical distance of the small wireless facility measured from the base of the antenna support structure at grade to the highest point of the structure, including antenna. If the support structure is on a sloped grade, then the average between the highest and lowest grades of the site shall be used in calculating the height.

Landscape means any combination of living plant material, such as trees, shrubs, vines, ground covers, flowers, vegetables, turf, or grass; natural features, such as land and water forms; and structural features, including but not limited to landscaped pedestrian plazas, fountains, reflecting pools, screening, walls, fences and benches.

Landscape screening means the installation at grade of plantings, shrubbery, bushes, or other foliage intended to screen the base of a small wireless facility from public view.

Lattice tower means an antenna support tower that is self-supporting with multiple legs and cross-bracing of structural steel.

Macro telecommunication facility(ies) or macrocell means telecommunication towers, poles, or similar structures greater than 50 feet in height, including accessory equipment such as transmitters, repeaters, microwave dishes, horns, and other types of equipment for the transmission or receipt of such signals, as well as support structures, equipment buildings and parking areas***.***

Minimum height means the lowest vertical distance at which the structure can still operate at an efficient level of service. An efficient level of service is deemed to be 95% or greater of possible service levels.

Modification means the collocation, removal, or replacement of an antenna or any other transmission equipment associated with the supporting structure.

Municipal utility pole means a utility pole owned or operated by the Village in public rights-of-way.

Ordinance means Chapter 94, Article VII, Regulation of an Application for Small Wireless Facilities of the New Lenox Village Code, as amended, which is incorporated herein by this reference.

Public improvements means any item placed or constructed in public rights-of-way intended for public use including, but not limited to: roadways, streets, alleys, sidewalks, curbs, gutters, trails, crosswalk or other traffic markings or traffic structures, utilities (water, sanitary sewer, or storm sewer) either owned by or dedicated to the Village, or over which the Village has or there is recorded a public easement, any private access either owned or dedicated to the Village, parking lots, or landscaping, whether privately or publicly owned or maintained, unless otherwise specifically exempted within this document.

Public place means property owned or controlled by the Village or other municipal unit of government and dedicated to public use, including but not limited to any park, square or plaza.

Replacement means exchanging of transmission equipment; not to include the structure on which the equipment is located.

Sidewalk means a paved walkway or pathway for the purpose of pedestrian traffic abutting or running parallel or adjacent to a street.

Signage means that on all Small Wireless Facilities and Wireless Support Structures signage is prohibited, including stickers, logos, and other non-essential graphics and information unless required by the FCC, except for a small placard identifying the service provider and contact information, which shall be placed at 6-feet above grade, facing away from the public rights-of-way, or as otherwise directed by the Village.

Small wireless facility installation means all equipment required for the operation and maintenance of so-called "small cell" wireless communications systems that transmit and/or receive signals but are not "Macro Telecommunications Facilities," including antennas, microwave dishes, power supplies, transformers, electronics, and other types of equipment required for the transmission or receipt of such signals.

Stealth facility means any commercial wireless communications facility that is designed to blend into the surrounding environment by means of screening, concealment, or camouflage. The antenna and supporting antenna equipment are either not readily visible beyond the property on which they are located, or, if visible, appear to be part of the existing landscape or environment rather than identifiable as a wireless communications facility. Stealth facilities may be installed, but such installation methods are not limited to, undergrounding, partially undergrounding and landscaping.

Street, highway, or roadway means the entire width between the boundary lines of every ROW or easement publicly or privately maintained and open to the use of the public for the purposes of vehicular travel.

Structure means anything constructed or erected with a fixed location below, on, or above grade, including, without limitation, service cabinets, junction boxes, foundations, fences, retaining walls, awnings, balconies, and canopies.

Telecommunications means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

Telecommunication system means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used. A system that provides both cable and telecommunications or information services may be considered both as a cable system and a telecommunications system pursuant to these Standards.

Tower means any structure that is designed and constructed primarily for the purpose of supporting one or more antennas, including self-supporting lattice towers, guy towers, or monopole towers, and that is not a utility pole, an alternative antenna structure, or a Village-owned infrastructure. Except as otherwise provided for by this document, the requirements for a tower and associated antenna facilities shall be those required in these standards.

Village means the Village of New Lenox.

Village Board means the New Lenox Village Board of Trustees.

Village-Owned infrastructure means infrastructure within the boundaries of the Village, including, but not limited to, streetlights, traffic signals, towers, structures, or buildings owned, operated, or maintained by the Village.

2.3 Permit, Application Process.

The complete application process can be found in Section 94-391 and Section 94-398 of Chapter 94, Article VII, *Regulation of an Application for Small Wireless Facilities* of the Village Code as amended.

2.4 Right of Way Permit, Application Process.

In addition to completing the application process found in Section 94-391 and Section 94-398 of Chapter 94, Article VII of Village Code, an applicant must obtain a right-of-way permit before digging, excavating, auguring, or tunneling under or within the defined right-of-way within the Village. The permit, as defined in Chapter 74, Article IV, Division 2 of Village Code, shall remain in effect for six (6) months from the date of approval by the Village Engineer unless additional time is specifically required at the time of application.

3. Pole Design Standards

3.1 General Pole Design Standards

Where technically feasible and financially reasonable, the Village requires that every Small Wireless Facility collocation shall comply with the following standards.

The Village has been advised by its pole manufacturers that any additions or modifications to Village-owned poles would void the warranty. If a wireless provider decides not to replace a Village-owned pole, then the wireless provider shall assume all costs incurred by the Village due to the warranty no longer being honored by the manufacturer.

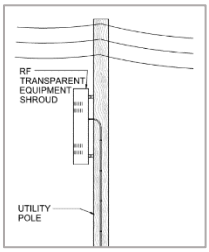
1. Antennas shall be mounted at heights that shall not exceed the heights as authorized by Section 94-404(h), of Chapter 94, Article VII of Village Code.

2. Antennas shall be designed and installed to appear hidden within the utility pole or to appear like an original part of the utility pole or wireless support structure.

3. Antennas not hidden within a utility pole shall be located entirely within a shroud enclosure not more than six (6) cubic feet in volume that is capable of accepting paint to match the approved color of the Small Wireless Facility.

4. Top-mounted antennas and their enclosures are the preferred deployment alternative. Such deployments should not increase the diameter of the utility pole or wireless support structure at the level of the antenna attachment more than necessary to accommodate provider equipment and any shrouds or camouflaging deployed.

5. If top-mounted antennas are not feasible or financially reasonable, side-mounted small wireless facility antennas may be deployed within a shroud enclosure. Side-mounted deployments shall be flush mounted to the utility pole or wireless support structure at the level of the attachment. Metal flaps or "wings" may be utilized to extend from the enclosure to the utility pole or wireless support structure to conceal any gap between the small wireless facility and the utility pole or wireless support structure. The design of the flaps shall be integrated with the design of the Small Wireless Facility.

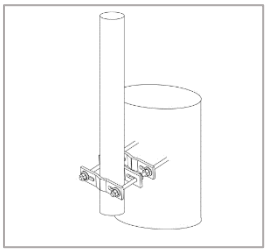


Example: Side-mounted small wireless facility antenna
(Source: City and County of Denver, Colorado)

6. Small Wireless Facilities located on streetlight poles or traffic control structures shall not block light emanating from the streetlight fixture or otherwise interfere with the purpose of the streetlight fixture or traffic control structure.

7. Small Wireless Facilities and related ground equipment shall be placed to comply with the Clear Zone requirements as described in the most recent edition of AASHTO's *Roadside Design Guide*. These specifications generally state that when there is curb and gutter there should be a four (4)-foot Clear Zone on straightaways and a six (6)-foot Clear Zone on curves. The placement of these facilities on roads that do not have curb and gutter, need to comply with the Clear Zone requirements in the *Roadside Design Guide.*

8. Small Wireless Facilities shall be attached to the utility pole or wireless support structure using rigid steel clamping mounts or stainless-steel banding to the exterior of any metal pole. All mounts and banding shall be of the same color as the utility pole or wireless support structure, except as otherwise approved by the Village. Care should be taken to integrate the mounting elements into the small wireless facility design. Through-bolting or use of lag bolts on Village-owned utility poles is prohibited.



Example: Steel clamping mounts
(Source: Solid Signal, Signal Group LLC & Affiliates)

9. For attachments to existing utility poles, wires serving the Small Wireless Facility shall be concealed within the hollow interior of the utility pole, or if concealment is not technically feasible, flush mounted to an existing utility pole in an enclosed wire chase on which the facilities are collocated. For new utility poles or wireless support structures, wires serving the Small Wireless Facility shall be concealed within the hollow interior of the utility pole or wireless support structure.

10. All Small Wireless Facilities shall be installed in accordance with all applicable Village Codes. No wiring or cabling shall interfere with any existing wiring or cabling installed by the Village, a utility, or a Wireless Services Provider.

11. No guy or other support wires shall be used in connection with a Small Wireless Facility unless the Small Wireless Facility is to be attached to an existing utility pole or wireless support structure that incorporates guy wires prior to the date the Applicant has applied for a Permit.

12. The Small Wireless Facility, including the antenna, and all related equipment when attached to an existing or new utility pole or wireless support structure, must be designed to withstand a wind force and ice loads in accordance with the applicable standards established in Chapter 25 of the National Electric Safety Code for utility poles, Rule 250-B and 250-C standards governing wind, ice, and loading forces on utility poles, in the American National Standards Institute (ANSI) in TIA/EIA Section 222-G established by the Telecommunications Industry Association (TIA) and the Electronics Industry Association (EIA) for steel wireless support structures and the applicable industry standard for other existing structures. For any Small Wireless Facility attached to a pole or wireless support structure, the operator of the Small Wireless Facility shall provide the Village with a structural evaluation of each specific location containing a recommendation that the proposed installation passes the standards described above. The evaluation must be prepared by a professional structural engineer licensed in the State of Illinois.

13. The Village will not authorize any attachments of small wireless facilities to a Village-owned utility pole that negatively impacts the structural integrity of the pole. The Village may conditionally approve of the collocation on replacement of the Village-owned utility pole if necessary, to meet Village standards.

14. Ground mounted enclosures, including backup power supply, and electric meters shall be concealed within the pole, in existing above-ground cabinets, or placed in a flush-to-grade underground equipment vault. The Wireless Provider shall comply with local code provisions or regulations concerning undergrounding requirements that prohibit the installation of new or the modification of existing utility poles in a right-of-way without prior approval if the requirements

include a waiver, zoning or other process that addresses requests to install such new utility poles or modify such existing utility poles and do not prohibit the replacement of utility poles (see Section 94-404 of Chapter 94, Article VII of Village Code). The Village recognizes that existing infrastructure, etc. may make undergrounding ground equipment infeasible. When these situations arise, ground equipment shall be placed in new, landscaped above ground pedestals or enclosures. When a new above-ground cabinet is required, the Applicant is required to ensure that ground equipment meets the design criteria described in Section *4.3 Related Ground Equipment* in these Standards to minimize the aesthetic and safety impacts of supporting equipment on the public.

15. Small Wireless Facilities shall be located in a manner that meets Americans with Disabilities Act (ADA) requirements and does not obstruct, impede or hinder the usual pedestrian or vehicular path of travel.

16. Small Wireless Facilities collocated on Village-owned utility poles may not use the same power or communication source providing power and/or communication for the existing infrastructure. The Wireless Provider shall coordinate, establish, maintain, and pay for all power and communication connections with private utilities.

17. Signage is prohibited on all Small Wireless Facilities and wireless support structures, except a four (4) inch by six (6) inch plate with the Wireless Provider's name, location identifying information, and emergency telephone number shall be permanently fixed to the small wireless facility equipment enclosure or shroud. The provider is required to update this information whenever it changes.

18. Any signs attached to a utility pole that is being replaced must be removed, temporarily mounted during removal and replacement of the utility pole at a location determined by the Village, and reattached to the new replacement pole based upon the Village's sign standards. Depending upon the condition of the sign attached to the utility pole that is being replaced, as determined by the Village, the Village may provide new signs to be attached to the new replacement pole at the Applicant's sole cost and expense.

3.2 Village-Owned Streetlight Poles

Where technically feasible and financially reasonable, the Village requires that the following standards be applied when replacing an existing Village-owned streetlight pole with a combination small wireless facility and streetlight pole. Such replacements should only be located where an existing Village-owned streetlight pole can be removed and replaced, or at a new location where it has been identified that a Village-owned streetlight is necessary.

The Village has been advised by its pole manufacturers that any additions or modifications to Village-owned streetlight poles would void the warranty. If a wireless provider decides not to replace a Village-owned streetlight pole, then the wireless provider shall assume all costs incurred by the Village due to the warranty no longer being honored by the manufacturer.

A map of existing Village-owned streetlight poles can be found in **Appendix B** of this document, pictures of the streetlights can be found in **Appendix D** of this document, and the current Village streetlight design and construction specifications can be found **Appendix F** of this document. Where technically feasible and financially reasonable, the Village requires that all such replacements shall meet the following standards:

1. All replacement streetlight poles shall be a similar design, material, and color as the replaced existing Village-owned streetlight pole and other poles within the immediate area.

2. All replacement streetlight poles, and pole foundations shall conform to the Village's standards and specifications for Village-owned streetlight design and construction.

3. Replacement street light poles shall be an equal distance from other street light poles, regardless

of who owns the streetlight, based upon the average distance between existing streetlight poles within the designated area.

4. Streetlight poles shall be designed and engineered to support a luminaire and mast arm of length equal to that of the existing Village-owned pole to be replaced, as well as future planned or reserved banners/street sign loads, or of a length approved by the Village based upon the location of the replacement streetlight pole.
5. All luminaires and mast arms shall match the arc and style of the original luminaire and mast arm, unless otherwise approved by the Village.
6. The replacement luminaire and mast arm shall be at the same height above the ground as the existing luminaire and mast arm.
7. All replacement streetlight poles shall have new light emitting diode (LED) light fixtures of the same manufacturer, model and light output as the removed fixture and nearby light fixtures, or as otherwise approved by the Village.
8. Replacement streetlight poles shall have a minimum ten (10) year manufacturer's replacement warranty.
9. Replacement streetlight poles shall meet AASHTO structural guidelines for roadway applications and the American National Standards Institute requirements for vibrations.
10. Streetlight pole height shall be measured from the ground to the top of the streetlight pole.
11. All replacement streetlight pole heights shall be consistent with those of existing Village-owned streetlights.
12. The small wireless facility components shall be sized appropriately to the scale of the streetlight pole.
13. Where required by district, the replacement pole shall include internally integrated wireless components. A decorative transition shall be installed over the equipment enclosure upper bolts, or a decorative base cover shall be installed to match the equipment enclosure size. All hardware connections shall be hidden from view. Each street light pole component shall be architecturally compatible to create a cohesive aesthetic.
14. Replacement streetlight poles shall continue to be owned by the Village.
15. The new streetlight pole shall have safety shutoff controls on the pole for the Village to be able to turn off the small wireless equipment for maintenance purposes.
16. Removed streetlight poles, luminaires, and equipment shall be salvaged and, at the discretion of the Village, returned to the Village or disposed of at the Applicant's sole cost and expense.

3.3 ComEd-Owned Poles

ComEd allows 3rd party attachments to their poles. ComEd reviews each request to determine if it is possible to accommodate each attachment. A map of existing ComEd-owned poles can be found in **Appendix B** of this document and pictures of ComEd-owned poles can be found in **Appendix D**.

ComEd's process includes:

1. Submission of an application that includes drawings, and specific equipment type and model numbers for the antennas and all other wireless equipment associated with the Small Wireless Facility.

2. Applications will be reviewed and processed by both the ComEd New Business Department and the ComEd Real Estate Department.

3. Re-work may be required to accommodate requests, where a replacement pole may be needed. If a replacement pole is required, then the Applicant shall be responsible for all costs related to the replacement of an existing pole. The application cannot move forward until the Applicant agrees to fund the replacement of the existing pole.

4. A Village permit is required if the wireless support structure is going to be located in the Village's ROW.

5. To initiate this process, applicants should call 866-NEW-ELEC.

3.4 Traffic Signal Poles

Small Wireless Facilities may be installed on Village-owned, Will County-owned, or IDOT-owned traffic signal poles. This assumes that the traffic signal pole is not expected to be used for emergency communications or tolling equipment. No Small Wireless Facility shall be attached to any existing traffic signal pole unless the existing traffic signal pole was specifically designed to support small wireless equipment. In all other cases, the traffic signal pole and mast arm shall be replaced with a traffic signal pole and mast arm designed to accommodate the small wireless equipment in addition to the required traffic signal and street light equipment. The Applicant shall provide temporary traffic control during the removal and replacement of the traffic signal pole. An Applicant may be limited to one traffic signal pole within 300 feet. For example, at a signalized intersection there are generally four (4) signal poles. A single applicant may be approved for only one (1) of the four (4) signal poles. Other applicants may be approved for the other signal poles.

The Village has been advised by its pole manufacturers that any additions or modifications to Village-owned traffic signal poles would void the warranty. If a wireless provider decides not to replace a Village-owned traffic signal pole, then the wireless provider shall assume all costs incurred by the Village due to the warranty no longer being honored by the manufacturer.

A map of existing Village-owned, Will County-owned, and IDOT-owned traffic signal poles can be found in **Appendix C** of this document, and pictures of traffic signal poles can be found in **Appendix E** of these Standards.

1. New traffic signal poles, mast arms, and luminaires shall match the style, shape, and color of existing traffic signal poles at the intersection. The pole shall be designed and located in accordance with all requirements as specified by the standards and specifications of the traffic signal owner, these Standards, and current edition of the American Association of State Highway and Transportation Officials (AASHTO) LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, and approved by the traffic signal owner prior to submittal of the application.

2. Foundations shall be designed to meet the structural requirements of the pole. A foundation detail or drawing stamped by a professional structural engineer shall be submitted to the traffic signal owner and the Village.

3. The Applicant shall provide their own power and fiber (or other communications medium) to their Small Wireless Facility attached to the traffic signal pole.

4. Support facilities and enclosures, backup power supply, and electric meters shall be in existing above-ground cabinets or placed in a flush-to-grade underground equipment vault unless otherwise demonstrated to the satisfaction of the traffic signal owner and the Village to not be feasible.

5. Antennas shall be located inside an enclosure of no more than six (6) cubic feet. Post-top "cantenna" style antennas shall be used.

Example: 4G (upper section) & 5G (lower section) Cantenna
(Source: City of Lakewood, Colorado)

6. All wiring shall be concealed inside the signal pole within a channel separate from the traffic signal owner's wiring within the pole.

7. In cases of wood signal poles, the Applicant(s) shall replace the wood pole with an acceptable metal signal pole meeting all of the traffic signal owner and Village requirements as specified by the standards and specifications of the traffic signal owner and these Standards.

8. Due to the function of the pole as an official traffic control device, the current traffic signal owner shall be the owner of the new traffic signal pole, mast arm, traffic signal equipment, and luminaire upon completion of construction. The Applicant shall retain ownership of any small wireless equipment.

9. The new traffic signal pole shall have safety shutoff controls on the pole for the traffic signal owner and the Village to be able to turn off the small wireless equipment for maintenance purposes.

10. Removed traffic signal poles, mast arms, luminaires, and equipment shall be salvaged and returned to the traffic signal owner.

3.5 Installation of New Poles

Where technically feasible and financially reasonable, the Village requires that every new wireless support structure shall comply with the following standards:

1. If a replacement pole design is not possible, then a new wireless support structure shall be designed to minimize the visual and aesthetic impact of the new vertical element and associated small wireless facilities upon the surrounding area and shall blend in with the surrounding streetscape with minimal visual impact. New wireless support structures shall be constructed of a specific material that will enhance the stealth and concealment of the structure. New poles shall be designed as Monopoles, consistent with the Village's preferred pole design concepts detailed in **Appendix A** of this document.

2. All new wireless support structures are required to be breakaway, as long as the breakaway pole(s) requested is under 992 pounds as described in Section 12-6 of the current edition of AASHTO's *LRFD Structural Supports for Highway Signs, Luminaires, and Traffic Signal* manual.

3. New wireless support structures shall match the design, type, material, and color of existing utility poles, including streetlight poles, within the immediate area, except as otherwise approved by the Village.

4. New wireless support structures shall be equal distance from other utility poles based upon the average distance between existing utility poles within the designated area. If a new wireless support structure cannot be located the average distance from other utility poles, a new wireless support

structure may be approved if such wireless support structure is designed as a stealth pole.

5. The centerline of a new wireless support structure shall be in alignment with existing utility poles where present, or with street or parkway trees along the same side of the right-of-way.

6. New wireless support structures shall not obscure vision from driveways and entryways.

7. New wireless support structures shall be located a minimum of thirty (30) feet away from trees to keep the structures outside of the canopy line and prevent disturbance within the critical root zone.

8. The outside diameter of any new wireless support structure shall not exceed the diameter of existing utility poles located within three hundred (300) feet of the location of the new wireless support structure. The Village recognizes that larger poles may be required to allow for the internal integration of equipment as discussed in these Standards and Chapter 94, Article VII of Village Code.

9. New wireless support structures shall not exceed the heights as authorized by Section 94-404(h), of Chapter 94, Article VII of Village Code.

10. New poles shall be designed as Monopoles, consistent with the Village's preferred pole design concepts detailed in **Appendix A** of this document.

11. All new wireless support structures shall be supported with a reinforced concrete foundation designed, stamped, sealed, and signed by a professional structural engineer licensed in the State of Illinois, and subject to the Village's approval.

12. All anchor bolts shall be concealed from public view, with an appropriate pole boot or cover powder-coated to match the wireless support structure color.

Example: Pole boot cover
(Source: LightMart.com, an Energy Light, Inc. company)

13. For all new pole installations, the Village strongly prefers that a second applicant for the same general space be allowed by the first applicant to install a new pole capable of collocating both applicants internally in the pole. Additionally, the first applicant shall allow the subsequent applicant to replace the pole with a multi-cell pole. The original pole shall be made available to the first applicant to salvage. If not retrieved in thirty (30) days, the pole shall be declared abandoned and disposed.

4. Pole Siting Requirements

4.1 Location

The Village reserves the right to approve all proposed pole locations, and to recommend modifications to those locations as necessary for future Village needs as defined in state code. If the Village recommends a modification to the location, it will work with the Applicant to find a location that is suitable for the Village, and that is technically feasible and financially reasonable for the Applicant.

Wireless communication facilities shall not be located on historically or architecturally significant structures unless visually and architecturally integrated with the structure and shall not interfere with prominent vistas or significant public view corridors. Where technically feasible and financially reasonable, the Village requires that new small wireless poles not be located closer than three hundred (300) feet to other poles containing a Small Wireless Facility from the same provider without Village approval.

Where technically feasible and financially reasonable, the Village strongly prefers the following order of preference regarding the locations of Small Wireless Facilities within the Village (Most Preferred to Least Preferred):

1. Co-located on an existing Village-owned streetlight.
2. Co-located on an existing ComEd-owned pole.
3. Co-located on an existing Village-owned traffic signal.
4. Co-located on an existing Will County-owned traffic signal.
5. Co-located on an existing IDOT-owned traffic signal.
6. New stand-alone facility in a new location in the right of way – this may or may not include a luminaire.
7. New stand-alone facility in a new location on private property – this may or may not include a luminaire.

Poles shall be located wherever possible on property lines and not in sidewalks and shall not obscure vision from driveways and entryways. Wherever possible the poles shall be located to take advantage of existing screening.

All equipment located within the public ROW or on private property shall be located such that it meets ADA requirements and does not obstruct, impede, or hinder usual pedestrian or vehicular travel.

Where technically feasible and financially reasonable, the Village strongly prefers that in general, Small Wireless Facilities be located in zoning districts, as defined in Chapter 106, Article III of Village Code, as follows (Most Preferred to Least Preferred):

1. Limited Industrial District (I-1).
2. C-3 and C-7 Commercial Districts and the Hospital District (H).
3. Other Commercial Districts including C-1, C-2, C-4, C-5, and C-6.
4. Residential Districts including R, R-1, R-1A, R-2, R-2A, R-3, R-4, R-5, R-6, E, and the Agricultural District (Ag).

Small Wireless Facilities are Permitted Uses in the Hospital District (H), all Commercial Districts (C-1, C-2, C-3, C-4, C-5, C-6, and C-7), and the Limited Industrial District (I-1). Small Wireless Facilities can be

approved as Special Uses in all Residential Districts (R, R-1, R-1A, R-2, R-2A, R-3, R-4, R-5, R-6, and E) and the Agricultural District (Ag).

4.1.1 Limited Industrial District

Small Wireless Facilities are permitted to be placed on property within the Limited Industrial District (I-1). Small Wireless Facilities in this zoning district are subject to compliance with the Public Act 100-0585, the FCC Order, and to administrative staff review for each site to ensure compliance with the Village's Small Wireless Facilities Ordinance (Chapter 94, Article VII of Village Code) and the general design guidelines in these Standards, as well as the following additional zone-specific design standards:

1. Where technically feasible and financially reasonable, the Village requires that the Wireless Provider comply with design standards approved as part of the development of the property and provide reasonable stealth concealment.

2. External attachments, including antennas, are allowed in the Limited Industrial District as long as all other requirements are met. Where possible, the Village encourages the use of stealth technology to create improved aesthetics.

3. Where technically feasible and financially reasonable, the Village requires that ground mounted enclosures, including backup power supply, and electric meters be concealed within the pole, in existing above-ground cabinets, or placed in a flush-to-grade underground equipment vault. The Village recognizes that existing infrastructure, etc. may make undergrounding ground equipment infeasible. When these situations arise, ground equipment shall be placed in new, landscaped above ground pedestals or enclosures. When a new above-ground cabinet is required, the Applicant is required to ensure that ground equipment meets the design criteria described in Section *4.3 Related Ground Equipment* in these Standards to minimize the aesthetic and safety impacts of supporting equipment on the public.

4. In order to prevent visual obstruction, Small Wireless Facilities shall obtain power from underground lines buried in conduits. Fiber connections shall also be provided from underground sources. No power and fiber cables servicing Small Wireless Facilities shall be provided from above ground sources.

5. Photographic "before and after" simulations of the proposed location of the Small Wireless Facility shall be provided to the Village as part of the permit application.

4.1.2 Commercial Districts and the Hospital District

Small Wireless Facilities are permitted to be placed on property within Commercial Districts (C-1, C-2, C-3, C-4, C-5, C-6, and C-7) and within the Hospital District (H). Small Wireless Facilities in these zoning districts are subject to compliance with the Public Act 100-0585, the FCC Order, and to administrative staff review for each site to ensure compliance with the Village's Small Wireless Facilities Ordinance (Chapter 94, Article VII of Village Code) and the general design guidelines in these Standards, as well as the following additional zone-specific design standards:

1. Where technically feasible and financially reasonable, the Village requires that Small Wireless Facilities be collocated on an existing utility pole, building or structure. Where technically feasible and financially reasonable, the Village requires that the Wireless Provider comply with design standards approved as part of the development of the property and provide reasonable stealth concealment.

2. Small Wireless Facilities located in these districts shall include concealment or stealth efforts, as follows:

a. Concealment efforts shall use fiberglass, plastic or other synthetic materials, and replacement of streetlights with modular combination streetlight and antenna units. Exposed small cells on utility poles or galvanized steel macrocell sites are not allowed.

b. Where technically feasible and financially reasonable, the Village requires that ground mounted enclosures, including backup power supply, and electric meters be concealed within the pole, in existing above-ground cabinets, or placed in a flush-to-grade underground equipment vault. The Village recognizes that existing infrastructure, etc. may make undergrounding ground equipment infeasible. When these situations arise, ground equipment shall be placed in new, landscaped above ground pedestals or enclosures. When a new above-ground cabinet is required, the Applicant is required to ensure that ground equipment meets the design criteria described in Section *4.3 Related Ground Equipment* in these Standards to minimize the aesthetic and safety impacts of supporting equipment on the public.

c. In order to prevent visual obstruction, Small Wireless Facilities shall obtain power from underground lines buried in conduits. Fiber connections shall also be provided from underground sources. No power and fiber cables servicing Small Wireless Facilities shall be provided from above ground sources.

d. Photographic "before and after" simulations of the proposed location of the Small Wireless Facility demonstrating concealment efforts shall be provided to the Village as part of the permit application and shall be modified according to reasonable requests from the Village to better blend with the surrounding area.

4.1.3 Residential Districts and the Agricultural District

Small Wireless Facilities can be approved as Special Uses on property within all Residential Districts (R, R-1, R-1A, R-2, R-2A, R-3, R-4, R-5, R-6, and E) and within the Agricultural District (Ag). Small Wireless Facilities shall be permitted in these districts only if specifically authorized by the Village Board as allowed in Chapter 106, Article II of Village Code.

If permitted, Small Wireless Facilities in these zoning districts are subject to compliance with the Public Act 100-0585, the FCC Order, and to administrative staff review for each site to ensure compliance with the Village's Small Wireless Facilities Ordinance (Chapter 94, Article VII of Village Code) and the general design guidelines in these Standards, as well as the following additional zone-specific design standards:

1. Where technically feasible and financially reasonable, the Village requires that within these zoned areas, new Wireless Support Structure installations be located where the shared property line between two parcels intersect the right-of-way whenever possible, unless an unsafe condition, cluttered appearance, or other violation of these Standards will result.

2. Modification of existing streetlights is preferred, if the streetlights can be modified to accommodate one or more small cells. Where technically feasible and financially reasonable, the Village requires Wireless Providers to place the Small Wireless Facilities on new poles or to collocate on an existing street light pole.

3. Small Wireless Facilities located in the Right-of-Way or on private property in all Residential Districts and the Agricultural District shall include concealment or stealth efforts, as follows:

   a. Concealment efforts shall use fiberglass, plastic or other synthetic materials, and replacement of streetlights with modular combination streetlight and antenna units. Exposed small cells on utility poles or galvanized steel macrocell sites are not allowed.

   b. Where technically feasible and financially reasonable, the Village requires that ground mounted enclosures, including backup power supply, and electric meters be concealed within

the pole, in existing above-ground cabinets, or placed in a flush-to-grade underground equipment vault. The Village recognizes that existing infrastructure, etc. may make undergrounding ground equipment infeasible. When these situations arise, ground equipment shall be placed in new, landscaped above ground pedestals or enclosures. When a new above-ground cabinet is required, the Applicant is required to ensure that ground equipment meets the design criteria described in Section *4.3 Related Ground Equipment* in these Standards to minimize the aesthetic and safety impacts of supporting equipment on the public.

c. In order to prevent visual obstruction, Small Wireless Facilities shall obtain power from underground lines buried in conduits. Fiber connections shall also be provided from underground sources. No power and fiber cables servicing Small Wireless Facilities shall be provided from aboveground sources.

d. Photographic "before and after" simulations of the proposed location of the Small Wireless Facility demonstrating concealment efforts shall be provided to the Village as part of the permit application and shall be modified according to reasonable requests from the Village to better blend with the surrounding area.

4.2 Noise

The maximum allowable noise emitted by a Small Wireless Facility shall be in compliance with the Village's noise performance standards that can be found in Section 106-183 of Village Code.

4.3 Related Ground Equipment

In certain circumstances, the Village recognizes that existing infrastructure, etc. may make undergrounding ground equipment infeasible. When these situations arise, the Applicant is required to ensure that ground equipment meets the following design criteria to minimize the aesthetic and safety impacts of supporting equipment on the public.

1. Ground equipment near street corners and intersections: Ground equipment shall be minimal and the least intrusive. To minimize any obstruction, impediment, or hindrance to the usual travel or public safety on a ROW, the maximum line of sight required to add to safe travel of vehicular and pedestrian traffic and in order to maximize that line of sight at street corners and intersections and to minimize hazards at those locations, ground equipment shall not be installed within forty (40) feet of any intersection.

2. Ground equipment near other obstructions: Ground equipment shall not be located less than ten (10) feet from any manhole, vault, valve box, fire hydrant, utility pipe or parkway tree.

3. Ground equipment near public parks. For the safety of public park patrons, particularly small children, and to allow full line of sights near public park property, the Wireless Provider shall not install ground equipment in a ROW that is within a public park or within 250 feet of the boundary line of a public park, unless approved by the Village in writing.

4. Minimize ground equipment density: To enhance the public safety requirements of line of sight of pedestrians, particularly small children, the Village's designee may deny a request for a proposed location if the Wireless Provider installs Small Wireless Facility ground equipment where existing ground equipment within a one hundred (100) foot radius already occupies a footprint of a total of twenty-five 25 square feet or more. The aggregate measurement shall include all foundation pads, vaults, or other utility appurtenances. Additional landscaping and/or fencing shall be required to help mitigate the visual effects of the installation of any ground-mounted equipment as determined by the Village.

4.4 Landscape Standards

Wireless Providers shall comply with the landscape standards that are set forth below:

1. Plan Requirements:

   The landscape plan shall be drawn at a scale not smaller than one (1) inch equals ten (10) feet. All landscape plans shall include the following information:

   - North arrow, scale, date of plan, and any subsequent revisions.
   - The location of all existing and proposed structures, parking lots, roadways and rights-of-way, sidewalks, ground signs, freestanding electrical equipment, light fixtures, fire hydrants, surface utility structures, existing adjacent landscaping, and other freestanding structural features as necessary to determine proper placement of landscape screening.
   - Limits of sight-line triangles to ensure proposed plant material does not impede sightlines and abides by requirements set forth.
   - The location, quantity, size, and both scientific and common names of all proposed plant material.
   - Installation detail for perennial plant installation indicating typical spacing, soil amendments and mulch application.
   - Symbols representing proposed plant material drawn to a scale showing two-thirds mature size and labeled as to quantity and type.

2. Required Landscaping:

   The following shall establish standards for the landscape improvements required to be installed as part of Small Wireless Facility installations.

   - A minimum planting area of three (3) feet extending from the perimeter of the ground equipment concrete pad shall be provided. In the event a three (3)-foot-wide planting bed is not possible along a portion of the ground equipment perimeter due to obstructions, the area shall be compensated for in an area less restrictive immediately surrounding the ground equipment. Every effort shall be made to effectively screen the ground equipment from all viewing angles.
   - A variety of ornamental grasses shall be used to effectively screen the ground equipment, without obstructing sightlines at intersections.
   - Shrubs and Trees shall not be utilized for screening.
   - All surrounding landscaping and turf areas shall be restored to original condition.

Example: Landscaping for ground equipment
(Source: Village of Sugar Grove, Illinois)

3. Standards for Plant Materials and Planting Guidelines:

   The following guidelines shall be considered in reviewing design and implementation of landscape plans.

- The quality and size of plant materials selected shall comply with the latest edition of the American Standards of Nursery Stock, published by the American Association of Nurserymen.
- Plant material shall be healthy, free of insects and diseases.
- The use of stone, rock or gravel shall not be used as ground cover within any landscaped area in the right-of-way.
- Minimum sizes for plant materials at time of installation shall be equal to a #1 container.
- A spade cut edge to the depth of three (3) inches shall be provided around the perimeter of the planting bed.
- A three (3)-inch layer of compost shall be applied to the plant bed area and rototilled to a minimum depth of eight (8) inches until soil is in a loose and friable state. All rocks and debris shall be removed and disposed of prior to plant installation.
- A three (3)-inch layer of shredded hardwood mulch shall be applied to planting bed after plant installation.
- All plant material shall have a one (1)-year guarantee from the time of planting and shall be replaced by the Applicant should it die within that period.

4.5 Stealth and Concealment Requirements

Wireless Providers shall comply with the design and construction standards that are generally applicable to utility installations in the public right-of-way, as set forth in Chapter 94, Article VII of Village Code, as well as these Standards, any other written design standards for decorative utility poles, or reasonable stealth, concealment, and aesthetic requirements that are otherwise identified by the Village in an ordinance, written policy adopted by the Village Board, in the Village's comprehensive plan, or in another written design plan that applies to other occupiers of the rights-of-way. In addition to the design requirements found in Section 3 of these Standards, where technically feasible and financially reasonable, the Village requires that providers follow the criteria for stealth found below:

1. The use of stealth technology in the location and construction of Small Wireless Facilities is required. Stealth technology means using the least visually and physically intrusive design and equipment that is not technologically or commercially impractical under the facts and circumstances; to employ methods that blend into surroundings and not be visible; and to minimize adverse aesthetic and visual impacts on the right-of-way, property, building and/or other facilities adjacent to, surrounding and in generally the same area as the requested location of such Small Wireless Facilities.

2. Small Wireless Facilities, including but not limited to antennas, equipment enclosures, mounting brackets and hardware, mounting posts, cables, and shrouds, shall be of a color that is identical to the utility pole or of a neutral color compatible with the color of the utility pole and any surrounding elements so as to camouflage or conceal their appearance, create consistency among right-of-way infrastructure, and to make such Small Wireless Facilities as unobtrusive as possible. The Village may approve compatible color schemes for antennas and small wireless facilities.

Example: Stealth Small Wireless Facilities

3. Mechanical equipment and devices shall be concealed underground or mounted within a concealment box designed as a decorative pole base except as noted and allowed for in Section *4.3 Related Ground Equipment* in these Standards.
4. Small Wireless Facilities shall be located and oriented in such a way as to minimize view blockage.
5. The Wireless Provider shall use the smallest suitable wireless facilities currently in industry use, regardless of location, for the particular application.
6. Small Wireless Facilities shall not be artificially lighted or marked, except as required by law.
7. Small Wireless Facilities, other than top-mounted antennas, shall be mounted on the side of the utility pole or wireless support structure opposite the direction of vehicular traffic along the same side of the right-of-way or as otherwise directed by the Village.
8. Alternative measures for concealment may be proposed by the Wireless Provider and approved by the Village, if the Village determines that the optional measures will be at least as effective in concealing the Small Wireless Facilities as the measures required above.

5. Safety Requirements

Prevention of failures and accidents. Any Person who owns a Small Wireless Facility and/or Wireless Support Structure sited in the Village shall at all times employ ordinary and reasonable care and install and maintain using industry standard technology for preventing failures and accidents which are likely to cause damage, injury, or nuisance to the public.

Compliance with fire safety regulations. Small Wireless Facilities, wires, cables, fixtures, and other equipment shall be installed and maintained in substantial compliance with the requirements of the National Electric Code, state and local regulations, and in such manner that will not interfere with the use of other property.

Compliance with FCC regulations. Small Wireless Facilities must not result in human exposure to radio frequency radiation in excess of applicable safety standards specified in 47 CFR Rule 1.1307(b), as amended. As specified in Section 94-391(f) of Chapter 94, Article VII of Village Code, permit requests shall include a complete site-specific Non-Ionizing Electromagnetic Radiation (NIER) Report certified by a licensed Professional Engineer in the State of Illinois. In addition, as specified in Section 94-404(e) of Chapter 94, Article VII of Village Code, after transmitter and antenna system optimization, but prior to unattended operations of the facility, the wireless provider or its representative must conduct on-site post-installation RF emissions testing to demonstrate actual compliance with the FCC OET Bulletin 65 RF emissions safety rules for general population/uncontrolled RF exposure in all sectors. This testing shall also occur when a Wireless Provider replaces or adds a new radio transceiver or antennas to an existing Small Wireless Facility.

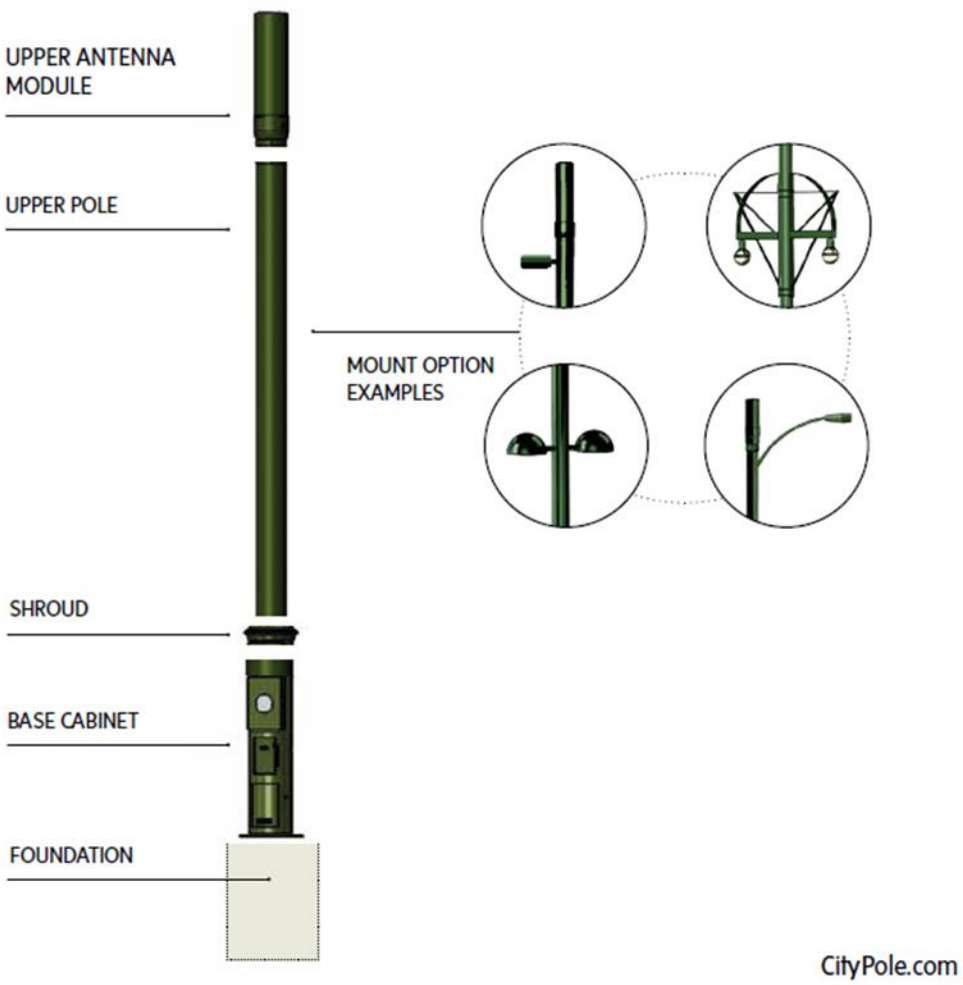
Changes in state or federal standards and regulations. If state or federal standards and regulations are amended, the owners of the Small Wireless Facilities and/or Wireless Support Structures governed by this document shall bring any facilities and/or structures into compliance with the revised standards and regulations within six (6) months of the effective date of the standards and regulations, unless a different compliance schedule is mandated by the regulating agency. Failure to bring Small Wireless Facilities and/or Wireless Support Structures into compliance with any revised standards and regulations shall constitute grounds for removal by the Village at the Wireless Provider's expense.

Compliance with engineering and safety codes and standards. All permitting decisions exercised by the Village are subject to all applicable engineering and safety codes and standards.

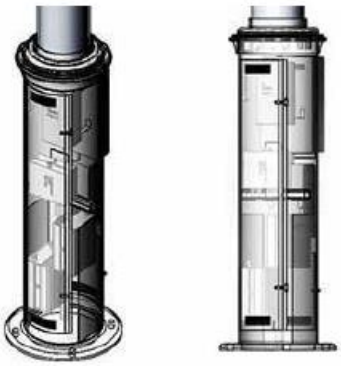
Appendix A: Design Concepts

The following diagrams and information were provided by, and used with the permission of, Comptek Technologies/CityPole®. The inclusion of this information in no way indicates that the Village endorses CityPole or its products. Self-contained poles from other manufacturers will be considered as long as the structure meets the other standards outlined in the Village's Small Wireless Facilities Ordinance (Chapter 94, Article VII of Village Code) and these Standards.

A.1 Small Wireless Facility Pole

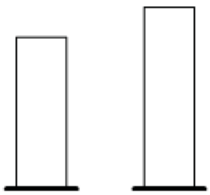


A.2 Base Cabinet



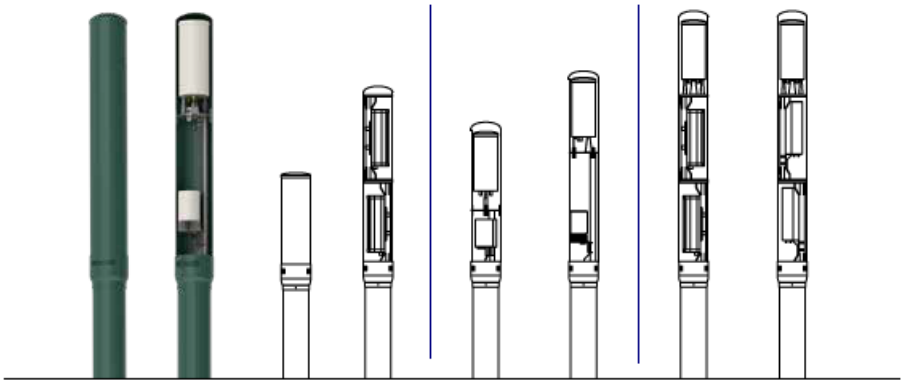
Integrated wireless equipment in base cabinet.

The base cabinet can be configured with a wide range of electrical disconnects to meet local building codes and preferences.



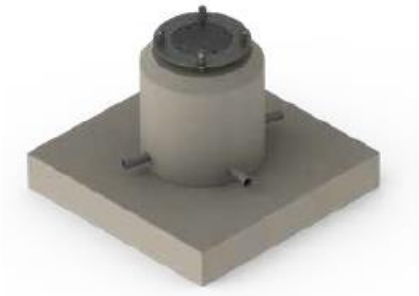
The base cabinet height can be chosen to house future equipment and complement local cityscapes.

A.3 Upper Antenna Module



The upper antenna module can be easily reconfigured for a number of technology generations. These includes multiple configurations of cellular technology, various backhaul and low power options such as WiFi, Bluetooth, or Zigbee, and as many as three different technology generations.

A.4 Foundation Selection



CityPole® pre-cast foundation speeds work in the Right of Way.

Caisson and custom designs are available.

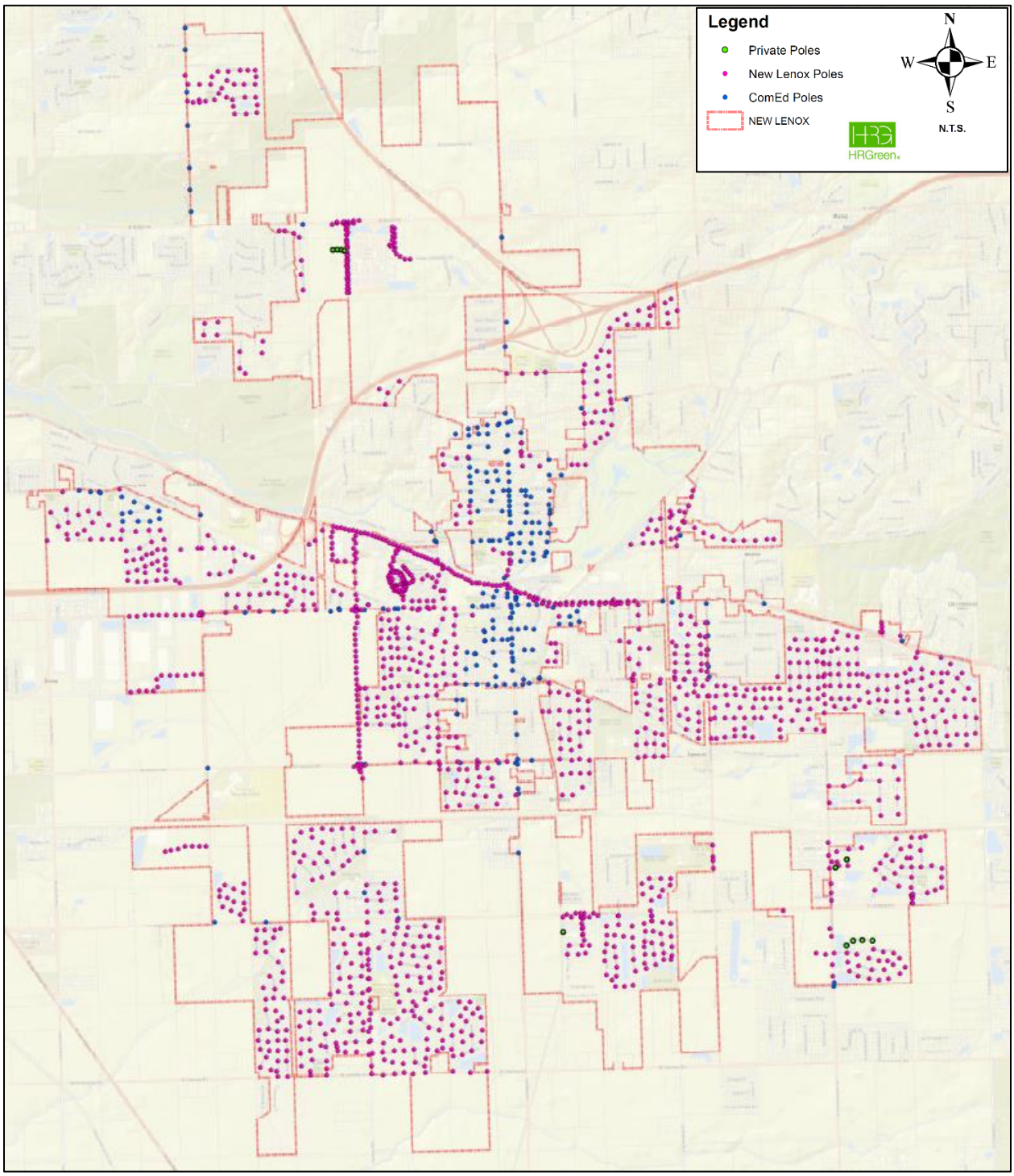
Cast in place foundations are acceptable, as long as the foundation meets accepted guidelines for structural integrity required by the attached equipment.

A.5 Lighting Accessories

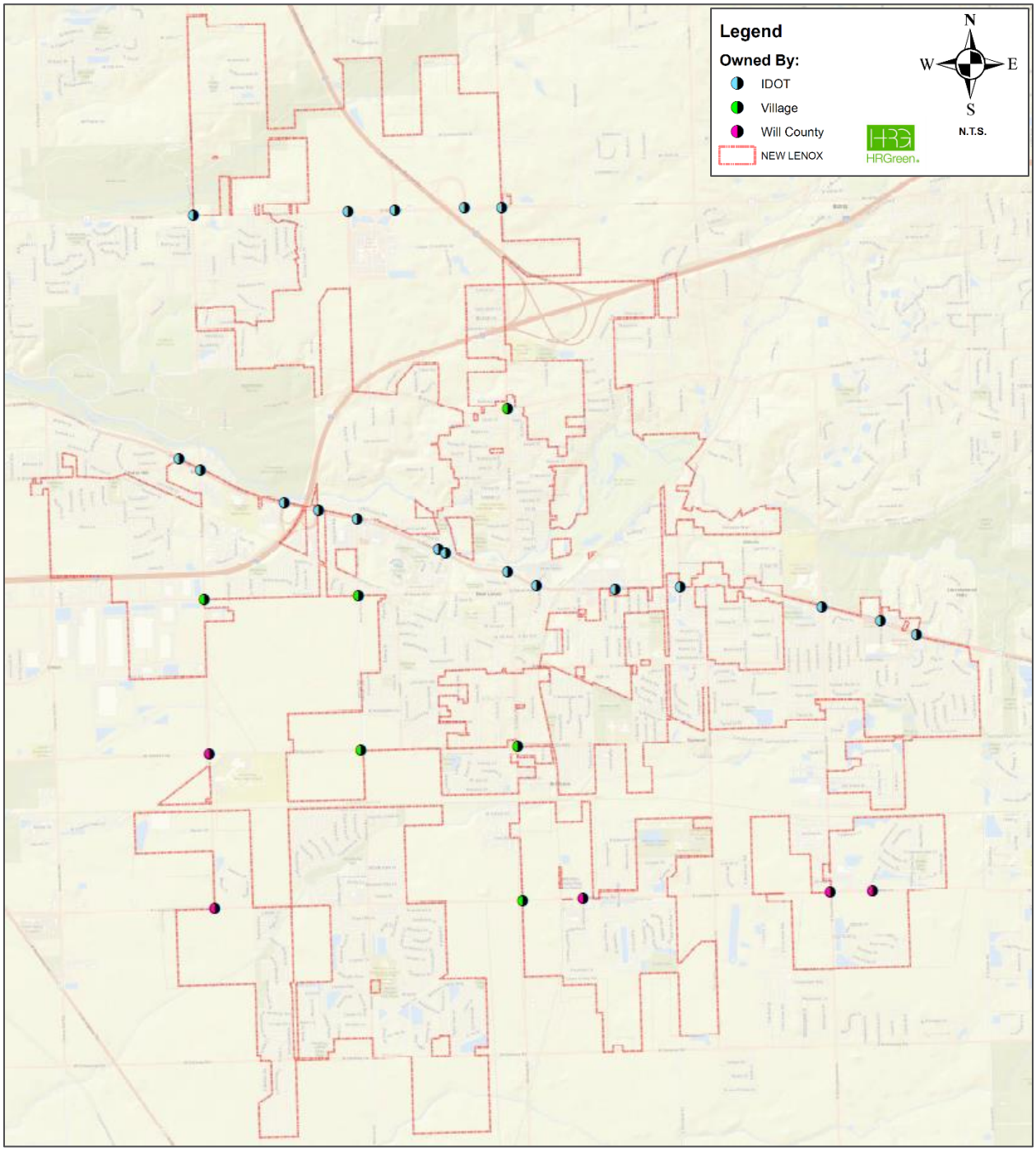
A.6 Product Selection Matrix

		Standard CityPole® System Offering	Custom Options
Overall Pole Height		25', 30', 35', and 40' Above Ground Level (AGL)	Available
Color Choices		9 Color Choices are Standard (Custom colors are available.)	
Base Cabinet	Technology Types	1, 2, or 3 Different Technologies can be Accommodated	
	Dimension	Ground Diameter: 18", 20", 24" | Height: 60", Optional 72"	
	Flexible Mount System	FlexMount™ system to reconfigure internals for future equipment sizes.	
	Electrical Options	No Disconnect, Disconnect Only, or Meter and Disconnect.	
	Universal Meter Bay	Accommodates power meter and meter screen requirements as determined by local utility provider; fits meter boxes of all sizes.	
Upper Pole Antenna Module	Rad Center Location	Variable and Based on Pole Height and Other Options	
	Technology Types	1, 2, or 3 Different Technologies can be Accommodated	
	Auxiliary Bay Options	Low Power RF, Backhaul, and Wifi Options can be Accommodated. Multiple and reconfigurable 12¾ inch modules with FlexRail™ universal equipment track system optional.	
	Antenna Mount and Shroud Options	Separate and Secure Bays with RF Transparent Materials to accomodate 4G/5G Equipment. Omni and Panel Types available.	
Accessory Selection	Lighting	Pole can be ordered without lighting or with 1,2,3, or 4 lights.	
	Light Mounts	Standard Plate or Offset Arms depending on light selection	
	Lighting	Shoebox, Cobrahead, Cylindrical, Dome and Acorn	
	Other Technology	Gun Shot Sensors, Video, Weather, Traffic Mgmt	
	Lower Shroud Details	Multiple Options are Available	
	Base Plate Details	Multiple Options are Available	
	Foundation Options	Pre-cast, or Cast-In-Place	
Environmental Control	Thermal Management	All Equipment and Antenna Bays Monitored for Temperature. Passive and Forced Air Standard; Heat Pipe and Thermoelectrical Optional	
	Security	External and Internal Locking Features. CityPole® FlexSmart™ Control and Connectivity Optional.	
	Monitoring and Control	Industrial Controller with 24 Digital and 12 Analog Inputs with FlexSmart™	

Appendix B: Streetlight Map



Appendix C: Traffic Signal Map



Appendix D: Streetlight Pictures


Com Ed Pole


Commons-Deco Pole


Concrete Pole


Ellis Rd-Alum Pole


PD-Deco Pole


Resi-Deco Pole


Rt30 Metra-Deco Pole


Silver Cross-Double Deco Pole


Silver Cross-Single Deco Pole

Appendix E: Traffic Signal Pictures

E.1 Village-owned Traffic Signals

Cedar Rd-Illinois Hwy

Nelson-Haven Ave

Nelson-Illinois Hwy

Laraway Rd-Cedar Rd

E.2 County-owned Traffic Signals

Laraway Rd-Schoolhouse Rd

Laraway Rd-Tower

E.3 IDOT-owned Traffic Signals

Cedar Crossings-Rt 6

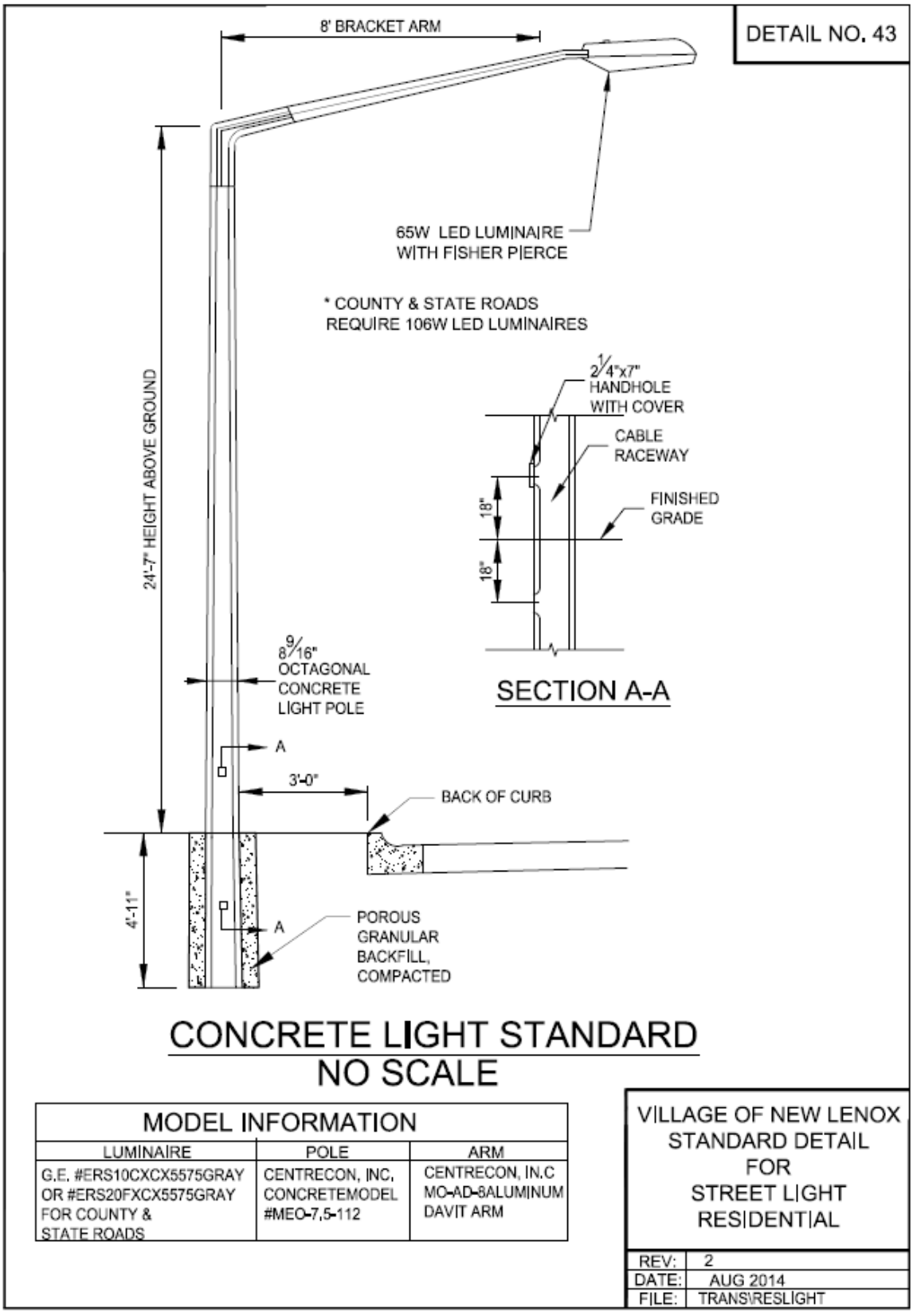
Cedar Rd-Rt 6

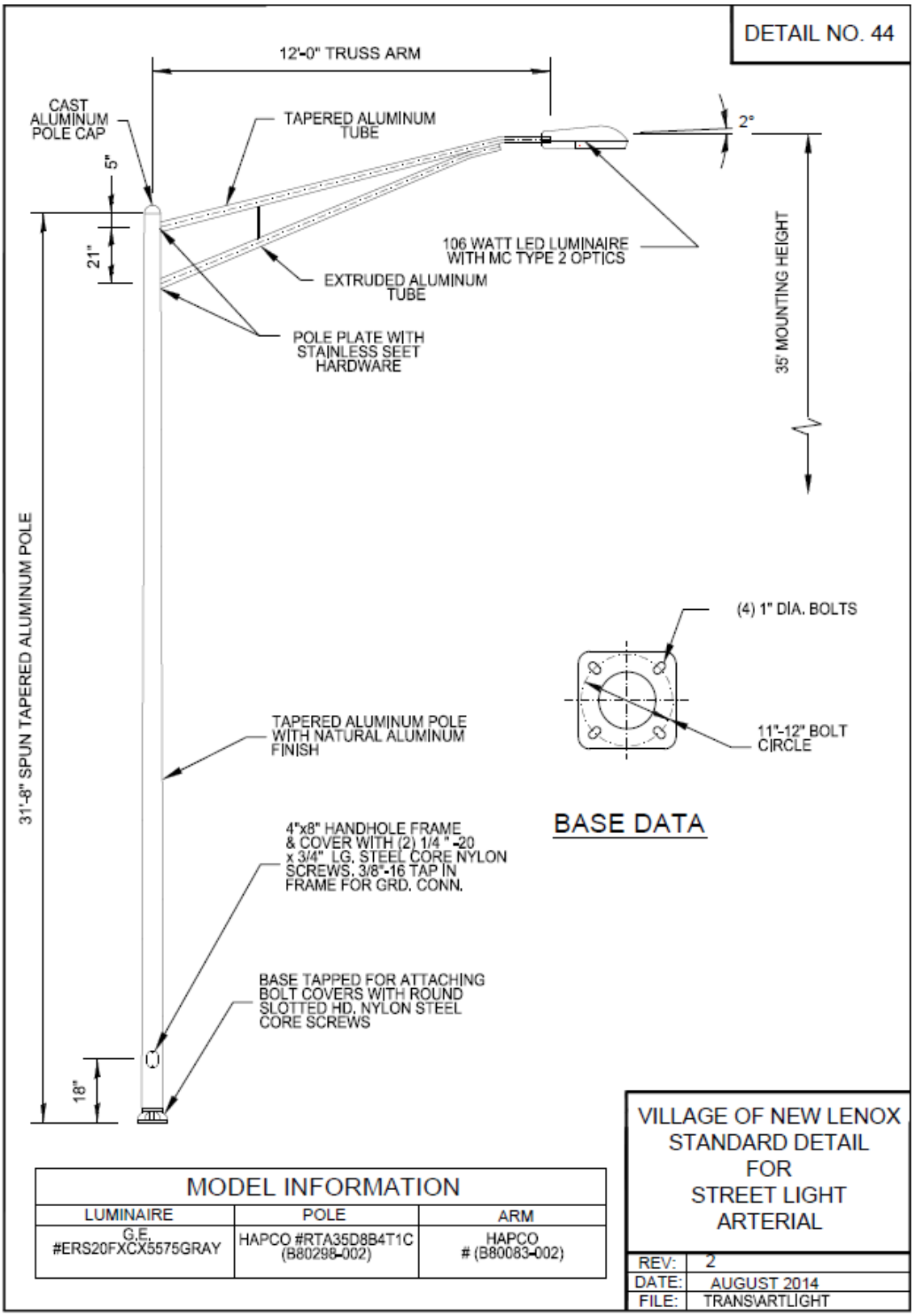
Gougar Rd-Rt 6

Cedar Rd-Rt 30

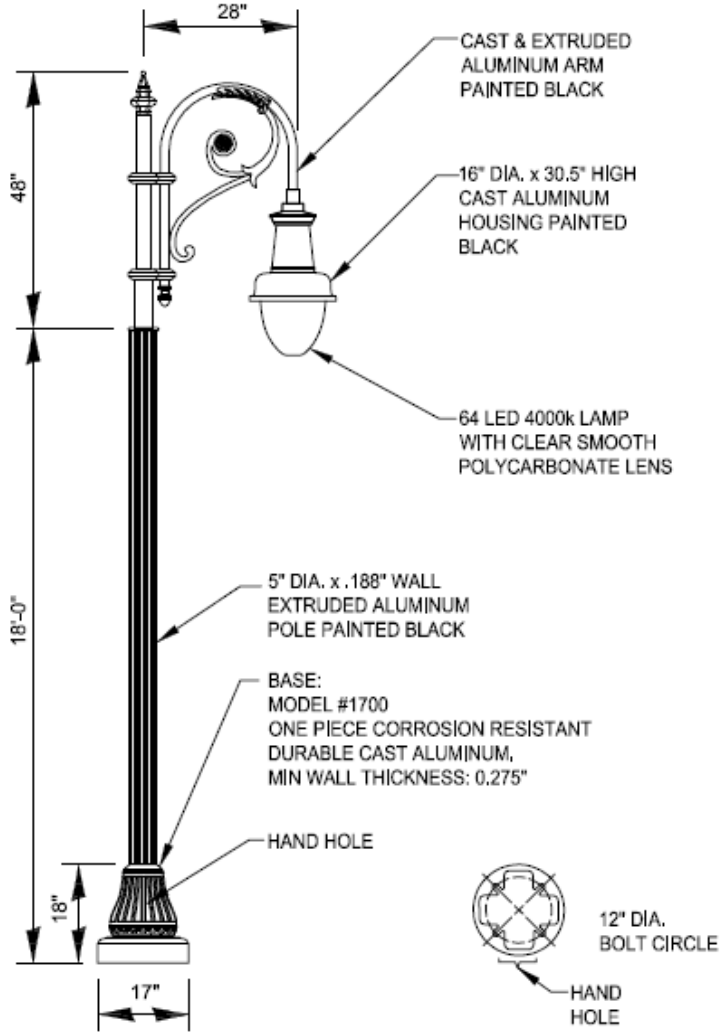
Rt 30-Nelson Rd

Appendix F: Streetlight Design and Construction Specifications




DETAIL NO. 44
12'-0" TRUSS ARM
CAST ALUMINUM POLE CAP
TAPERED ALUMINUM TUBE
2°
5"
21"
106 WATT LED LUMINAIRE WITH MC TYPE 2 OPTICS
EXTRUDED ALUMINUM TUBE
POLE PLATE WITH STAINLESS SEET HARDWARE
35' MOUNTING HEIGHT
31'-8" SPUN TAPERED ALUMINUM POLE
(4) 1" DIA. BOLTS
11"-12" BOLT CIRCLE
TAPERED ALUMINUM POLE WITH NATURAL ALUMINUM FINISH
BASE DATA
4"x8" HANDHOLE FRAME & COVER WITH (2) 1/4 " -20 x 3/4" LG. STEEL CORE NYLON SCREWS. 3/8"-16 TAP IN FRAME FOR GRD. CONN.
BASE TAPPED FOR ATTACHING BOLT COVERS WITH ROUND SLOTTED HD. NYLON STEEL CORE SCREWS
18"
MODEL INFORMATION
LUMINAIRE
G.E. #ERS20FXCX5575GRAY
POLE
HAPCO #RTA35D8B4T1C (B80298-002)
ARM
HAPCO # (B80083-002)
VILLAGE OF NEW LENOX
STANDARD DETAIL
FOR
STREET LIGHT
ARTERIAL
REV: 2
DATE: AUGUST 2014
FILE: TRANS\ARTLIGHT

DETAIL NO. 45



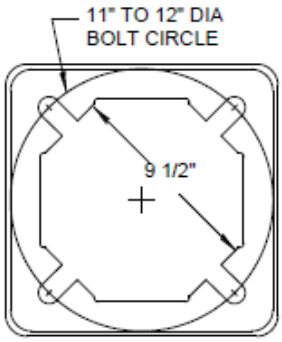
ORNAMENTAL LIGHT STANDARD

MODEL INFORMATION		
LUMINAIRE	POLE	ARM
SUN VALLEY LIGHTING LCLS20-GR-VLED-IV-64-350-NW-120	SUN VALLEY LIGHTING 17-1070 - HT: 18'-0"	SUN VALLEY LIGHTING XPM-1

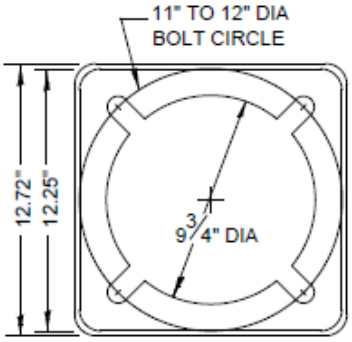
VILLAGE OF NEW LENOX
STANDARD DETAIL
FOR
STREET LIGHT
DECORATIVE

REV:	1
DATE:	AUG 2014
FILE:	TRANS\DECOLIGHT

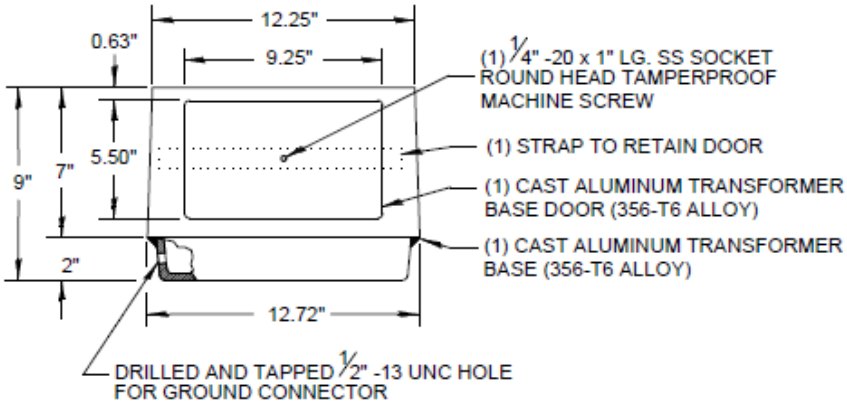
DETAIL NO. 46



TRANSFORMER BASE
BOTTOM VIEW
N.T.S.



TRANSFORMER BASE
TOP VIEW
N.T.S.



BREAKAWAY TRANSFORMER BASE DETAILS
N.T.S.

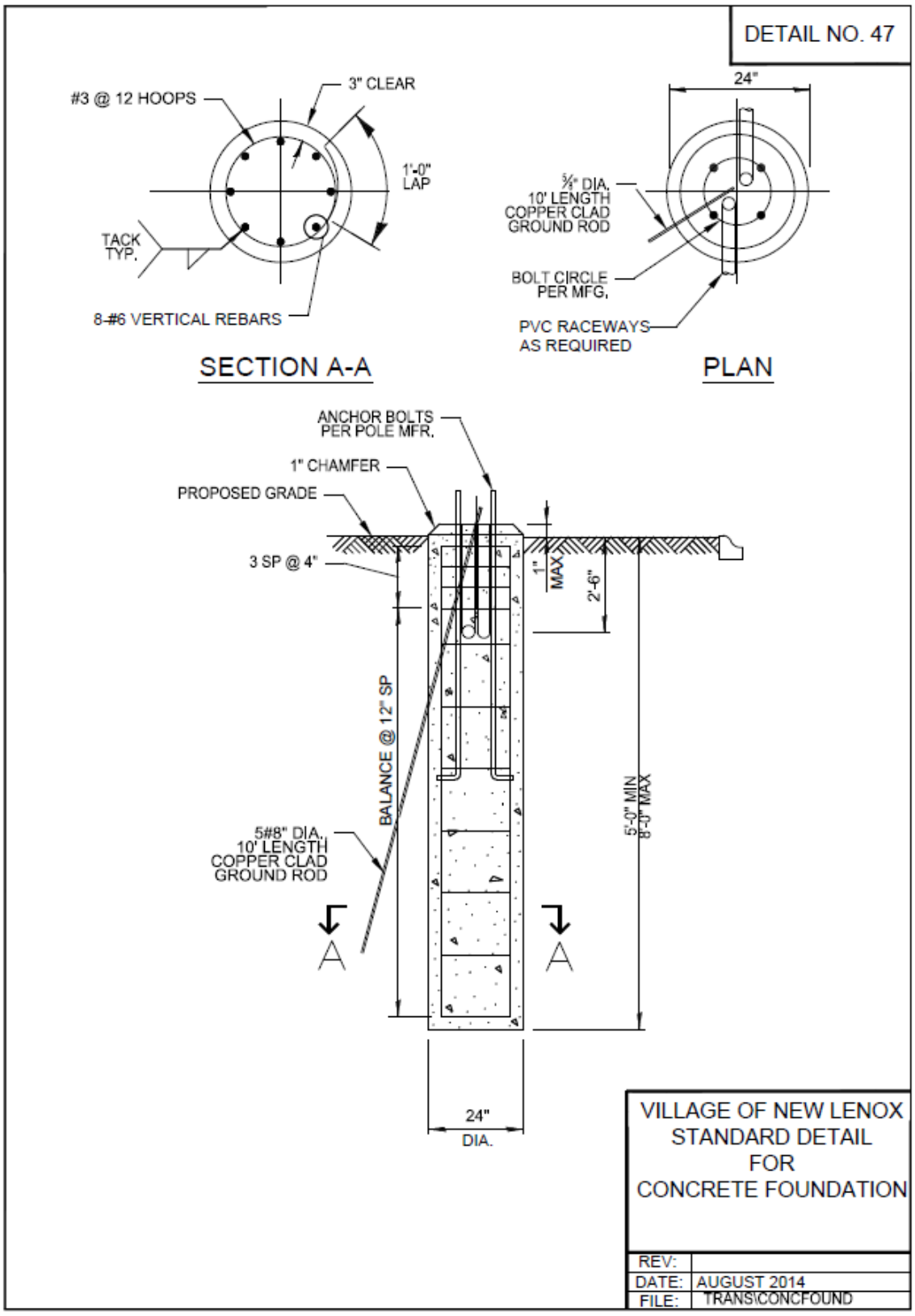
NOTES:
1. BEFORE INSTALLATION OF BREAKAWAY BASE, INSTALLER SHOULD CONSULT WITH AUTHORIZED DISTRIBUTOR REGARDING USERS PROPOSED APPLICATION, LOAD REQUIREMENTS AND INSTALLATION METHODS. FAILURES CAN RESULT FROM USERS MISAPPLICATION OR IMPROPER INSTALLATION. TO APPROACH OPTIMUM STATIC LOADS, USE THE LARGEST POSSIBLE BOLT CIRCLES AND USE STEEL WASHER SIZES' SPECIFIED BELOW. FOR 12" DIA. TOP & BOT.

BOLT CIRCLES USE 2 3/4" DIA. x 1/2 " TK. WASHER. TORQUE GROUND MOUNTING NUTS TO 150 FT.-LBS. SHIMS SHALL NOT BE USED.

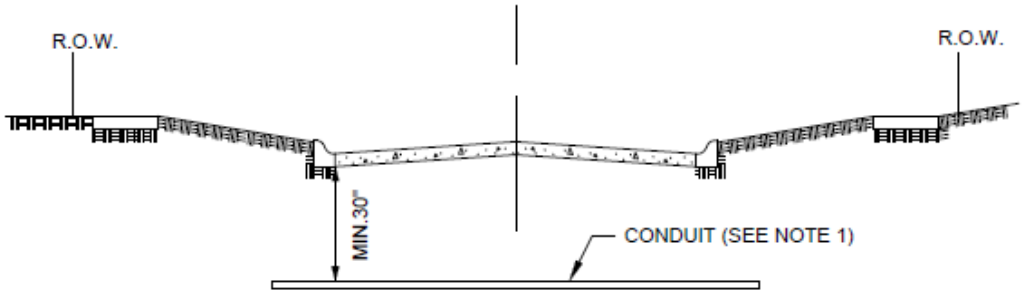
2. SHALL BE MODEL #TB6-9 AS MANUFACTURED BY AKRON FOUNDRY.

VILLAGE OF NEW LENOX
STANDARD DETAIL
FOR
BREAKAWAY BASE

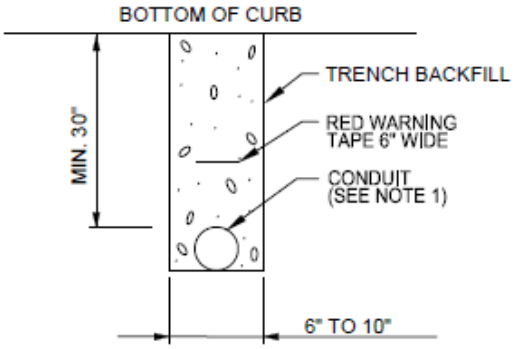
REV:	
DATE:	AUG 2014
FILE:	TRANS\BREAKBASE


DETAIL NO. 47
#3 @ 12 HOOPS
3" CLEAR
1'-0" LAP
TACK TYP.
8-#6 VERTICAL REBARS
SECTION A-A
24"
¾" DIA. 10' LENGTH COPPER CLAD GROUND ROD
BOLT CIRCLE PER MFG.
PVC RACEWAYS AS REQUIRED
PLAN
ANCHOR BOLTS PER POLE MFR.
1" CHAMFER
PROPOSED GRADE
3 SP @ 4"
1" MAX.
2'-6"
BALANCE @ 12" SP
5'-0" MIN 8'-0" MAX
5#8" DIA. 10' LENGTH COPPER CLAD GROUND ROD
A
A
24" DIA.
VILLAGE OF NEW LENOX
STANDARD DETAIL
FOR
CONCRETE FOUNDATION
REV:
DATE: AUGUST 2014
FILE: TRANS\CONCFOUND

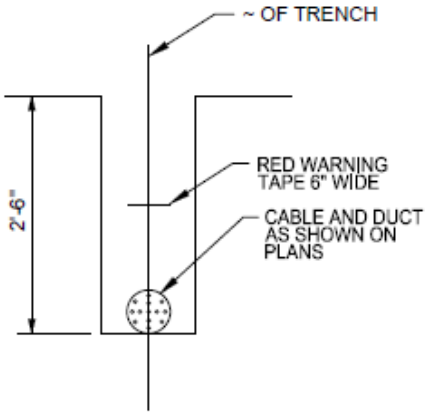
DETAIL NO. 48



PAVEMENT OR STREET CROSSING



ELECTRIC CONDUIT UNDER PAVEMENT



TRENCH CROSS SECTION

NOTES:

1. ELECTRICAL SERVICE CONDUIT SHALL BE 2" OR 2 1/2" RIGID GALVANIZED STEEL.
2. CONCRETE ENCASED SCH 80 PVC CONDUIT SLEEVES SHALL BE INSTALLED UNDER DRIVEWAY AND ROAD CROSSINGS FOR BRANCH CIRCUITS. SLEEVES SHALL EXTEND A MINIMUM OF 2 1/2 FEET BEYOND THE BACK OF CURB AND HAVE A MINIMUM OF 3" CONCRETE COVER.

VILLAGE OF HINSDALE
STANDARD DETAIL
FOR TYPICAL
CONDUIT INSTALLATION

REV:	
DATE:	AUG 2014
FILE:	TRANS\CONDUITINSTAL

DETAIL NO. 49

STREET LIGHTING NOTES

1. MATERIAL/PRODUCT CUT SHEETS SHALL BE SUBMITTED TO VILLAGE'S STREET DEPARTMENT FOR REVIEW AND APPROVAL. THE CUT SHEETS SHALL INCLUDE BUT ARE NOT LIMITED TO POLES, LUMINAIRES, BASES, FOUNDATIONS, WIRING, CUT OFF ENCLOSURES, CONTROL CABINETS, FUSING PHOTO-ELECTRIC SENSOR, ETC.

1A. THE CONTRACTOR SHALL INSTALL THE PROPOSED ROADWAY LIGHTING IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE "IDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION" LATEST EDITION. THESE DRAWINGS AND SPECIFICATIONS ARE NOT INTENDED TO SHOW ALL DETAILS OF WORK TO BE PERFORMED OR EQUIPMENT TO BE SUPPLIED. THE INTENT OF THE CONTRACT DRAWINGS AND SPECIFICATIONS IS TO ILLUSTRATE THE CONCEPTUAL DESIGN AND LAYOUT. THE CONTRACTOR SHALL BE KNOWLEDGEABLE AND REGULARLY ENGAGED IN THE TYPE OF WORK DESCRIBED BY THESE CONTRACT DRAWINGS AND SPECIFICATIONS AND SHALL BE RESPONSIBLE FOR UNDERSTANDING THEIR INTENT. ANY WORK TO BE PERFORMED OR ITEM OF EQUIPMENT TO BE SUPPLIED WHICH IS NOT SPECIFICALLY CALLED FOR BY THESE CONTRACT DRAWINGS AND SPECIFICATIONS BUT WHICH IS NECESSARY TO PROVIDE A COMPLETE AND SUCCESSFUL WORKING SYSTEM SHALL BE INCLUDED IN THE CONTRACTOR'S SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.

2. CAST A GROUND ROD $\frac{5}{8}$" IN DIAMETER BY 10 FEET IN EVERY CONCRETE POLE FOUNDATION AND CONNECT TO THE POLE GROUNDING LUG VIA A #6 SOLID COPPER WIRE WITH A MECHANICAL CONNECTION AT THE GROUND ROD. SEE CONCRETE FOUNDATION DETAIL.

3. LOCATION AND ORIENTATION OF THE LIGHTING CONTROLLER SHALL BE VERIFIED IN THE FIELD BY THE STREET DEPARTMENT BEFORE FOUNDATION IS EXCAVATED.

4. ALL LIGHT LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE STREET DEPT. BEFORE BEING AUGERED. FOR CONCRETE FOUNDATIONS, THE EXCAVATION SHALL BE MADE WITH AN AUGER 24" IN DIAMETER.

5. LUMINAIRES SHALL HAVE A TIGHT FIT ON LIGHT POLES TO THE VILLAGE'S SATISFACTION. THIS WORK SHALL INCLUDE FIELD ADJUSTING OF THE LUMINAIRE WHICH WILL BE INCIDENTAL TO THE LUMINAIRE PAY ITEM.

6. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A PERMIT FROM THE VILLAGE BEFORE THE START OF WORK.

7. ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE AND ANY APPLICABLE CODES.

8. CONTRACTOR TO VERIFY LOCATION OF ALL UNDERGROUND UTILITIES BEFORE TRENCHING OR AUGERING.

9. BEFORE INSTALLING LIGHT STANDARDS NEAR OVERHEAD UTILITIES CALL COM ED FOR LOCATION APPROVAL.

10. FOR LOCATION OF EXISTING UNDERGROUND ELECTRICAL CABLE CALL COM ED AND VILLAGE (STREET LIGHTING).

11. NO MATERIALS SHALL BE DELIVERED TO THE JOB SITE UNTIL ALL PERTINENT EQUIPMENT SUBMITTALS HAVE BEEN APPROVED BY THE VILLAGE.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ALL DISTURBED AREAS WITHIN THE PROJECT LIMITS INCLUDING ALL ABOVE AND BELOW GRADE APPURTENANCES.THE CONTRACTOR SHALL REPAIR ALL DAMAGE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

13. THE CABLE TRENCH SHALL BE BACKFILLED AND FIRMLY COMPACTED BEFORE THE LIGHT STANDARD IS ERECTED.

14. THE ANCHOR BOLTS SHALL BE PROPERLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED IN THE FORMS.

15. THE ELECTRICAL CONTRACTOR SHALL FURNISH TWO SETS OF RECORD DRAWINGS TO THE ENGINEER UPON COMPLETION OF THE STREET LIGHTING. THE DRAWINGS SHALL SHOW THE LOCATION OF ALL STREET LIGHTING RELATED STRUCTURES ALONG THE STREET RELATIVE TO PROPERTY CROSSINGS AND ALSO THE LOCATION OF ALL UNDERGROUND WIRING.

VILLAGE OF NEW LENOX
STANDARD DETAIL
FOR STREET
LIGHTING NOTES

REV:	1
DATE:	AUGUST 2014
FILE:	TRANS\SLIGHTNOTES